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Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts

by
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Declaration

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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Abstract

Background: The exponential ageing of the world population and corresponding care needs indicate a need to plan for the long-term care of older people. With residents in long-term care facilities (LTCFs) having higher acuity levels, the health workforce must comprise adequate and suitable staff appropriately allocated to meet residents' needs despite scarce resources. However, LTCFs find it difficult to maintain adequate staffing levels and provide a skill mix to ensure quality resident care while staying within the framework of the nurses' scope of practice and caregivers' scope of work. This study focused on exploring the implementation of nurse and caregiver staffing models in LTCFs. The aim of the study was to develop a framework to inform staffing models for LTCFs in resource-constrained contexts.

Methods: The study was conducted in three phases from a critical realism perspective. Phase 1 included the concurrent completion of a scoping review and holistic multiple-case study. In the scoping review, four databases were searched using specific search terms, and the final sample comprised 20 studies. The holistic multiple-case study included a document review and interviews in one state-subsidised and one private for-profit LTCF in the Cape Metropole, South Africa. Purposive sampling was employed to select 45 documents for review and nineteen participants for semi-structured interviews in the two LTCFs. All the data was analysed through an inductive thematic analysis process. The scoping review and holistic multiple-case study findings were triangulated in Phase 2. In Phase 3, the triangulated data were used to develop a framework to inform staffing models for LTCFs in resource-limited contexts. Seven experts were purposefully selected, and they validated the framework.

Findings: More caregivers and fewer nurses were employed in the LTCFs. This led to fewer qualified nurses in the skill mix and shifting tasks to less qualified nurse categories and caregivers beyond their scope of practice and work scope. Consequently, caregivers provided most of the resident care, overburdening ths category. Staff allocation practices did not consider residents' acuity levels. Thus, residents received the same basic care regardless of needing more skilled care. Managers, nurses, and caregivers seemed oblivious to the legal implications of working beyond a designated scope of practice or job scope or of failing to meet legal staffing requirements. Additional barriers to implementing a staffing model that influenced the nurses' and caregivers' wellbeing were overly harsh disciplinary measures, a lack of management support, managers' verbal communication which suggested bullying, and the absence of staff meetings and in-service training.

Conclusion: The LTCFs implemented aspects of the prescribed staffing model by seemingly using a low-cost one. By over-employing caregivers but fewer nurses, vulnerable older persons were often deprived of care provided by more qualified staff and potentially higher-quality care than they were entitled to. This

framework provides a roadmap for role players in LTCFs to ensure adherence to legal requirements, balance cost-effectiveness with quality resident care, and facilitate staff wellbeing.

Keywords: Acuity, long-term care, skill mix, staff allocation, staffing levels

Opsomming

Agtergrond: Die vinnige toename in die veroudering van die wêreldpopulasie en ooreenkomstige versorgingsbenodigdhede dui op 'n behoefte om vir die langtermynversorging van ouer mense te beplan. Met inwoners in langtermynsorgfasiliteite wat hoër akuutheidsvlakke het, moet die gesondheidswerkmag uit voldoende en geskikte personeel bestaan wat toepaslik toegewys word ten spyte van skaars hulpbronne om in die inwoners se behoeftes te voorsien. Langtermynsorgfasiliteite vind dit moeilik weens personeeltekorte om voldoende personeelgetalle te handhaaf en 'n vaardigheidsmengsel te verskaf om kwaliteit inwonersorg te verseker terwyl hulle binne die raamwerk van die verpleegsters se praktykomvang en versorgers se werkomvang bly. Hierdie studie het gefokus daarop om die implementering van verpleegster- en versorgerspersoneelmodelle in langtermynsorgfasiliteite te verken. Die doelwit was om 'n raamwerk te ontwikkel om personeelmodelle vir langtermynsorgfasiliteite in hulpbronbeperkte kontekste in te lig.

Metodes: Die studie is vanuit 'n kritiese realisme-perspektief uitgevoer en het uit drie fases bestaan. Fase 1 het die gelyktydige uitvoering van 'n literatuuromvangsoorsig en meervoudige gevallestudie ingesluit. In die literatuuromvangsoorsig is spesifieke soekterme gebruik om vier databasisse te deursoek, en die finale steekproef het uit 20 studies bestaan. Die meervoudige gevallestudie het 'n dokumentoorsig en onderhoude in een staatsgesubsidieerde en een privaat langtermynsorgfasiliteit met ‘n winsoogmerk in die Kaapse Metropool, Suid-Afrika, ingesluit. Doelgerigte steekproefneming is gebruik om 45 dokumente vir hersiening en negentien deelnemers vir semi-gestruktureerde onderhoude in die twee langtermynsorgfasiliteite te kies. Al die data is deur middel van 'n induktiewe tematiese ontledingsproses ontleed. Die bevindinge wat verkry is uit die literatuuromvangsoorsig en meervoudige gevallestudie is in Fase 2 getrianguleer. In Fase 3 is die getrianguleerde data gebruik om 'n raamwerk te ontwikkel om personeelmodelle vir langtermynsorgfasiliteite in hulpbronbeperkte kontekste uit te lig. Sewe kundiges is doelgerig gekies en het die raamwerk bekragtig.

Bevindinge: Meer versorgers en minder verpleegkundiges is in die langtermynsorgfasiliteite in diens geneem. Dit het daartoe gelei dat minder gekwalifiseerde verpleegkundiges in die vaardigheidsverskeidenheid beskikbaar was en take na minder gekwalifiseerde verpleegsterskategorieë en versorgers buite hul praktyk- en werkomvang verskuif was. Gevolglik het versorgers die meeste van die inwonersorg verskaf, wat die versorgers oorlaai het. Personeeltoewysingspraktyke het nie inwoners se akuutheidsvlakke in ag geneem nie. Inwoners het dus dieselfde basiese sorg ontvang, ongeag of hulle meer vaardige sorg nodig gehad het. Bestuurders, verpleegsters en versorgers was skynbaar onbewus van die wetlike implikasies daarvan om buite 'n aangewese praktykomvang of werksomvang te werk of om nie aan die wetlike personeelvereistes te

voldoen nie. Bykomende struikelblokke in die implementering van 'n personeelmodel wat die welstand van verpleegsters en versorgers beïnvloed het, was dissiplinêre maatreëls wat te streng was, 'n gebrek aan bestuursondersteuning, bestuurders se verbale kommunikasie wat boelie-gedrag aangewys het, en die afwesigheid van personeelvergaderings en indiensopleiding.

Gevolgtrekking: Die langtermynsorgfasiliteite het aspekte van die voorgeskrewe personeelmodel geïmplementeer deur oënskynlik 'n laekoste-personeelmodel te gebruik. Deur meer versorgers maar minder verpleegsters in diens te neem, was kwesbare ouer persone dikwels ontneem van sorg vanaf meer gekwalifiseerde personeel en dus potensieel hoër gehalte sorg as wat hulle ontvang het en op geregtig was. Hierdie raamwerk verskaf 'n padkaart vir rolspelers in langtermynsorgfasiliteite om nakoming van wetlike vereistes te verseker, koste-effektiwiteit met kwaliteit inwonersorg te balanseer en personeelwelstand te bevorder.

Sleutelwoorde: Akuutheidsvlak, langtermynsorg, vaardigheidsverskeidenheid, personeeltoewysing, personeelgetalle

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"We do not know a truth without knowing its cause" - Aristotle.

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Abbreviations

ADL	Activities of Daily Living
AGM	Annual General Meeting
CEO	Chief executive officer
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CNA	Certified nurse assistants
EN	Staff nurse / enrolled nurse
ENA	Auxiliary nurse / enrolled nursing assistant
HPRD	Hours per resident day
HREC	Health Research Ethics Committee
LPN	Licensed practical nurses
LTCF	Long-term care facilities
LVN	Licensed vocational nurse
NA	Nurse assistants
NQF	National Qualification Framework
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QOL	Quality of life
RNs	Registered nurses
SANC	South African Nursing Council
WCG	Western Cape Government

Definitions

Acuity refers to residents' physical and mental status and the severity of their illness (Brennan & Daly, 2009:1114–1126).

Auxiliary nurse / enrolled nursing assistant (ENA) refers to a person who is qualified to practice elementary nursing under the supervision of the RN in the Nursing Act 33 of 2005 (Republic of South Africa, 2005:25). However, the ENAs received a new scope of practice which was promulgated on 3 July 2022 (Republic of South Africa, 2022), which allows the ENAs to provide basic nursing care. These terms (auxiliary nurses and enrolled nursing assistant) relate to ancillary nurses with one year of training and apply to the South African nursing context. *In this study, auxiliary nurses/enrolled nursing assistants will be referred to as ENAs.* A difference exists between the terminology for the South African enrolled nurse assistant (enrolled as a nurse by the South African Nursing Council) (Republic of South Africa, 2005:25; Republic of South Africa, 2022) and the international term "certified nurse assistant (CNA)", which refers to unlicensed staff who appear similar to South African caregivers. An exception is the South Korean CNAs, who have a comparable scope of practice as licensed practical nurses internationally. Licensed practical nurses appear similar to South African enrolled nurses (refer to the definition of Staff nurse/Enrolled nurse).

Caregivers could include anyone performing caregiving tasks (Republic of South Africa, 2006:6) who works in the formal sector but is not a qualified nurse (Dyer, Valeri, Arora, Winsall, Tilden *et al*., 2019:11). Internationally, caregivers are certified but are referred to as unlicensed staff. In contrast, South African caregivers are called "caregivers" or "carers". Although formal accredited training courses for caregivers are not yet mandatory in South Africa, courses are available as an accredited unit standard named "Provide care to a frail person", which construes 120 hours, consisting of twelve credits at a National Qualification Framework (NQF) level 1 or longer home-based care courses focused on community care at NQF levels 1, 2, or 3 (South African Qualifications Authority, 2022). Caregivers are not recognised as nurses by the SANC and do not have a scope of practice (Republic of South Africa, 2022).

Older persons in South Africa are men 65 years or older and women 60 years or older. An older person is **frail** if they need 24-hour care based on their mental or physical needs (Republic of South Africa, 2006:6).

Quality of care is the extent to which health services improve health outcomes for patients and populations and where these outcomes are also consistent with current professional knowledge (World Health Organisation, 2009:24).

Registered nurses (RNs) are registered under section 31 of the Nursing Act 33 of 2005 (Republic of South Africa, 2005:25). They are qualified, competent, responsible, and accountable for their practice. In the new

South African scope of practice, professional nurses provide comprehensive nursing, and general nurses provide general nursing care (Republic of South Africa, 2022). Internationally, the term RN is seemingly the same as South African RNs, with RNs being diploma-qualified or having bachelor's degrees and being registered (in South Africa) or licensed (internationally) by nursing regulatory authorities.

Resource-constrained contexts refer to environments lacking social, financial, and human resources or having limited infrastructure access. **Resource-rich contexts** refer to environments with adequate social, economic, and human resources or have access to sufficient infrastructure. South Africa has been deemed a resource-constrained country in Sub-Saharan Africa (World Bank, 2022). Due to wealth inequality within South Africa, as portrayed on the one side by an upper-middle-income per capita and on the lower-income side, with an unemployment rate of 34.4% in 2021 and a poverty rate of 55.5% (World Bank, 2022), LTCFs may be situated in either a resource-constrained or resource-rich context in this study. This study included a state-subsidised and private for-profit LTCF, as private for-profit LTCFs are not necessarily resource-rich, as they may also experience a lack of nurse resources.

Skill mix refers to staff with diverse skills, qualifications, experience, expertise and scope of practice (Backhaus, Verbeek, Van Rossum, Capezuti & Hamers, 2014:383–393). *The concept skill mix will be operationalised for this study and will relate to RNs, ENs, ENAs, and caregivers.*

Staff allocation involves allocating different categories of nurses and caregivers to the residents aligned with their acuity levels (Butler, Schultz, Halligan, Sheridan & Kinsman *et al.*, 2019:9).

Staff nurse / enrolled nurse (EN): In the Nursing Act 33 of 2005 (Republic of South Africa, 2005:25), a staff nurse or enrolled nurse (EN) refers to a person who is qualified to practice basic nursing under the supervision of an RN. South African enrolled nurses previously received two years of training, but this is a legacy qualification being phased out. This nurse category continues to practice basic nursing under the RN and general nurse under an older scope of practice (Republic of South Africa, 2022; South African Nursing Council, 1984). *In this study, staff nurses/enrolled nurses will be referred to as ENs.*

Staffing levels refer to staff quantities, i.e., the number of staff (all categories of nurses and caregivers) available to provide care to residents (Butler *et al*., 2019:9).

Staffing models refer to staff plans that establish the optimum allocation of human resources to meet the needs of residents (Butler *et al.,* 2019:9). *In this study, the staffing model will include South African RNs, ENs, ENAs, and caregivers and their international equivalents, such as RNs, LPNs, CNAs, or NAs.*

CHAPTER 1
FOUNDATION OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND

South Africa's National Department of Social Development published a staffing model for long-term care facilities (LTCFs) in 2010 to ensure that there was adequate staff to provide 24-hour care to residents in LTCFs (Republic of South Africa, 2010a:64). The South African staffing model for LTCFs contains the staffing levels and the skill mix of staff based on the acuity of residents in LTCFs, i.e., the resident's physical and mental status and the severity of their illness (Brennan & Daly, 2009:1114–1126).

To determine residents' acuity levels, their physical and mental functioning, medical needs, and the complexity of their health conditions are assessed (Barber, van Gool, Wise, Woods & Or *et al*., 2021:19). Based on the acuity assessments, South African LTCFs classify residents into three categories to indicate the level of care they require. Category 1 residents are independent and do not need help with activities of daily living (Republic of South Africa, 2010a:64). Activities of daily living include eating, bathing, hygiene, toilet needs, and mobility (Hamel, Garritty, Hersi, Butler & Esmaeilisaraji *et al*., 2021; Mlinac & Feng, 2016:506–516). In contrast, Category 2 residents need assistance with activities of daily living (assisted living). Category 3 residents are deemed frail and dependent, thus requiring 24-hour care due to a physical or mental condition which renders them incapable of caring for themselves (Republic of South Africa, 2006:6).

The South African staffing model for LTCFs mandates the following minimum hours of care: Category 1: no staff assistance, Category 2: 9 hours of care per week, and Category 3: 18 hours of care per week (Republic of South Africa, 2010a:64). Provision in the staffing model is made for 18 hours of care per week for Category 3 residents, despite being frail and dependent and requiring 24-hour care in terms of the Older Persons Act 13 of 2006 (Republic of South Africa, 2006:6; 2010a:64). The hours of care that residents need per week are expressed as hours per resident day (HPRD) (Harrington, Dellefield, Halifax, Fleming & Bakerjian, 2020:1–14). Therefore, the minimum HPRD in South Africa is as follows: Category 1: 0 HPRD, Category 2: 1.28 HPRD and Category 3: 2.57 HPRD. Based on the HPRD needed, the LTCFs determine the staff totals (Republic of South Africa, 2010a:64).

In addition to having enough staff based on the acuity levels of residents, the skill mix for frail residents prescribed in the staffing model for LTCFs is a minimum of 66.7% nurses and 33.3% caregivers (ancillary staff whose training does not allow registration as a nurse in South Africa). For clarity, the terms caregiver and home-based carer are used interchangeably in South Africa. However, a caregiver provides services to the elderly in an LTCF. In contrast, a home-based carer refers to a caregiver delivering services to the elderly where they reside, e.g., in the older person's home (Republic of South Africa, 2006:6). The skill mix is

calculated as follows for frail residents: a minimum of 33% registered nurses (RNs), of whom 50% may be replaced with enrolled nurses (ENs), thus 16.5% RNs and 16.5% ENs. The remaining 66% of the staff may be enrolled nursing assistants (ENAs), of whom 50% may be replaced by caregivers, resulting in 33% ENAs and 33% caregivers (Republic of South Africa, 2010a:64). According to the literature, the prescribed skill mix in the South African staffing model ensures a diversity of skills, scope of practices, and expertise (Backhaus *et al*., 2014:383–393; Havaei, Dahinten & MacPhee, 2019).

As an auditor of LTCFs in the Western Cape province, the researcher noticed inconsistencies between the mandatory South African staffing model for LTCFs and the implementation thereof in private and state-subsidised LTCFs (generally referred to as 'funded' facilities). The staffing trend showed a decrease in RNs to below 10% and an increase in caregivers between 60% and 80% in the LTCFs. The chief executive officers (CEOs) of the private for-profit and state-subsidised LTCFs reason that the use of RNs is limited due to budgetary constraints, the subsequent pressure to contain costs and the physical shortage of RNs. Accordingly, these issues lead to the limited use of RNs, the increased use of caregivers, and more affordable labour. The labour costs associated with staff appointments apply to private for-profit and state-subsidised LTCFs in South Africa. Labour costs indicate that it is cheaper to employ caregivers than RNs. At the time of writing, the average salary of RNs in South Africa was approximately R260 930 per year, compared to a caregiver's average wage of R27,58 per hour, thus about R58 248,96 per year when working an average of 176 hours per month (Labour Guide, 2024; Payscale, 2024).

Although the labour costs associated with staff appointments apply to private for-profit and state-subsidised LTCFs, there is a difference in income between the private for-profit and state-subsidised LTCFs in South Africa. The private for-profit LTCFs receive revenue by charging the elderly for services as much as R30 000 to R40 000 per month (The Association for the Aged, 2024). In contrast to the private for-profit LTCFs, state-subsidised LTCFs derive their income from, among other sources, residents' old age grants (state pensions) of between R2 090 and R2 110 per month (Republic of South Africa, 2024). Family members are approached to pay the difference when residents do not qualify for an old age grant or subsequent state subsidy and receive an insufficient private pension to pay the minimum rates of a state-subsidised LTCF. The monthly fee in a state-subsidised LTCF is approximately R8 000 to R12 000 monthly.

The South African Nursing Council (SANC) has released statistics showing that South Africa has 154,024 RNs, 61,729 ENs, and 65,179 ENAs in 2021. This number of nurse categories resulted in one RN per 387, one EN per 977, and one ENA per 915 of the population in 2021 (South African Nursing Council, 2021a). Authors ascribe the shortage of nurses, especially the RN and EN deficit in South Africa, to policy and legislative changes over the last 20 years. Various policy and legislative changes occurred to address the higher demand for more nurses due to the burden of diseases such as HIV/Aids (Armstrong, Geyer & Bell, 2019:92–101).

South African nursing education was restructured, phasing out legacy and implementing nursing qualifications that aligned better with the Higher Education Qualifications Sub-Framework. A legacy qualification being phased out is the ENs as a nurse category, which will further increase the EN deficit (South African Nursing Council, 2016). This restructuring also led to smaller private education institutions not meeting the Higher Education Qualifications Sub-Framework criteria and their subsequent closure. Consequently, the failure of nursing education institutions (NEIs) to respond adequately to the demand led to a shortfall in training nurses (Armstrong, Geyer & Bell, 2019:92–101). There exists a shortage of health workers worldwide. Half of this shortage is due to too few RNs and midwives, especially in Africa and Southeast Asia (World Health Organisation, 2022a). Compared to other Sub-Saharan African countries, South Africa is in a more favourable position, with 49.74 nursing and midwifery personnel per 10,000 population. At the same time, Botswana has 54.57 and Ghana 36.2 nursing and midwifery personnel per 10,000 population. Kenya displays the most significant deficit, with only 11.66 nursing and midwifery personnel per 10,000 population. At the same time, more wealthy countries show more than triple and even more than five times the number of nurses in the population, with the United States showing 156.9 and Finland at 223.1 nursing and midwifery personnel per 10,000 population (World Health Organisation, 2022b).

Despite resource constraints, LTCFs must consider the extent of the nurses' scope of practice as determined by the SANC and in the absence of legislation regulating caregivers. The SANC is the statutory professional council that mandates the nurses' scope of practice (what nursing tasks are legally permissible per nursing category) (Republic of South Africa, 2022; South African Nursing Council, 1984). RNs are qualified and competent to perform comprehensive or general nursing. They are responsible and accountable for their practice. The ENs are qualified to practice basic nursing under the supervision of an RN. In contrast, the older scope of practice of the ENAs stated that they could practice elementary nursing under the supervision of the RN (South African Nursing Council, 1984). However, the new scope of practice allows the ENAs to provide basic nursing care (Republic of South Africa, 2022). All the nurse categories are registered under section 31 of the Nursing Act 33 of 2005 (Republic of South Africa, 2005:25).

In contrast, caregivers include anyone performing caregiving tasks (Republic of South Africa, 2006:6), who works in the formal sector but does not have any accredited nursing qualification (Dyer *et al*., 2019). Caregivers are subsequently not regulated by legislation. Using more caregivers and fewer RNs could lead to greater responsibilities being assigned to caregivers, including nursing tasks such as complicated wound care, blood glucose testing, medication administration, and administering insulin to residents. Assigning nursing tasks to caregivers raises care quality concerns since using less-qualified staff can delay the detection of residents' health problems, thus decreasing the residents' quality of life (Koopmans, Damen & Wagner, 2018:988).

Differences exist between the staffing models for LTCFs in South Africa, other Sub-Saharan countries, and Westernised countries. While the South African staffing model for LTCFs prescribes both the minimum staffing levels and skill mix, legislation regulating services for older persons in Zimbabwe and Tanzania is minimal and completely absent in Ghana (Van Eeuwijk, 2014:29–52; Dyer *et al*., 2019:32). Australia's Federal Government does not determine minimum standards for staff levels, skill mix, or qualifications of staff in LTCFs, but demand that the LTCFs ensure that the staff are sufficient, qualified, and skilled (Barber *et al*., 2021:87; Dyer *et al.*, 2019:20).

In contrast, the United States, Canada, and Germany have staffing models with higher requirements than South Africa. For example, the HPRD for frail residents is between 3.53 and 3.89 in the United States (Harrington *et al*., 2020:1–14), 4.1 HPRD in Canada (Canadian Occupational Safety, 2020), and more than 4 HPRD in Germany (Brühl, Planer & Hagel, 2018:1–9), compared to 2.57 HRPD in South Africa (Republic of South Africa, 2010a:64).

The long-term context: International terminology for LTCFs ranges from nursing homes and residential aged care facilities in Australia (Australian Government, 2021), nursing homes or residential care homes in Canada (Canadian Institute for Health Information, 2021), 'elderly care homes' in Uganda (Mawanda, 2022), while the United States refers to 'skilled nursing facilities' (Yurofsky & Ouslander, 2021). South African LTCFs for older persons provide 24-hour services and accommodation to frail older people if they need care based on their mental or physical needs (Republic of South Africa, 2006:6).

This study refers to nurse and caregiver staffing in resource-constrained and resource-rich contexts. Resource-constrained contexts include environments lacking economic, social, and human resources or infrastructures versus a resource-rich context with access to sufficient economic, social, and human resources or infrastructures (IGI Global, 2022). South Africa is deemed a resource-constrained country in Sub-Saharan Africa (World Bank, 2022). Despite this classification, South Africa is considered an upper to middle-income country with a gross national income per capita of between US$ 4,046 and US$ 12,535. South Africa is one of the countries worldwide with large inequalities between the wealthy and the poor, with an unemployment rate of 34.4% and a poverty rate of 55.5% in 2021 (World Bank, 2022). As discussed, and irrespective of resource-constrained or resource-rich contexts, the same staffing legislation and labour costs apply to private for-profit and state-subsidised LTCFs in South Africa.

Nurses and caregivers in the LTCFs: Internationally, the terminology for nurses varies from RNs, licensed or registered practical nurses, advanced practice nurses, and nurse assistants (Havaei, Dahinten & MacPhee, 2019; World Health Organisation, 2020:108). According to a study conducted by the National Council of State Boards of Nursing, a non-profit organisation in the United States, most countries have governing bodies that

regulate the scope of practice for nurses within their jurisdictions (National Council of State Boards of Nursing, 2020:1–116). The scope of practice refers to the procedures and tasks that a nurse is qualified and authorised to perform based on their level of training. Many countries, including Canada, the United States, Mexico, the Caribbean, Nordic countries, Western and Central European nations, Eastern and Middle Eastern nations, African countries, Asia, India, China, and Australia, have such regulatory bodies. The scope of practice for nurses may vary between these countries (National Council of State Boards of Nursing, 2020:1–116). In the United States, for instance, the Nursing Practice Act dictates the laws applicable to nurses' practice, while each state has a nursing board that outlines the specific scope of practice for nurses within that state (Huynh & Haddad, 2022).

Until 2 June 2022, the South African nurse categories included RNs performing comprehensive nursing independently, staff nurses (enrolled nurses or ENs) practising basic nursing, and auxiliary nurses (enrolled nursing assistants or ENAs) providing elementary care (Republic of South Africa, 2005:25). All three nurse categories in South Africa are registered under section 31 of the South African Nursing Act 33 of 2005 (2005:5,6,25). A new scope of practice for nurses was published on 3 June 2022 in South Africa, and the nomenclature of nurses was changed (Republic of South Africa, 2022). Within the new scope of practice, the nurse categories are professional nurses directing and providing comprehensive nursing care, general nurses providing general nursing care and auxiliary nurses providing basic nursing care as delegated by the professional or general nurse. The EN category is phased out, but the earlier scope of practice still applies to ENs, allowing them to practice basic nursing under the RN and general nurse (Republic of South Africa, 2022; South African Nursing Council, 1984). In this study, professional nurses will be referred to as RNs, staff nurses, or enrolled nurses as ENs, and auxiliary nurses or nursing assistants as ENAs. The recently added new category of general nurses will be referred to as such, i.e. ‘general nurses’ (Republic of South Africa, 2022).

Besides the nurses, caregivers also provide care to residents in the LTCFs. Internationally, prerequisites for caregiver training appear to be diverse, with no mandatory training required in Romania and the United Kingdom. At the same time, Australia and Ontario province in Canada require six months up to one year of compulsory training and certification, while Sweden provides caregivers with the option of a three-year programme (OECD, 2020). Formal qualifications for caregivers are not mandatory in South Africa. However, training courses for caregivers are available as an accredited unit standard named ’Provide care to a frail person’, which construes 120 hours, consisting of twelve credits at a National Qualification Framework (NQF) level 1 or longer home-based care courses focused on community care at NQF levels 1, 2, or 3 (South African Qualifications Authority, 2022).

Nurse and caregiver staffing levels in LTCFs: Staffing levels comprise staff quantities or staff-to-resident ratios, meaning the number of staff (including all nurse categories and caregivers) available to provide care

to residents. In the Western Cape province, the researcher observed that the staffing levels were reached by increasing caregivers' employment and underemployment of nurses (RNs, ENs and ENAs). This is despite international evidence which shows that higher nurse staffing levels could be linked to an overall improvement in residents' activities of daily living, with reduced hospitalisation rates (Harrington *et al*., 2020:1–14), fewer adverse events, and fewer deaths of residents (Griffiths, Recio-Saucedo, Dall'Ora, Briggs & Maruotti *et al*., 2018:1474–1487). In contrast to high nurse staffing levels, inadequate nurse staffing levels have the opposite effect on residents' care and have consequences for the nurses. Low nurse staffing levels lead to increased workloads for the nurses in the staff mix, causing failure to provide adequate quality care on time to residents. Low nurse staffing levels may also lead to lower safety standards, less involvement in the psychosocial programmes presented to the residents and their families, and less emotional support for the residents and their families. This can lead to burnout and job dissatisfaction among nurses (Al-Jumaili & Doucette, 2018:1420–1427; Griffiths *et al*., 2018:1474–1487).

Skill mix in LTCFs: Besides having enough staff, the increased frailty of residents may also require more skills from the team (Boscart, Sidani, Poss, Davey & Poss *et al*., 2018:750; Koopmans, Damen & Wagner, 2018:988). When reflecting on the LTCFs that over-employed caregivers and employed fewer nurses, especially RNs, these employment practices raised the concern that a skill mix comprising less qualified nurses may be associated with poor resident outcomes such as more resident deaths (Harrington *et al*., 2020:1–14), while higher levels of specifically RNs, results in better pressure sore care and pain management (Castle & Anderson, 2011:545–552).

As discussed, the South African staffing model specifies that the skill mix for frail residents in LTCFs must consist of a minimum of 33% RNs, of whom 50% may be replaced with ENs. The remaining 66% of the staff may be ENAs, of whom 50% may be replaced by caregivers (Republic of South Africa, 2010a:64). Thus, the LTCF's minimum staff component must consist of 66.7% nurses and 33.3% caregivers, allowing for diverse skills, qualifications, and expertise (Backhaus *et al*., 2014:383–393; Havaei, Dahinten & MacPhee, 2019).

When implementing the South African staffing model, LTCFs must ensure that the mix of nursing skills is aligned with each nurse category's scope of practice (Republic of South Africa, 2022; South African Nursing Council, 1984). For example, RNs and general nurses may administer prescribed medication to residents (Republic of South Africa, 2022). In contrast to the RNs and general nurses, the ENs' scope of practice (ENs with legacy qualifications that are being phased out) allows them to practice basic nursing under the supervision of the RN and a general nurse, including observing a resident's reaction to the medication administered (South African Nursing Council, 1984).

The ENAs' new scope of practice permits them to provide basic nursing care to residents under the supervision of RNs and general nurses without any reference to medication tasks (Republic of South Africa, 2022). As caregivers are not recognised as nurses, they do not have a specified scope of practice in the Nursing Act 33 of 2005 (Republic of South Africa, 2005). However, the onus is on the LTCFs to provide the caregivers with job descriptions (Republic of South Africa, 2015:20). The Western Cape Department of Social Development recommends that each caregiver works with a nurse and that caregivers' tasks should include assistance with bathing, feeding, and turning bedridden residents (Republic of South Africa, 2015:19).

Nurse and caregiver staff allocation in LTCFs: In addition to employing enough staff (staffing levels) and staff with diverse skills, qualifications, expertise, and experience (skill mix), the LTCFs must organise, distribute, and allocate the staff aligned with the residents' acuity (Beckett, Zadvinskis, Dean, Iseler & Powell *et al*., 2021:251–260; Butler *et al*., 2019:9) while also considering the scope of practice per nurse category (what nursing tasks are legally permissible per nursing category). The residents' acuity determines the intensity of nursing care required (Brennan & Daly, 2009:1114–1126; Juvé-Udina, Adamuz, López-Jimenez, Tapia-Pérez & Fabrellas *et al*., 2019:1845–1858). Residents with higher acuity levels may thus require more intensive care by staff with more competencies. Therefore, LTCFs must adapt their staff allocation accordingly to provide for residents' care needs (Harrington *et al*., 2020:1–14).

In the researcher's experience, staff allocation in the LTCFs was not aligned with the residents' acuity, as proposed by Beckett *et al.* (2021:251–260). Caregivers were mainly allocated according to the geographical layout of the LTCFs, such as a caregiver for "rooms one to six" or "corridor B", thus only considering the staffing levels but not the residents' acuity. In contrast to the allocation of caregivers, the nurses were mainly allocated to complete specific nursing tasks. Nursing tasks include, for example, medication administration, wound care, and monitoring residents' vital signs. Again, the acuity of residents was not considered when assigning tasks to the nurses.

Besides disregarding residents' acuity levels, nursing tasks were assigned to less-qualified nurses, which were not aligned with their scope of practice. The researcher observed that ENAs and ENs administered medication independently without RNs, including Schedule 5 and 6 medicines. Schedule 5 medicines in South Africa include antidepressants and benzodiazepines, while Schedule 6 medications include morphine syrup and other painkillers. The SANC stipulates that as shift leaders, registered nurses are responsible and accountable for managing scheduled medications. The SANC also clarifies that ENs and ENAs may not keep the keys to the Schedule 5 and 6 medicines cupboard or check and administer Schedule 5 and 6 medicines alone (South African Nursing Council, 2018). According to their scope of practice, ENAs are not authorised to administer medication, whereas ENs can monitor a patient's reaction to the medication (Republic of South Africa, 2022; South African Nursing Council, 1984).

Unfortunately, the task of medication administration is also assigned to caregivers in some of the LTCFs. Some LTCFs allow RNs to decant medication from the original containers into weekly pill dose containers for the caregivers to administer later when an RN is unavailable. The decanting of medicine is not legally permitted in the Western Cape province, and medication administration by caregivers is not legally allowed in South African LTCFs (Republic of South Africa, 2015:15).

Planning staff allocation and adapting such allocation to residents' needs is a complex procedure. Mueller (2000:262–267) posits that contextual factors must be considered to ensure that staff are allocated in alignment with the residents' acuity. First, LTCFs must comply with all the applicable legal directives, such as government acts, regulations, and institutional policies, when planning staff allocation. In the South African LTCF context, aligning the allocation of nurses (RNs, ENs, and ENAs) with each nursing category's scope of practice as prescribed by the SANC is essential (Republic of South Africa, 2022; South African Nursing Council, 1984). Next, employers must consider the caregivers' job descriptions during staff allocation to ensure that caregivers can complete the assigned tasks and comply with legal requirements while performing tasks.

Second, other contextual factors may affect staff planning. For example, the geographical location and the LTCFs' design and layout, such as multilevel LTCFs, may require more staff. Third, staff absenteeism and turnover can compromise the daily distribution of enough staff with the correct skill mix. Therefore, Mueller (2000:262–267) advises nurse managers to follow a dedicated framework to analyse and evaluate residents' staffing needs to efficiently allocate nurse and caregiver resources to provide quality care to residents in LTCFs (Mueller, 2000:262–267).

The international LTCF context: When contemplating nurse and caregiver staffing in LTCFs internationally, the United States reflects a staffing level for frail residents between 3.53 and 3.89 HPRD compared to South Africa's mandatory HPRD of 2.57 for frail residents. Despite this standard of an HPRD of between 3.53 and 3.89 for frail residents in the United States, the HPRD in approximately 25% of this country's nursing homes is considered "dangerously low", thus, less than 3.53 HPRD (Harrington *et al*., 2020:1–14). Canada reflects an HPRD of 4.1 for frail residents (Canadian Occupational Safety, 2020). Still, when considering resident acuity, Canadian LTCFs found it difficult to allocate staff with more competencies in LTCFs since caregivers provide more than 90% of all direct resident care in this country versus nurses providing only 10% of direct resident care (Estabrooks, Straus, Flood, Keefe & Armstrong *et al*., 2020:651–619).

In Germany, residents undergo assessments and are assigned care levels based on acuity. For residents requiring the lowest care, thus level 0, the nurse-to-resident ratio is one nurse (category unspecified) per eight residents. However, 50% of the nurses must be RNs (Brühl, Planer & Hagel, 2018:1–9). Residents at level 1 require 90 minutes of care per day (1.5 HPRD), while level 2 requires 2 HPRD and residents at level 3

require more than 4 HPRD. Still, residents with lower care needs (levels 0 and 1) received less than the minimum standards of care per day (Brühl, Planer & Hagel, 2018:1–9). In contrast to Germany, Japan, the country with the most aged people globally (Sato, Akazawa, Mitadera, Suzuki & Ibe *et al*., 2017:1159–1175; Yamada & Arai, 2020:174–180), shows a considerably lower nurse-to-resident ratio of one nurse to four long-term residents with severe cognitive and physical conditions in LTCFs (Igarashi, Yamamoto-Mitani, Morita, Matsui & Lai *et al*., 2018:655; Morioka, Tomio, Seto & Kobayashi, 2017).

Despite staffing levels of one nurse to four residents in Japan, Sato *et al*. (2017:1159–1175) found that the LTCFs experienced staff shortages. South Korea indicates a much higher nurse-to-resident ratio of one to 25 (Choi, Cho, Kim, Lee & Chang, 2021:1–8; The Royal Commission into Aged Care Quality and Safety, 2020), with 'nurse' referring to either an RN or an assistant nurse (Shin, Renaut, Reiser, Lee & Tang, 2021:402).

Unlike other countries, Australia's Federal Government does not set minimum standards for the staff levels, skill mix, or qualifications of staff providing long-term care to residents. In Australia, residents in LTCFs include older persons with higher care needs and depend on staff for assistance with activities of daily living. The federal government only states that service providers must ensure that staff is 'sufficient, qualified, and skilled' (Barber *et al.*, 2021:87; Dyer *et al*., 2019:20). In contrast to the federal government laws, the Queensland government passed legislation in 2019 to enforce minimum staff hours of 3.65 HPRD in their sixteen government-managed aged care facilities, with a skill mix of 30% RNs, 20% ENs, and 50% ENAs. The legislation does not specify the inclusion of caregivers (Australian Nursing and Midwifery Federation, 2019).

The Sub-Saharan LTCF context: Various difficulties exist in Sub-Saharan Africa, with 36 of the 46 Sub-Saharan African countries earmarked as having critical human health resources deficiencies, such as a shortage and unsatisfactory distribution of health workers (Van Rensburg, 2014:26). Thus, compared to other countries internationally, most countries in Sub-Saharan Africa reflect a dismal picture of formal long-term care for the elderly. In addition, the traditional culture of Black Africans embraces the provision of care within the family context and not in institutionalised circumstances (Dhemba & Dhemba, 2015:1–16). Nevertheless, there is a slow shift towards governmental care in LTCFs due to poverty, a lack of suitable accommodation for the elderly, and an inability of extended families to provide care to their elderly (Madungwe, Mupfumira & Chindedza 2011:1–12).

Despite this shift towards institutionalised care, only a few Sub-Saharan African countries have legislation regulating services for older persons. This includes Nigeria, with the largest elderly population in Sub-Saharan Africa (Saka, Oosthuizen & Nlooto, 2019:91). In contrast with Nigeria, Zimbabwe has legislation regulating services for older persons with a staff component consisting of RNs and caregivers (Madungwe, Mupfumira & Chindedza 2011:1–12). However, due to their traditional cultural background, Black Zimbabweans are less

inclined to seek accommodation in LTCFs than White Zimbabweans (Dhemba & Dhemba, 2015:1–16). Like Zimbabwe, Tanzania also has legislation regulating services for older persons and LTCFs are managed by either the government or faith-based organisations (Van Eeuwijk, 2014:29–52). Kenya had roughly sixteen mostly religion-based LTCFs in 2017 (Dyer *et al*., 2019:33). Some Kenyan LTCFs employ nurses to assist with counselling, and resident nurses provide medical services (National Gender and Equality Commission, 2016:16,17). In contrast, Ghana's formalised care is still limited or unavailable (Dyer *et al*., 2019:32; World Health Organisation, 2017).

The South African LTCF context: Formalised long-term care provision for the elderly is still in its infancy in the rest of Sub-Saharan Africa compared to South Africa, as the latter has a mandatory staffing model for regulating nurse and caregiver staffing in LTCFs. The status of the South African LTCFs was reflected in an audit report compiled by a service provider on behalf of the National Department of Social Development in 2010 (Republic of South Africa, 2010b). Four hundred and five LTCFs were audited countrywide, and inadequate staffing due to financial constraints was a major difficulty identified in this audit. Financial constraints led to insufficient nurse and caregiver staffing levels and an incorrect mix of skills in the LTCFs (Republic of South Africa, 2010b:34). Therefore, staff are often allocated to perform tasks beyond their scope of practice, such as ENAs administering medication (Republic of South Africa, 2022).

Seventy-six per cent of the LTCFs did not have replacement staff for full-time staff on sick leave and when emergencies arose. Moreover, the LTCFs experienced difficulties obtaining appropriate and competent RNs. Due to low salaries and poor working conditions in LTCFs, other health sectors absorb the RNs, and the LTCFs cannot afford to replace the lost skills (Republic of South Africa, 2010b:62).

Against this background, the study explored how and why LTCFs in resource-rich and resource-constrained contexts implement nurse and caregiver staffing models regarding staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. LTCFs in resource-rich and resource-constrained contexts were included in this study since both contexts could provide information to develop a framework to inform staffing models for LTCFs in resource-constrained contexts.

1.2 RESEARCH FRAMEWORK

The study was underpinned by Mueller's "Framework for Nurse Staffing in Long-term Care Facilities" (Mueller, 2000:262–267), displayed inside the triangle in Figure 1.1. Mueller's framework aims to guide nurse administrators in analysing and evaluating residents' staffing needs and allocating corresponding resources to provide quality care to residents in LTCFs. Mueller's framework offers a comprehensive perspective of critical concepts necessary for appropriate care in LTCFs, such as staffing levels, skill mix, and staff allocation

aligned with residents' acuity levels. In addition, Mueller (2000:262–267) suggested that organisational practices such as LTCFs' reporting lines directly influence staffing in the LTCFs and may facilitate human resource planning. However, contextual factors, i.e., indirect factors that can potentially influence staffing, such as job descriptions, policies, availability of relief staff, and turnover, must also be considered when evaluating the staffing needs in LTCFs (represented outside the triangle to the right in Figure 1.1).

In reflecting on philosophical underpinnings, the study was based on critical realism, as viewed by Bhaskar (2008:47). He postulated that truth or knowledge exists on three levels or domains (Bhaskar, 2008:47). The three domains are displayed on the left side in Figure 1.1, where the triangle represents an iceberg. The tip of the iceberg represents the *empirical* domain visible to the observer and is consequently interpretable. At the mid-level left of the triangle in Figure 1.1, the *actual* domain represents the level where activities occur that may or may not be visible to the observer. The last domain, represented by the triangle's base in Figure 1.1, is the *real* domain where activities occur and exist, but are not visible to the observer (Allana & Clark, 2018:1–9; Bhaskar, 2008:47).

In critical realism, epistemology is viewed as the theory of knowledge or how a researcher understands and engages with the nature of knowledge. Since the critical realist strives to provide a causally reliable representation of what is observed, these observations include obtaining knowledge by exploring the empirical evidence, such as LTCFs' duty rosters, to see how they implement a staffing model regarding the number of staff and the mix of skills. The participants' views were also described as they reflected on their experiences of implementing a staffing model. However, the researcher had to explore the relationships between different roleplayers, stakeholders, and underlying mechanisms to understand how the LTCFs implement a staffing model in specific contexts. This deeper exploration helped to obtain a more reliable picture of how and why the LTCFs implemented a staff model in a certain way. Thus, an inquiry attempts to understand the underlying causal mechanisms to explain how things work (Lawani, 2021:320–333).

Bhaskar (2008:29) posited that what one knows is only a part of what one can know; therefore, ontology depends on epistemology. Thus, in the light of critical realism, ontology is viewed as the theory of being-accordingly, an endeavour to explore the real nature of things. This process involved exploring the underlying mechanisms to determine whether implementing a staffing model in a specific context provides certain outcomes. For example, board members had the power to make staffing decisions that needed to be understood to improve the implementation of a staffing model in the LTCFs. Thus, the organisational structures and social relations in the LTCFs had the power to influence the implementation of a staffing model, such as whether the board had profit-driven motives. Therefore, these organisational structures, social relations, and the use of power could have shaped the reality of employing enough caregivers and nurses for the needs of the residents. Thus, the critical realist's ontological stance posits that the world exists

beyond one's ability to observe it. Consequently, the critical realist aims to inquire about the unobservable events in the *real* domain (represented by the triangle's base in Figure 1.1) that cause events in the *actual* domain (middle section of the iceberg in Figure 1.1) and subsequently in the *empirical* domain (iceberg's tip in Figure 1.1). While engaging with the visible reality or empirical data in the empirical domain that can be measured, the critical realist can thus point towards and direct inquiries to the underlying and unobservable facts in the domain of the real (triangle's base in Figure 1.1) (Bhaskar, 2008:47–49; Fletcher, 2017:181–194). In the context of this study, the unobservable social realities were the assumptions that there were complex underlying issues, such as an interplay between prior experiences of nurses and caregivers with staffing models and the LTCFs' human resource practices. Therefore, the different documents, nurse categories, and caregivers provided valuable insight into how and why LTCFs implemented the staffing model and the barriers and facilitators to implementing the staffing model in LTCFs. The concepts of staffing levels, skill mix, and staff allocation aligned with resident acuity, the nurses' scope of practice, and caregivers' job descriptions contained in Mueller's framework and the meta-theory of critical realism were central to the study's objectives and data collection and analysis procedures. A more in-depth discussion of how critical realism was applied in this study is available in Chapter 3, Section 3.3.

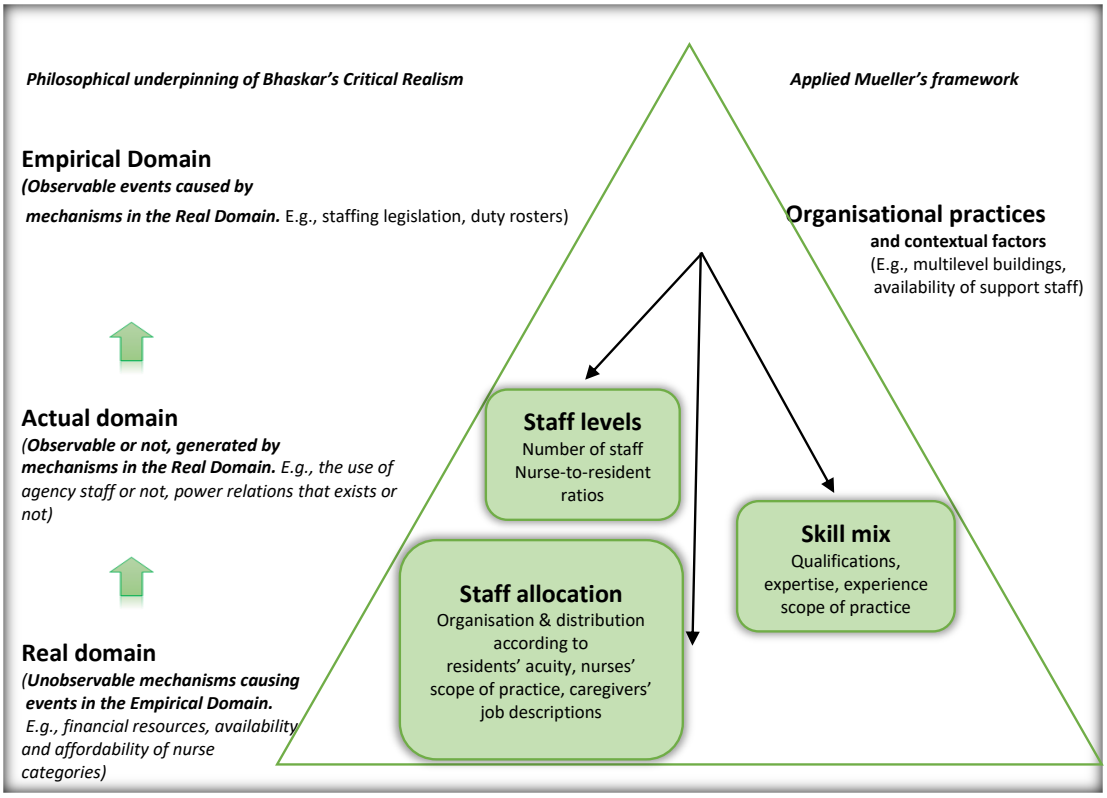

Figure 1.1: Research framework

(Bhaskar, 2008:47; Mueller, 2000:262–267)

1.3 PROBLEM STATEMENT

The literature shows that LTCFs experience staff shortages internationally (Sato *et al*., 2017:1159–1175). The staff shortages lead to lower nurse and caregiver staffing levels and inappropriate staff mixes than the recommended standards for LTCFs, especially the staffing levels for RNs (Brühl, Planer & Hagel, 2018:1–9; Harrington *et al*., 2020:1–14). With insufficient staffing levels and a dilution of the skill mix, LTCFs found it difficult to allocate staff with the necessary competencies to residents with higher acuity levels (Estabrooks *et al*., 2020:651–619). Similarly, despite having mandatory standards for LTCFs, South African LTCFs experience insufficient nurse staffing levels and an incorrect mix of skills (Republic of South Africa, 2010b:34). However, little evidence is available on how staffing models are implemented in LTCFs, particularly in Sub-Saharan Africa. Therefore, this study explored how and why LTCFs implemented nurse and caregiver staffing models in resource-rich and resource-constrained contexts concerning staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. The study findings were used to develop a framework to inform staffing models for LTCFs in resource-constrained contexts, with input from different categories of nurses and caregivers as stakeholders.

1.4 RESEARCH QUESTION

What framework could be developed to inform staffing models for LTCFs for older persons in resource-constrained contexts?

1.5 STUDY AIM

The aim of the study was to develop a framework to inform staffing models for LTCFs for older persons in resource-constrained contexts.

1.6 RESEARCH OBJECTIVES

The objectives of the study were:

1. To describe the distinct characteristics of staffing models for LTCFs in resource-rich and resource-constrained contexts.
2. To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons.
3. To develop and validate a framework to inform staffing models for LTCFs for older persons in resource-constrained contexts.

1.7 METHODOLOGY OVERVIEW

The research plan for this study included two concurrent studies: a scoping review and a holistic multiple-case study. The case study involved multiple data-gathering methods (Grove & Gray, 2019:16), i.e., a qualitative review of documents and in-depth interviews with participants. Data triangulation followed, and after the integration of findings, a framework was developed to inform staffing models for LTCFs in resource-constrained contexts. Experts validated the developed framework, after which it was refined and adapted. Figure 1.2 illustrates the three phases of the study, with a detailed report in Chapter 3.

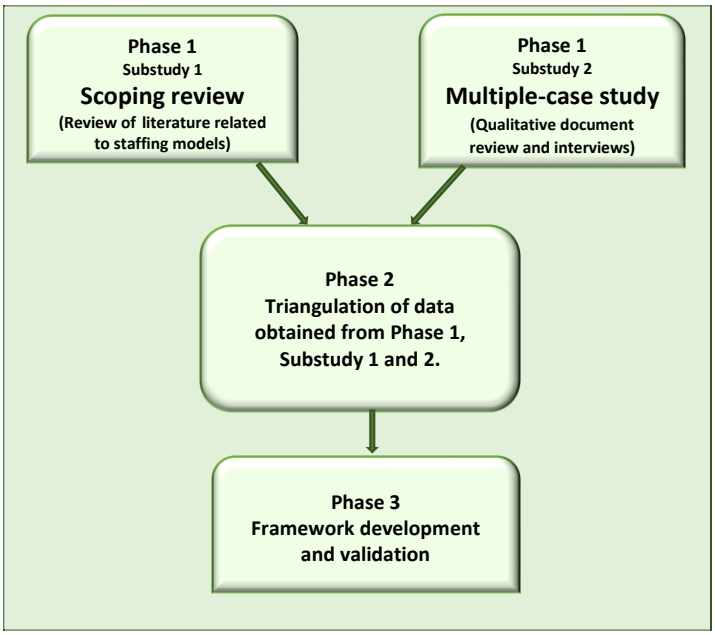

Figure 1.2: Methodological process design

Phase 1 comprised two parallel studies, i.e., a scoping review and a holistic multiple-case study design (Figure 1.2). The studies are referred to as Substudy 1 and 2.

Phase 1, Substudy 1 (Figure 1.2, top left) was a scoping review guided by the following three questions:

- How do LTCFs implement staffing models regarding staffing levels, skill mix, and allocation of tasks?
- Is allocating tasks aligned with the scope of practice of the nurses' categories and the caregivers' job descriptions as described in the relevant country's legislation?
- Is the allocation of staff aligned to the acuity of the individual residents?

The scoping review was conducted according to the Joanna Briggs Institute's methodological framework (Joanna Briggs Institute, 2015). Databases, such as PubMed-Medline, Cochrane Library, CINAHL, and Google Scholar, were searched. Conference papers, dissertations, and theses were searched in ProQuest

Dissertations & Theses Global. Eligible literature included published and grey literature between 2010 and this study's completion. Studies within community settings, foreign languages, and studies with unobtainable full texts were excluded. A data extraction form was developed to chart the data for the study. The review was reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (Lockwood, dos Santos & Pap, 2019:287–294; Tricco, Lillie, Zarin, O'Brien & Colquhoun *et al.*, 2018:467–473).

Phase 1, Substudy 2 (Figure 1.2, top right) entailed a holistic, multiple-case study approach. The rationale for selecting the case study design was its suitability for investigating a contemporary phenomenon in its real-life context (Yin, 2014:38). The case or unit of analysis, i.e., what the researcher was interested in exploring (Yin, 2014:32), was the implementation of a nurse and caregiver staffing model in LTCFs. One state-subsidised and one private for-profit LTCF in the Cape Metropole, South Africa, was selected for variety. The private for-profit LTCF may have more access to resources since an income or profit is generated by commercialising services to older people. In comparison, the state-subsidised LTCF relied on social grants for older people and government subsidies provided to the LTCF (Republic of South Africa, 2024). The assumption was that the state-subsidised LTCF might provide services to the elderly in a more resource-constrained context, whilst the private for-profit LTCF comparably should have had fewer restraints regarding resources.

By selecting one state-subsidised and one private for-profit LTCF, the similarities and differences within each LTCF and between the two LTCFs could be identified to enable literal replication (Yin, 2014:67). Data was collected concurrently from multiple sources in each LTCF via a review of documents and conducting interviews. Collecting comprehensive data from more than one case and numerous participant perspectives provided a 'helicopter view' and, therefore, a holistic insight into the topic under investigation, thus a **holistic** multiple-case study (Yin, 2014:59).

Phase 2 comprised triangulating or merging the data to integrate the findings from the scoping review and the holistic multiple-case study (Figure 1.2-midsection). Data triangulation was completed according to the process described by Venkatesh, Brown, and Sullivan (2016:435-495). Braun and Clarke's (2006:77–101) inductive thematic analysis process was followed to analyse the triangulated data qualitatively.

Phase 3 concerned the development and validation of the framework from the final findings, i.e., the findings after the triangulation or merging of data from the scoping review and holistic multiple-case study. The framework was developed according to the process described by Meleis (2012:381–387). Experts validated the framework during a workshop, and the framework was adapted accordingly.

1.8 ETHICAL CONSIDERATIONS

The study was approved by the Health Research Ethics Committee of Stellenbosch University on 21 November 2022 (S22/10/216, Addendum A). After that, institutional permission was obtained from the facility managers of the private and state-subsidised LTCFs (see Addendums B and C). Each participant provided written consent to participate voluntarily in the study. Anonymity was ensured using codes for the LTCFs and participants instead of their names. A detailed description of the ethical process is provided in Chapter 3.

Role of the researcher as an insider

I acknowledge that I am a researcher-insider (Creswell & Creswell, 2018:259) due to my dual role as a researcher and auditor of LTCFs. I work for a company performing health audits annually or bi-annually at the LTCFs in the Western Cape province. Although every effort was made to ensure objectivity, caution was needed when conducting this qualitative case study as I was closely tied to the participants (Creswell & Creswell, 2018:258). Through work, I became familiar with the research settings, some potential participants, and the LTCFs' compliance with implementing the mandatory staffing model. I have not audited the selected private for-profit LTCF in the last four years. Due to the COVID-19 pandemic, various staff changes occurred, and I was unfamiliar with any current staff.

Conversely, I have done health audits in most state-subsidised LTCFs in the Western Cape province, including a health audit at the selected state-subsidised LTCF for this study in 2020. During the COVID-19 pandemic, I also assisted the state-subsidised LTCFs with implementing COVID-19 guidelines. Thus, engaging with a state-subsidised LTCF in the Western Cape with whom I have yet to have contact as an auditor was impossible. Therefore, some of the nursing staff still remembered me. Staff members known to me who wanted to participate voluntarily were given the option to be interviewed by an independent expert, an option that all declined. Chapter 3 presents a more comprehensive account of how I managed my role as an insider during data collection, addressed other ethical considerations, and ensured trustworthiness.

1.9 DELIMITATIONS

Although the labour costs related to staff appointments and the difference in income between private for-profit and state-subsidised LTCFs in South Africa were acknowledged, the study explicitly focused on improving the implementation of staffing models in resource-constrained contexts rather than identifying any inappropriate implementation of staffing models.

1.10 CHAPTERS OUTLINE

The thesis is organised into eight chapters:

Chapter 1: Foundation of the Study

Chapter 2: Literature Overview

Chapter 3: Research Methodology

Chapter 4: Scoping Review: Results and Discussion

Chapter 5: Document Review: Findings and Discussion

Chapter 6: Interviews: Findings and Discussion

Chapter 7: Triangulation of the Findings and Framework Development

Chapter 8: Framework, Recommendations, and Conclusions

1.11 SIGNIFICANCE OF THE STUDY

Since no previous studies could be found on staffing models in resource-constrained LTCFs in Sub-Saharan Africa, the findings of this study are considered a valuable resource for CEOs and nursing service managers implementing staffing models in resource-constrained contexts, helping them achieve workforce efficiency. Using the framework based on this study's findings, LTCFs can potentially manage service delivery risks, reduce adverse events, and improve resident outcomes. Policymakers, e.g., Social Work Policy Developers from the Western Cape Department of Social Development, may also benefit from this framework, as it may assist them in making informed decisions, thus preventing policy inadequacies by balancing the implications of resident adverse effects with cost-effective staffing despite scarce human resources. Additionally, the insight gained from how LTCFs in a resource-constrained country such as South Africa implement staffing models may be useful to other LTCFs operating in similar contexts.

1.12 SUMMARY

There exists a need to respond and plan for the long-term care of older people. This is caused by the pressure of exponential population ageing and older people's corresponding care needs. The planning includes the provision of a health workforce to ensure adequate and suitable staff who are appropriately distributed to meet the needs of the residents despite scarce nursing resources. A deeper understanding of how LTCFs implement a staffing model, and the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs can facilitate health workforce planning for older persons in the Western Cape province of South Africa. Therefore, a holistic multiple-case study and scoping review were conducted concurrently during Phase 1. Subsequently, in Phase 2, the scoping review and holistic multiple-case study data were triangulated. During Phase 3, a framework was developed and validated based on the final findings triangulated during Phase 2. The next chapter presents an overview of the literature on the implementation of staffing models in LTCFs.

CHAPTER 2
LITERATURE OVERVIEW

2.1 INTRODUCTION

In Chapter 1, an overview of the foundation of the study was provided, including a summary of the applied methodology and the international, Sub-Saharan, and South African LTCF contexts. Chapter 1 also included a preliminary literature review on the topic to create awareness of the existing knowledge and the gaps in the literature on the topic of interest at the time of writing this chapter. However, little evidence is available on how staffing models are implemented in Sub-Saharan African LTCFs. Therefore, the literature reviewed in this chapter focused mainly on the grey literature on the topic. The aim was to produce a comprehensive narrative synthesis of the information available on how and why LTCFs in resource-rich and resource-constrained contexts in Sub-Saharan Africa, and specifically South Africa, implement nurse and caregiver staffing models regarding staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. The literature reviewed in this chapter included an etic perspective or outsider view that was supplemented later after data collection by the emic point of view of the participants (Monteagut, 2017), i.e., the meaning the participants ascribed to their experiences of implementing a staffing model. The literature was reviewed to promote a thorough understanding of the implementation of staffing models in Sub-Saharan LTCFs, specifically South Africa, to provide context in the absence of published studies on the topic. Therefore, in contrast to the literature reviewed in this chapter, the scoping review conducted in Phase 1, Substudy 1, addressed matters not included in this literature review. The scoping review focussed specifically on the available international scientific body of knowledge on how nurse and caregiver staffing models are implemented regarding staffing levels, skill mix, and allocation of tasks, the alignment of allocated tasks with nurses' scopes of practice and caregivers' job descriptions according to the relevant country's legislation, and whether the allocation of nursing and caregiver staff aligned with the acuity of the individual residents.

2.2 ELECTING AND REVIEWING THE LITERATURE

Electronic databases were used to collect background information to provide context on staffing models in LTCFs. The electronic databases included PubMed-Medline, CINAHL, Statistics South Africa, SAGE Journals Online, Wiley Online Library and Google Scholar. Medical Subject Headings (MeSH) terms and keywords such as "long-term," "staffing models," "skill mix," "staffing levels," "staff allocation", "acuity", and "scope of practice" were used singularly and in various combinations. Boolean operators (AND, OR, NOT) were employed as conjunctions to combine or exclude specific keywords in the search process. Grey literature sources, such as national legislation and the Western Cape Government Department of Social Development documents, were perused to gather information regarding LTCFs' staffing needs. The literature review was

focused on English studies published between 2010 and 2024. This period was chosen because the South African staffing model for LTCFs was only published in 2010. However, the literature search continued until the end of the study in 2024.

The review is structured as follows:

- International context
- National context: Legislation and regulations
    - Older Persons Act 13 of 2006
    - Nursing Act 33 of 2005
    - Nursing regulatory structures
    - National norms and standards
- National context: Transition from independence to long-term care
- Demographics: South Africa and the Western Cape province
- Western Cape provincial context: Regulations
    - Health Norms and Standards: Western Cape Government
- Theoretical framework of the study
    - Mueller's framework
- Barriers to implementing staffing models in resource-rich and resource-constrained contexts.

2.3 THE INTERNATIONAL CONTEXT

Differences apparently exist in the LTCFs between international nursing and caregiver staffing standards. Based on the available literature that included the countries' national staffing standards, the following countries show different staffing standards:

Australia: The Australian Federal Government does not set national minimum staffing standards. However, LTCFs must provide sufficient skilled and qualified staff (Barber *et al*., 2021:87; Dyer *et al*., 2019:20). New regulations required the Australian LTCFs to provide 200 minutes of direct care to residents (3.3 HPRD) from 1 October 2023 (Sutton, Nelson, Yang, Rawlings-Way & Brown *et al*., 2022:391–397). The new Australian regulations, which had to be implemented from 1 October 2023, require an RN to provide direct resident care for 40 minutes daily and be on-site for 16 hours daily (Sutton *et al*., 2022:391–397). While Australian residents undergo comprehensive assessments to determine their acuity levels based on their complex care needs and behavioural and cognitive ability (Barber *et al*., 2021:20), no distinction is made regarding the category of care a resident will need, which could affect staff provision in the LTCFs (Barber *et al*., 2021:70.72).

United States: States and territories in the United States have their own Nurse Practice Acts. The Nurse Practice Acts serve as the basis for state-level regulations defining the legal parameters for nurses across the states (Boehning & Haddad, 2022). However, each state has the authority to establish higher staffing standards than the federal requirements (Harrington, Choiniere, Goldman, Jacobsen & Lloyd *et al*., 2012:88–98). The authors of a perspective article examined the United States federal and state nurse staffing requirements to provide guidelines for determining staffing levels (Harrington *et al*., 2020:1–14). The article highlighted that according to federal regulations, a nursing home, unless exempted, must have a full-time director of nursing with an RN on duty for eight consecutive hours per day, seven days a week (Harrington *et al*., 2020:1–14). During the two remaining eight-hour shifts, one RN and one licensed nurse (a nurse with a minimum of one year of training) must be present (Harrington *et al*., 2012:88–98). Harrington *et al.* (2020:1–14) used national payroll-based journal data and found that the United States HPRD ranged between 3.53 and 3.89. The United States resident categories range from high care, thus needing extensive services, to the lowest level of care for diminished physical functioning (Harrington *et al*., 2020:1–14). However, the prescribed staffing standards do not consider adjustments based on resident acuity levels (Harrington *et al*., 2012:88–98).

Canada: Staffing standards in Canadian LTCFs are established by provincial governments. For instance, the New Brunswick provincial government has made it mandatory always to have an RN present and available on-site. Furthermore, there is a requirement for adequately qualified and appropriately trained staff members (New Brunswick, 2023). According to a cross-sectional study conducted in Ontario, Canada, across 11 LTCFs, the average staffing levels in these facilities were 2.55 HPRD (Boscart *et al*., 2018:750). Conversely, another cross-sectional observational study by other authors focused on seven not-for-profit nursing homes in a Canadian Atlantic province. The study's results indicated average staffing levels of 3.1 HPRD. The study also reported a skill mix of 20% RNs, 40% licensed practical nurses, and 40% care aids, thus a skill mix of 60% nurses and 40% care aids (McCloskey, Donovan, Stewart & Donovan, 2015:1475–1483).

England: At the time of writing, England had no mandatory staffing standards in place for nursing homes. The regulatory authority, the Care Quality Commission, requires service providers to provide an adequate number of appropriately qualified, competent, skilled, and experienced staff to meet the needs of the service users (Care Quality Commission, 2022). Therefore, it is up to the service provider to determine what qualifies as a 'sufficient number' of competent, skilled, and experienced staff (Ball & Griffiths, 2022:872–879).

Norway: In Norway, municipalities own most nursing homes, and the responsibility for organising and providing long-term care lies solely at the municipal level. There are no legal mandates regarding staff-to-resident ratios or specifications regarding the qualifications required for care workers (Saunes, Karanikolos & Sagan, 2020:117).

South Korea: South Korean regulations determine that from the prescribed HPRD of 3.52, an RN *or* a certified nurse assistant (CNA) must provide 0.32 HPRD (Lee, Shin, Lee, Harrington & Jung, 2022:15–25). In their comparative secondary analysis study, Lee, Shin, and Harrington (2015:137–143) highlighted that the Korean government does not distinguish between RNs' and CNAs' staffing requirements. Consequently, LTCFs can assign RNs *or* CNAs, thus using them interchangeably. Caregivers contribute 3.2 HPRD, which means that 9% of the staff members are nurses, while 91% are caregivers (Lee *et al.,* 2022:15–25).

Germany: In Germany, there are well-defined regional staffing standards that consider the level of resident acuity, the number of residents, and the requirement for 24-hour RN staffing (Harrington *et al*., 2012:88–98). The staffing standard in Germany specifies a minimum of 4 HPRD, with 50% of the nursing staff being RNs. In addition, nursing facilities in Germany must ensure 24-hour RN coverage (Harrington *et al*., 2012:88–98). Germany uses comprehensive individual assessments for residents to determine their acuity levels. Following the individual assessments to determine the residents' acuity levels, residents are categorised according to the level of care required. Five care levels exist, with level five indicating a high demand for long-term care; thus, more hours of care are needed daily (Barber *et al*., 2021:136; Brühl, Planer & Hagel, 2018:1–9).

Sub-Saharan countries: The provision of formalised care for older persons is still limited or unavailable in most Sub-Saharan countries (Dyer *et al*., 2019:32; World Health Organisation, 2017). As a result, few Sub-Saharan African countries have legislation in place to regulate services for older persons. Some examples of countries with legislation regulating services for older persons are Zimbabwe (Madungwe, Mupfumira & Chindedza, 2011:1–12), Tanzania (Van Eeuwijk, 2014:29–52), and Namibia. The South African government administrated Namibia, formerly known as South-West Africa, until South-West Africa's independence in 1990 (Namibia High Commission, 2023). Consequently, Namibian LTCFs are registered based on the South African Aged Persons Act 81 of 1967 (Republic of South Africa, 1967). However, the researcher could not locate specific staffing standards for LTCFs in Sub-Saharan countries, except for South Africa.

2.4 THE NATIONAL CONTEXT: LEGISLATION AND REGULATIONS

The legislation described below includes directives for nurses and caregivers to promote the health and wellbeing of older residents in LTCFs.

2.4.1 Older Persons Act 13 of 2006

The objective of the South African Older Persons Act 13 of 2006 is to protect the rights of older persons in South Africa. The fourth chapter of this act contains the LTCF registration process and the services that the facilities must offer. The act further stipulates compliance conditions that LTCFs must meet and the process of monitoring compliance against minimum requirements. The act also prohibits the operation of unregistered LTCFs (Republic of South Africa, 2006:16). The Older Persons Amendment Bill, 2022, is intended

to amend the Older Persons Act, 13 of 2006. In the Older Persons Amendment Bill of 2022, a change in definitions is proposed, such as changing “any person providing care” to caregivers “requires accreditation with a National Qualifications Framework training qualification appropriate for the care of older persons, regardless of whether they work in community-based care, residential facilities, or similar facilities” (Republic of South Africa, 2022:46). At the time of writing this thesis, the Older Persons Amendment Bill of 2022 was not yet enacted. Under the Older Persons Act 13 of 2006, possessing accredited training is not a prerequisite for caregivers working in LTCFs (Republic of South Africa, 2006:6). However, caregivers have the option to complete an accredited unit-standard training course called "Provide care to a frail person." This unit standard comprises 120 hours and twelve credits at National Qualification Framework (NQF) level 1. Moreover, longer home-based care courses focusing on community care at NQF levels 1, 2, or 3 are also available (South African Qualifications Authority, 2022). As many caregivers have yet to undergo formal training (Republic of South Africa, 2010b:62), implementing accredited training may influence future caregiver recruitment, appointment practices, and retention of current caregivers. The Regulations Regarding Older Persons were published on 1 April 2010 under the Older Persons Act 13 of 2006 and are discussed in more detail in Section 2.4.4 of this chapter (Republic of South Africa, 2006, 2010a:64).

2.4.2 Nursing Act 33 of 2005

The Nursing Act 33 of 2005 was established to give South African citizens equal access to quality nursing care. The act provides a comprehensive legal framework for nurses in South Africa, including the nurses’ legal responsibilities and duties. By providing a legal framework for nurses, the Nursing Act 33 of 2005 promotes recognition and agreement within the nursing profession (Republic of South Africa, 2005). The SANC is the professional council determining South African nurses’ scope of practice. The first chapter of the Nursing Act 33 of 2005 contains the SANC’s roles and responsibilities (Republic of South Africa, 2022; South African Nursing Council, 1984). Chapter 2 of the Nursing Act 33 of 2005 sets out the regulatory and practice requirements for nurses, including the regulations and rules governing the nurses’ profession (Republic of South Africa, 2005:25). Chapter 2 of the Nursing Act 33 of 2005 also pertains to the nurses working in South African LTCFs since Chapter 2 includes the requirements for training, education, registration, and the practice of nurses. Furthermore, Chapter 2 of the Nursing Act 33 of 2005 contains the prerequisite that all nurses must be registered at the SANC to practice in South Africa. Consequently, the SANC may remove nurses from the register if they practice without registration (Republic of South Africa, 2005:25–32).

2.4.3 Nursing regulatory structures

The SANC defines the scope of practice for nurses, including their permitted acts and duties (Republic of South Africa, 2022; South African Nursing Council, 1984). Two regulations determine the scope of practice for South African nurses: Regulation 2598 of 1984 and Regulation 2127 of 2022. The most recent update to

the scope of practice for nurses was published on 3 June 2022. Changes were introduced in these Regulations Regarding the Scope of Practice for Nurses under the Nursing Act 33 of 2005. The nomenclature of nurses was revised to include new nurse categories (Republic of South Africa, 2022). These new nurse categories, namely professional nurses, general nurses, and ENAs, have distinct responsibilities and duties. Professional nurses may provide *comprehensive* nursing care, which involves applying and integrating a scientific process across all aspects of nursing care to promote and maintain healthcare recipients' health status in all service delivery contexts. Professional nurses may implement nursing interventions that promote the public's health and prevent disease. Furthermore, it also includes interventions to treat the public's health problems and rehabilitate healthcare users. On the other hand, a general nurse is responsible for *general* nursing care. General nurses also play a role in promoting public health and preventing diseases. They provide nursing care to address the health issues of the general population. Additionally, general nurses are responsible for assisting individuals and groups with their rehabilitation. Professional nurses oversee and manage the overall nursing care in healthcare institutions like LTCFs. However, should a healthcare unit operate as part of a larger facility, general nurses are limited to managing the subunit and only oversee parts of instead of the overall nursing care in an LTCF (Republic of South Africa, 2022). In contrast, the ENAs may provide basic nursing care as delegated by the professional or general nurse. The SANC defines basic nursing care as assisting healthcare users with activities of daily living per prescribed standards of care, aimed at promoting and maintaining healthcare users' health status (Republic of South Africa, 2022).

The older scope of practice, published in 1984, concerns ENs. The ENs are gradually being removed as a nurse category. Until being phased out, the ENs may continue to practice basic nursing care under the direct or indirect supervision of professional and general nurses (Republic of South Africa, 2022; South African Nursing Council, 1984). The ENs may provide basic care by applying specific care standards. ENs provide basic nursing care to promote the health of healthcare users and assist them with their daily living activities. Basic care includes, among others, feeding patients, monitoring vital signs, and caring for dying patients (Republic of South Africa, 2022).

Nurses' non-compliance or working beyond the scope of practice can lead to consequences, including revocation of registration at the SANC (South African Nursing Council, 2014). Thus, nurses must know the relevant legislation to ensure compliance and maintain high nursing care standards (Boehning & Haddad, 2022).

2.4.4 National norms and standards applicable to South African LTCFs

The Regulations Regarding Older Persons (Republic of South Africa, 2010a), Annexure B, Part 2, contains the national norms, acceptable standards and services for older persons, and the service standards for LTCFs.

These regulations also include the staffing model for nursing and caregivers in LTCFs, including the staffing levels and the skill mix of staff based on the acuity of residents in LTCFs (Republic of South Africa, 2010a:64).

Resident acuity: Residents' acuity must be assessed on admission to an LTCF using the Department of Social Development's approved assessment tool, the Dependency Questionnaire of 1998 (DQ98) (Republic of South Africa, 1998, 2010a:57). The assessment includes reviewing the older persons' dependency needs and their need for professional, skilled care. The older persons' dependency needs are determined based on their need for assistance with their activities of daily living. In contrast, the older persons' need for professional care includes, among others, an evaluation of their need for pressure care, specialised wound care, assistance with incontinence, and mental functioning (Republic of South Africa, 1998). Subsequently, as described in Chapter 1, residents are classified into three categories to indicate their required level of care. Category 1 residents are independent and do not need help with activities of daily living, Category 2 residents need assistance with activities of daily living, and Category 3 residents are deemed frail and dependent on staff for assistance with activities of daily living and medical needs, thus requiring 24-hour care (Republic of South Africa, 2006:6, 2010a:64).

Staffing levels: Following the acuity assessments of South African residents, the nurse and caregiver staffing levels are calculated, i.e., the number of nurses and caregivers needed to provide resident care. Calculations are based on the number of hours the staff work per week, for example, 40 hours, and the total hours of care a resident requires per their acuity category. As described in Chapter 1, Category 1 residents receive no staff assistance. Category 2 residents need a minimum of 9 hours of care per week, and residents deemed Category 3 must receive a minimum of 18 hours per week. The exception is that when an LTCF has Category 2 and 3 residents combined, the residents receive a minimum of 13 hours of care per week (Republic of South Africa, 2010a:64). The calculation of staffing levels based on the residents' acuity levels per the Regulations Regarding Older Persons is illustrated in the following three examples (Republic of South Africa, 2010a:64):

Example A: An LTCF with 30 frail residents (Category 3) will calculate the required number of nurses and caregivers as follows:

30 residents x 18 hours of care per week / 40 hours work week = 13.5 staff units

The 13.5 staff units are rounded to 13; only decimal fractions above 0.6 are calculated as one unit (one staff unit equals one nurse or caregiver) as stated in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64). Thus, an LTCF with 30 frail residents (Category 3) requires a minimum of thirteen nurses and caregivers.

Example B: An LTCF with 30 assisted living residents (Category 2) will calculate the required number of nurses and caregivers as follows:

30 residents x 9 hours of care per week / 40 hours work week = 6.75 staff units

Although the Regulations Regarding Older Persons explicitly state that decimal fractions above 0.6 are calculated as one unit, a discrepancy exists in the provided example in the regulations. An explanation for the anomaly is not provided (Republic of South Africa, 2010a:64). In the example provided in the abovementioned regulations, the 6.75 staff units are calculated as six staff units. Thus, an LTCF with 30 assisted living residents (Category 2) requires a minimum of six nurses and caregivers.

Example C: LTCFs with 60 residents, consisting of 30 Category 2 and 30 Category 3 residents, will calculate the required number of nurses and caregivers as follows:

60 residents x 13 hours of care per week / 40 hours work week = 19.5 staff units

Again, the 19.5 staff units are rounded to nineteen units as only decimal fractions above 0.6 are calculated as one unit. Thus, an LTCF with 60 residents, consisting of 30 Category 2 and 30 Category 3 residents, requires a minimum of nineteen nurses and caregivers (Republic of South Africa, 2010a:64).

Staffing levels can be expressed differently, such as staff-to-resident ratios, the number of staff, or HPRD. The South African staffing model describes the staffing levels in hours per resident per week. To facilitate comparisons with other countries, the hours per resident per week are converted to HPRD by dividing the hours per resident per week by seven days (e.g. 18/7=HPRD). Subsequently, for Category 3 residents in South Africa, a minimum of 2.57 HPRD is required (18/7=2.57 HPRD); for Category 2 residents, a minimum of 1.29 HPRD are required (9/7=1.28 HPRD). For a combination of an equal amount of Category 2 and 3 residents, a minimum of 1.85 HPRD is required (13/7=1.85 HPRD).

Studies show ambiguous results on the effect of staffing levels on the quality of care. A plethora of studies supported the notion that higher nurse staffing levels could be linked to fewer deaths of residents (Griffiths *et al*., 2018:1474–1487), an overall improvement in residents' activities of daily living and reduced hospitalisation rates (Harrington *et al*., 2020:1–14), a decrease in fall rates (Abusalem, Polivka, Coty, Crawford & Furman *et al*., 2021:299–304), lower daily restraint use and fewer pressure ulcers (Whitehead, Parsons & Dixon, 2015:18–35). Low nurse staffing levels may lead to increased workloads for the nurses, a delay in care delivery, lower safety standards, limited involvement in psychosocial programmes and less emotional support to residents and family members. Thus, the lower nurse staff levels may result in burnout and job dissatisfaction among nurses (Al-Jumaili & Doucette, 2018:1420–1427; Griffiths *et al*., 2018:1474–1487), a

higher staff turnover rate, greater use of agency staff, and staff inconsistency (Harrington, Schnelle, McGregor & Simmons, 2016:13–19).

On the other hand, Havig and colleagues did not find a significant positive effect of higher staffing levels on the quality of care. The authors postulated that this might be due to the higher staffing levels in Norwegian nursing homes as opposed to the lower staffing levels in other countries (Havig, Skogstad, Kjekshus & Romøren, 2011:327). Similarly, a Belgian multi-centred study found no evidence that higher staffing levels were associated with less restraint use in nursing home residents (Heeren, Van de Water, De Paepe & Boonen, 2014:1–7).

Skill mix: In addition to the staffing levels, the staff's skills, education, and experience should be considered since more skills may be required from the team as residents' acuity levels increase (Boscart *et al*., 2018:750; Koopmans, Damen & Wagner, 2018:988; Mueller, 2000:262–267). A higher skill mix may be indicated, thus staff with higher educational levels (Dellefield, Castle, McGilton & Spilsbury, 2015:95–108) above the unqualified staff (Harrington *et al.,* 2012:88–98). In Chapter 1, the skill mix in South Africa was discussed, which refers to the proportion of different types of nurses and caregivers within the total nursing and caregiving staff. A summary of the information is provided for improved readability: For LTCFs with frail residents (Category 3), 50% of the required 33% RNs may be replaced with ENs, and 50% of the required 66% ENAs may be replaced with caregivers. If an LTCF only has assisted living (Category 2) residents, replacing the required 16% RNs is not permissible. However, the LTCF is allowed to replace 50% of the required 84% ENAs with caregivers. An LTCF with equal Category 2 and Category 3 residents can replace 50% of the required 25% RNs with ENs and 50% of the required 75% ENAs with caregivers (Republic of South Africa, 2010a:64).

The mix of skills in the work team may influence the quality of resident care. A longitudinal study in South Korea showed that increasing the HPRD of RNs by one hour per day decreased the deterioration of residents' quality of care outcomes by 10.5% (Shin *et al*., 2021:402). The authors found that RNs contribute to improved clinical outcomes due to psychological and physical assessment of residents (Shin *et al*., 2021:402), skilled care planning (Dellefield *et al*., 2015:95–108; Shin *et al*., 2021:402), and better decision-making skills (Dellefield *et al*., 2015:95–108). A higher RN HPRD can thus lead to fewer falls, pain, a decline in activities of daily living, and pressure ulcers (Shin *et al*., 2021:402). Also, a cross-sectional study in Norway found that an increase in the ratio of unlicensed staff versus professional staff led to a decrease in the quality of residents' physical and social activities (Kjøs & Having, 2016:330–339). Recent studies examining the impact of skill mix on COVID-19 infections found contradictory results. While an increase in the ratio of care workers in Korean nursing homes was associated with more COVID-19 infections (Lee *et al*., 2022:15–25), in United States nursing homes, higher nursing aide levels were associated with a lower probability of a COVID-19 outbreak and fewer deaths (Gorges & Konetzka, 2020:2462–2466).

Compliance with the South African national norms and standards: National norms and standards specify that a registered LTCF must be monitored at least annually to ensure continuous compliance with the national norms and standards, including adherence to the prescribed nurse and caregiver staffing model (Republic of South Africa, 2010a:64). The objective of LTCF regulation is to maintain the safety of residents and improve the quality of care (McGrane, O'Regan, Dunbar, Dunnion & Leistikow *et al*., 2022:4936–4949). Failure of an LTCF to comply with the minimum requirements of the Older Persons Act 13 of 2006 may lead to issuing a compliance notice (Republic of South Africa, 2006:22). Consequently, an LTCF's registration may be revoked to eliminate the risk of harm or health hazards to the residents (Republic of South Africa, 2006:18). Internationally, similar compliance monitoring procedures exist. United States nursing homes undergo a certification process annually. An inspection team monitors the quality of care on-site to assess compliance with the standards. Failure of a nursing home to comply with the minimum requirements leads to issuing deficiency citations. For example, deficiency citations may be issued for low staffing levels and poor quality of care as part of safety violations (Castle *et al*., 2011:34–57). In Ireland, LTCFs must report safety incidents to the Irish regulatory authority. An illustration of a safety incident would be deficits in care due to insufficient staff or resources (McGrane *et al*., 2022:4936–4949).

2.5 THE TRANSITION FROM INDEPENDENCE TO LONG-TERM CARE

According to the Multiple Cause of Death database, the South African population transcended from mortalities due to communicable diseases such as HIV/AIDS and tuberculosis to mortalities due to non-communicable diseases later in life, e.g., heart disease (Statistics South Africa, 2023). According to the World Health Organisation, older people may experience various health difficulties. They may show increased signs of Dementia, decrease in their functional abilities, be exposed to chronic diseases, and experience poor health in general (World Health Organisation, 2015). In the Western Cape province, 30.8% of older persons indicated that they experienced a generally weak health status, with increased frailty (Statistics South Africa, 2023). Therefore, the ailing health of the elderly may lead to care dependencies, such as the need for assistance with activities of daily living (Hamel *et al*., 2021; Mlinac & Feng, 2016:506–516) and professional help with their medical conditions and medication (Hamel *et al*., 2021).

Consequently, the ageing person may seek care in LTCFs (Aboderin, 2019:119–126). In South Africa, state-subsidised and private for-profit LTCFs for older persons provide 24-hour services and accommodation to frail older people if they need care based on their mental or physical needs (Republic of South Africa, 2006:6). In the Western Cape province, the Western Cape Department of Social Development lists 117 state-subsidised LTCFs on its website (Republic of South Africa, 2022a). The researcher could not locate official statistics regarding the total private for-profit LTCFs in the Western Cape.

2.6 DEMOGRAPHICS: SOUTH AFRICA AND THE WESTERN CAPE PROVINCE

Population statistics from South Africa and the Western Cape province are included to provide context to the study regarding the setting and the potential long-term care service users. The statistics and forecast from Statistics South Africa indicate that South Africa has a positive population growth. Thus, the population is increasing, including the ageing population (Statistics South Africa, 2023), as shown in Table 2.1. The South African population has risen from 46.3 million in 2002 to 60.6 million in 2022. Similarly, the Western Cape province showed a positive population growth from 4.8 million in 2002 to 7.2 million in 2022 (Statistics South Africa, 2023). In 2022, the percentage of the South African population aged 60 years and over was 9.2%, in contrast to that of the Western Cape province of 10.7%. The higher percentage of the population aged 60 years and over in the Western Cape province can be attributed to the fact that the second highest migration within South Africa is to the Western Cape province. The rising influx of migrants from neighbouring provinces to the Western Cape province can be attributed to the surrounding provinces' limited economic activity and insufficient job prospects (Statistics South Africa, 2023).

Table 2.1: Population forecast: South Africa and the Western Cape province

	Year	
	2002	**2022**
South Africa	46,330,165	60,604,992
60+ years	3,526,140	5,599,260
Population 60+ years (%)	7,6%	9,2%
Western Cape province	4,874,826	7,212,142
60+ years	397,138	774,503
Population 60+ years (%)	8,1%	10,7%

According to United Nations projections, the ageing population will profoundly impact healthcare systems (United Nations, 2017). Likewise, the report containing the South African mid-year population estimates also cautioned that policies and programmes must prioritise the needs of the growing elderly population (Statistics South Africa, 2023).

Considering the burden of an ageing population on healthcare systems, where nurses represent almost 50% of the global health workforce (World Health Organisation, 2022b), the data provided by the World Bank depicts a bleak picture of the ratio of nurses and midwives per 1,000 people in Sub-Saharan countries. In 2017, the average number of nurses and midwives per 1,000 people worldwide was 3,9. The average number of nurses and midwives per 1,000 people in Europe and Central Asia was 5,4. In North America, the average number of nurses and midwives per 1,000 was 15,3. Sub-Saharan African countries had an average of one nurse/midwife per 1,000 people (World Bank, 2022). Figure 2.1 contains selected countries to show the differences in the number of nurses and midwives per 1,000 people between 2017 and 2018. The Sub-

Saharan countries such as Kenya (1.2 nurses and midwives per 1,000 people), South Africa (1.3 nurses and midwives per 1,000 people), and Zimbabwe (1.9 nurses and midwives per 1,000 people) show a lower number of nurses and midwives per 1,000 people compared to developed countries such as Australia (12.8 nurses and midwives per 1,000 people) and the United States (15.7 nurses and midwives per 1,000 people) (World Bank, 2022).

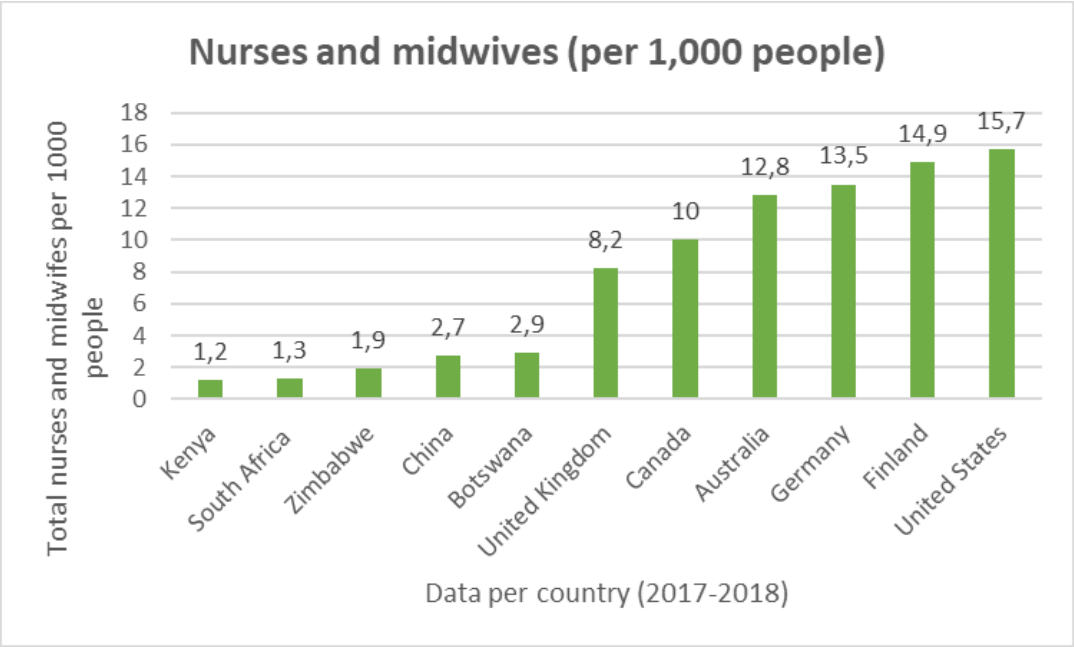

Figure 2.1: Nurses and midwives per 1,000 people

(World Bank, 2022)

In 2021, the SANC recorded 31,131 nurses registered in the Western Cape province, consisting of 18,465 RNs, 5,576 ENs, and 7,090 ENAs. The number of 31,131 nurses results in one qualified nurse for every 229 members of the public in the Western Cape province, which is slightly fewer nurses per population compared to the average of one qualified nurse per 218 people in South Africa (South African Nursing Council, 2021a).

2.7 WESTERN CAPE PROVINCIAL CONTEXT: REGULATIONS

The Western Cape Government's Department of Social Development created a directive for LTCFs in the Western Cape province, summarising and clarifying the national norms and standards related to health to ensure compliance with the national health standards. The document is titled Health Standards/Norms for Residential Facilities for Older Persons, hereafter referred to as the Western Cape Government (WCG) Health Norms and Standards (Republic of South Africa, 2015).

Health Norms and Standards: Western Cape Government: The WCG Health Norms and Standards document provides a more detailed description of the nurse and caregiver staffing model in the Regulations Regarding

Older Persons (Republic of South Africa, 2010a:64, 2015). As an introduction, the WCG Health Norms and Standards state that LTCFs must provide appropriate staffing to cope with residents' health needs but cautions that the LTCF's managers should show judgement while implementing the staffing model in terms of the following:

First, the staffing model in the Regulations Regarding Older Persons identifies the absolute minimum staff level of 2.57 HPRD (Republic of South Africa, 2010a:64). The LTCF's management is responsible for monitoring residents to determine the levels of care needed and the most appropriate staff to provide the care. Therefore, staff duty rosters must be compiled accordingly, and the team must sign in per work shift (Republic of South Africa, 2015:19).

To facilitate compliance monitoring, state-subsidised LTCFs must report quarterly the total categories of nurse and caregiver staff employed at the LTCF to the Department of Social Development. Private for-profit LTCFs supply information regarding their staffing totals and skill mix before a compliance monitoring inspection. Harrington *et al*. (2020:1–14) reviewed the United States federal and state nurse staffing requirements to provide guidelines for determining staffing levels. The authors indicated that, before 2017, LTCFs in the United States had to submit staffing data before the annual state survey. Harrington and colleagues analysed data from, among others, the Centres for Medicare & Medicaid Services and payroll-based journal data. However, it was noticed that the United States LTCFs inflated their staff ratings before an annual monitoring audit. Since 2017, the United States LTCFs have reported their daily staffing totals every quarter to the regulatory authorities. Consequently, the data showed that before 2017, seven out of ten LTCFs' reported staffing totals were 12% lower than officially reported (Harrington *et al*., 2020:1–14).

Secondly, the WCG Health Norms and Standards cautions that despite the evident shortage of nurses in South Africa, a nurse should lead every work shift to do professional tasks. The nurse category is not specified (Republic of South Africa, 2015:19). Therefore, it can be deduced that a 'nurse' could be either an RN, an EN, or an ENA. Consequently, the nurse's scope of practice during each shift must be considered as stipulated by the SANC (Republic of South Africa, 2022; South African Nursing Council, 1984).

An integrative literature review, including a total of 45 articles related to team nursing and delegation in organisations, found that RNs must direct resident care and cannot delegate care planning or the administration of scheduled medicines to lower categories of nurses (Beckett *et al*., 2021:251–260).

Third, the WCG Health Norms and Standards caution nursing managers to give consideration when choosing professional or lay staff (caregivers) when allocating tasks. Caregivers could be used to assist with bathing, turning, and feeding residents and should ideally work together with a nurse. Concerning professional tasks, the WCG Health Norms and Standards include an example of medication administration to illustrate whether

to use professional or lay staff. It postulates that anyone without the necessary skills can hand tablets to residents. However, this procedure may have severe consequences for residents if done incorrectly (Republic of South Africa, 2015:18). In the Netherlands, an exploratory case study aimed to obtain insights into teams' optimal staffing levels and skill mix in seven long-term elderly care facilities over nearly two years. The study findings supported the notion that using less-qualified staff can delay the detection of residents' health problems, thus decreasing the residents' quality of life (Koopmans, Damen & Wagner, 2018:988). Moreover, a literature review including 60 studies showed that fewer medication errors occurred with higher nurse staffing levels (Al-Jumaili & Doucette, 2017:470–488). The results found by Al-Jumaili and Doucette (2017:470–488) were confirmed by a cross-sectional study done in South Korea, which included 216 nurses from 62 nursing homes (Choi *et al*., 2021:1–8). In sum, task assignments must be per the nurse or caregiver's experience, skills, and education (Beckett *et al*., 2021:251–260).

2.8 THEORETICAL FRAMEWORK

A theoretical framework was used in this study as it guides a researcher when formulating a research question and informs the choice of data collection, analysis methods, and the discussion of the research findings (Luft, Jeong, Isardi & Gardner, 2022). This study was guided by Mueller's 'Framework for Nurse Staffing in LTCFs' since the framework aims to guide nurse managers in providing nursing staff according to residents' needs (Mueller, 2000:262–267). In addition to Mueller's framework, the study was based on Bhaskar's meta-theory of critical realism (Bhaskar, 2008:1–3). The meta-theory of critical realism was well-suited for exploring staffing in LTCFs, as Bhaskar (2008:3) cautioned that there may be invisible underlying causal mechanisms that could explain the phenomenon that was being studied, in this case, nurse and caregiver staffing in LTCFs. A discussion of Mueller's framework follows below, while Bhaskar's meta-theory of critical realism and how it pertained to the study are discussed in Chapter 3.

The decision to select Mueller's framework for this study was based on its relevance to the research context and population, making it an appropriate framework for understanding the phenomenon under investigation. Aligning this study with Mueller's tested framework provided a theoretical base for organising the key concepts: staffing levels, skill mix, and staff allocation. Furthermore, Mueller's framework allowed contextualisation of participants' perceptions of the barriers and facilitators to implementing the staffing model in LTCFs for older persons, which was an objective of this study. Therefore, Mueller's framework was embedded throughout this research as it was considered a suitable lens through which the research question could be explored and addressed, namely, what framework could be developed to inform staffing models for LTCFs in resource-constrained contexts. As such, the researcher provided in-depth descriptions of the complex interactions influencing the implementation of a staffing model in LTCFs for older persons. By aligning this study's findings with Mueller's framework, the study introduced new perspectives and

contributed to the existing body of knowledge. Additionally, it allowed for comparisons with previous research, thereby facilitating the formulation of recommendations to inform staffing models for LTCFs for older persons in resource-constrained contexts.

Mueller's Framework for Nurse Staffing in long-term care facilities:

Christine Mueller developed the Framework for Nurse Staffing in LTCFs in 2000. The framework aims to guide nurse managers in systematically analysing and evaluating residents' staffing needs and assist in determining, allocating, and providing the resources to deliver quality care to residents (Mueller, 2000:262–267). Mueller stated that a staffing framework should be aligned with the LTCF's care philosophy and standards.

For example, a philosophy based on rehabilitation would consider staff with experience and training in rehabilitation practices, and the staff would focus on assessment strategies and restorative care. Alternatively, if an LTCF embraced a strong medical philosophy, staffing would be directed towards task completion and would concentrate on the residents' physical needs (Mueller, 2000:262–267). In addition, nurse managers should familiarise themselves with the staffing standards that govern nursing care in LTCF and apply them accordingly. Staffing standards can include research-based protocols, the Agency for Health Care Policy Research Clinical Practice Guidelines (Agency for Healthcare Research and Quality, 2024) and country-specific staffing standards.

Besides considering the LTCFs' care philosophy and standards, Mueller's framework advises nurse managers to first identify the needs of the residents before engaging in staff planning (Mueller, 2000:262–267). Resident needs can be determined through implementing standardised assessment forms and conducting assessments upon admission, quarterly, or annually. Once the care needs of the residents are established, nurse managers can determine the appropriate number and type of staff required to meet the residents' needs (Mueller, 2000:262–267).

Staffing levels primarily encompass the quantity of staff, referring to the number of staff available. According to Mueller (2000:262–267), residents' characteristics, based on their functional requirements, could be assessed through various patient classification systems. Residents' functional assessments determine the staff time required to deliver adequate care. Consequently, the staff time required to provide care indicates the number of staff needed.

Skill mix, on the other hand, refers to staff members' skill sets, experience, and educational background. It is pertinent to consider skill mix when assigning staff to residents based on their acuity levels (Mueller, 2000:262–267). However, Mueller noted that most patient classification systems specify the quantity of nursing staff but do not address the quality of staff. Therefore, nurse managers should consider how much

care time residents require. The care time needed may vary due to the staff's skill levels. To ensure that the staff is sufficiently equipped to meet residents' needs, nurse managers should consider the staff's education levels and experience (Mueller, 2000:262–267).

Staff allocation aligned with residents' acuity levels: Once the number and quality of staff have been determined, nurse managers must consider staff allocations. Nurse managers should assess whether the available staff members are sufficient to meet the needs of the residents. Nurse managers should develop strategies to address staff shortages. Mueller advised that it is essential to explore programmes and approaches that can enhance staff development and develop their knowledge and skills. As such, the staff can meet the residents' needs. Staff allocation should be done per work shift, and peak times should be considered. For example, the residents' needs may be higher during mealtimes. The staffing schedules should also reflect the prioritising of care continuity. Care continuity can be promoted through effective communication mechanisms. Moreover, staff allocation should be based on residents' care plans. Additionally, the type of care delivery systems in place, e.g., team or functional nursing systems, should be considered to ensure efficient and effective allocation of staff resources (Mueller, 2000:262–267).

Mueller's framework further recommends that contextual factors be well thought out when planning to staff LTCFs (Mueller, 2000:262–267). One such contextual factor is the LTCFs' policies and procedures. The LTCFs' human resource policies on staff recruitment, the use of replacement staff, and absenteeism may influence staff planning. Also, protocols and job descriptions must be considered to determine the scope of work each staff member may complete. Additionally, staff allocation may be influenced by external contextual factors. The layout, design, and size of an LTCF may necessitate more staff, such as spread-out corridors or multilevel LTCFs. Other internal contextual factors, such as the availability of support staff, can influence staff planning in an LTCF. For example, adequate support staff to assist with resident transport, administrative tasks, and meal delivery can decrease the need for nursing and caregiver staffing (Mueller, 2000:262–267).

Mueller's framework thus underpinned this study since it offered a comprehensive perspective of the vital concepts described above, which are necessary for appropriate care in LTCFs.

2.9 PERCEIVED BARRIERS TO IMPLEMENTING STAFFING MODELS IN RESOURCE-RICH AND RESOURCE-CONSTRAINED CONTEXTS

Whether an LTCF provides services to older persons in a resource-constrained or resource-rich context, healthcare provision relies on human resources. As mentioned in Chapter 1, resource-constrained contexts refer to environments that lack economic, social, and human resources or infrastructures. In contrast, resource-rich contexts refer to environments with sufficient economic, social, and human resources or infrastructures (IGI Global, 2022). Conversely, regardless of the contexts in which LTCFs provide services to

older persons, human resources comprise the most considerable portion of the healthcare budget. The quality and quantity of staff also directly impact the quality of care provided to residents (Tabatabaee, Nekoie-Moghadam, Vafaee-Najar & Amiresmaili, 2016:3348–3356). Despite human resources comprising the most considerable portion of the healthcare budget, the same labour costs and staffing legislation apply to private for-profit and state-subsidised LTCFs in South Africa. Furthermore, wealth inequality exists within South Africa. Although some South Africans fall into the upper-middle-income group, the country's poverty rate is 55.5%. In addition, South Africa had an unemployment rate of 34.4% in 2021 (World Bank, 2022). Consequently, South African LTCFs may be situated in a resource-constrained or resource-rich context. Based on the assumption that an LTCF may be in either a resource-constrained or resource-rich context, both a state-subsidised and a private for-profit LTCF were selected for this study. The following section outlines factors that may affect implementing a nurse and caregiver staffing model in LTCFs within resource-constrained and resource-rich contexts.

Increased older population: A barrier worldwide to implementing staffing models may be the increase in older people. With more older people needing healthcare services, the demand for services may be greater than the available services. In 2022, about 10% of the world's population was over the age of 65. This number is likely to increase to 16% by 2050. The increase in the population of older persons may be due to lower death rates while people's life expectancies are rising. Africa shows the same population increase that is noticed worldwide, since the birth rates exceed the death rates. Europe reveals contrasting statistics since the general population shows a negative growth. The population decline is attributed to lower fertility rates (United Nations, 2022).

In 2019, 6% of the South African population was older than 65. However, the number of people over 65 is likely to increase to 10.5% by 2050 (United Nations, 2022). The Western Cape province in South Africa is estimated to have the country's third-highest proportion of older people. Furthermore, migration to the Western Cape province is increasing. Consequently, the demand for healthcare workers is expected to rise (Statistics South Africa, 2023). Ageing is associated with declining health and functional abilities, which increases the risk of chronic diseases and comorbidities, with older persons having more than one chronic disease (Solanki, Kelly, Cornell, Daviaud & Geffen, 2019:175–182). This heightened demand for healthcare services may require more human resources, such as nurses and caregivers, to supply these healthcare services. The World Bank (2022) considers African countries low-to middle-income countries. South Africa is deemed a resource-constrained country in Sub-Saharan Africa. Considering the rapid population growth in Africa (United Nations, 2022), one can deduce that the burden on LTCFs in resource-constrained contexts may increase. Consequently, the United Nations advises countries to adjust their public programmes and find long-term care systems to accommodate the growing demand for healthcare services (United Nations, 2022).

Increased resident acuity: Residents in LTCFs suffer from chronic diseases and comorbidities and experience cognitive and functional limitations. Therefore, their acuity levels have increased (Choi *et al*., 2021:1–8). This rise in resident acuity may hinder the successful implementation of staffing models in resource-rich and resource-constrained contexts. A qualitative study conducted in the United States (a resource-rich country) (World Bank, 2022), as part of a larger randomised clinical trial, explored barriers and facilitators to implementing a quality management programme. The study revealed that advanced medical interventions and shorter hospitalisation periods led to residents' higher acuity levels. As a result, residents receive more complex care in LTCFs. Consequently, LTCFs must provide staff with more skills and training to enable them to provide care to residents with complex needs (Tappen, Wolf, Rahemi, Engstrom & Rojido, 2017:219–230).

Higher resident acuity levels may also increase the risk of polypharmacy, where older persons receive multiple medications daily, increasing the risk of adverse drug reactions. The symptoms from adverse drug reactions can lead to incorrect diagnosis and the prescribing of unnecessary additional medication (Dagli & Sharma, 2014:1–2). In South Africa, medication administration falls within the scope of practice of RNs and general nurses (Republic of South Africa, 2022). This may imply that LTCFs may need more RNs and general nurses to administer more medication to residents.

Shortage of nurses: A shortage of RNs and midwives seems to exist globally. The shortages were more evident in Southeast Asia and Africa (World Health Organisation, 2022b). A quantitative study in Japan, a resource-rich country (World Bank, 2022) with one nurse to four residents staffing levels, also reported staff shortages in the Japanese LTCFs (Sato *et al*., 2017:1159–1175). The staff shortages result in lower levels of nurse and caregiver staffing and inadequate staff mixes compared to the recommended standards for LTCFs, particularly concerning the staffing levels of RNs (Brühl, Planer & Hagel, 2018:1–9; Harrington *et al*., 2020:1–14). South Africa also experiences a physical shortage of nurses. The SANC statistics from 2021 showed only one qualified nurse for every 229 public members in the Western Cape province (South African Nursing Council, 2021a). According to Zwane and Mtshali (2019:1885), the nurse shortage is exacerbated by the ongoing transformation of nursing education in South Africa. Fewer nurses are being trained, and this situation has yet to be addressed. Nurse education was previously provided under the auspices of the provincial Departments of Health, which ensured the production of nurses and midwives according to healthcare service needs (Zwane & Mtshali, 2019:1885). Nurse education is now integrated into the Department of Higher Education and Training (South African Nursing Council, 2022). Some nursing education institutions had to close due to non-compliance with higher education standards, and conflicting policies and budget constraints hindered the integration of public nursing colleges into the higher education system (Zwane & Mtshali, 2019:1885). The training of RNs is also predominantly urban-based, limiting their accessibility in rural areas (Uys & Klopper, 2013:1–4).

Globally, more nurses are employed in hospitals than in LTCFs. Hospitals, for instance, offer more attractive benefits and salaries and better work conditions than LTCFs. As a result, nurses tend to accept employment in hospitals rather than in LTCFs. In countries such as Japan and the United States, hospitals employ 61% of all nurses, while 7% are employed in LTCFs. In Australia, 63% of nurses are employed in hospitals versus 11% in LTCFs (Drennan & Ross, 2019:25–37). An audit in 2010 of 405 South African LTCFs revealed that 21% of LTCFs had no access to the services of an RN (Republic of South Africa, 2010b:34).

An ageing workforce exacerbates nurse shortages. In 2019, 19% of South African RNs and 7% of ENs and ENAs were over 60 (South African Nursing Council, 2021b). South Africa and Thailand use retired nurses with experience who are qualified to offset the nurse shortages (Kaewpan & Peltzer, 2019:217; Spiva, Hart & McVay, 2011:1–10; Uthaman, Chua & Ang, 2016:50–55). In South Korea, a recruitment strategy for RNs started employing RNs who had taken a long break from their professions (Choi *et al*., 2021:1–8). However, the authors cautioned that the emotional and physical demands of the nursing profession may influence the health of older nurses (Uthaman, Chua & Ang, 2016:50–55). The discrepancies between the demand for and supply of healthcare services can lead to the service demand exceeding the number of available nurses to provide care (Tabatabaee *et al*., 2016:3348–3356).

Regulatory standards: Regulations related to LTCFs, including regulations regarding staffing models, may influence the quality of care positively or negatively. Minimum regulatory staffing standards, such as minimum staffing levels, do not guarantee an adequate skill mix. For example, a secondary data analysis study in the United States reported the influence of regulations on staffing. Where minimum staffing standards were applied to LTCFs, the staffing levels in the LTCFs tended to be higher. Although the staffing levels were higher, the more stringent regulations led to LTCFs employing fewer RNs. To reduce costs, facilities substituted the more expensive RNs with less expensive licensed practical nurses (Mukamel, Weimer, Harrington, Spector & Ladd *et al*., 2012:1791–1813). The authors' findings were supported by a secondary analysis of national staffing data conducted by Bowblis and Lucas (2012:52–72), who observed that stricter staffing standards resulted in higher staffing levels but might compromise quality care practices. For instance, increasing the staffing requirements led to higher overall staffing levels. However, fewer skilled RNs were employed. With fewer RNs employed, feeding tubes were less frequently used since skilled staff were needed to provide care to residents with feeding tubes.

Moreover, regulatory and legal barriers may exist to implementing staffing standards, particularly regarding nurses' scope of practice. While anyone can perform caregiving tasks in South Africa (Republic of South Africa, 2006:6), the SANC mandates the scope of practice for nurses, specifying what each nurse category is permitted to do (Republic of South Africa, 2022; South African Nursing Council, 1984). According to the South African staffing model, LTCFs with frail residents should have a minimum of 33% RNs, but 50% can be replaced

with ENs, resulting in RN levels of 16.5% in an LTCF (Republic of South Africa, 2010a:64). However, only RNs can direct and provide comprehensive nursing care, and only RNs and general nurses may administer medication to residents (Republic of South Africa, 2022). The ENs' and ENAs' scope of practice permits them to practise basic nursing under the supervision of the RN and general nurse, thus limiting their utilisation due to the nurses' scope of practice (Republic of South Africa, 2022; South African Nursing Council, 1984).

Furthermore, the recent change in the nurses' scope of practice requires professional nurses, instead of general nurses, to manage overall nursing care in a health facility, such as an LTCF. The new nurses' scope of practice may thus add further pressure on LTCFs to recruit and employ professional nurses (Republic of South Africa, 2022). In addition, the new nurses' scope of practice does not differentiate between a professional nurse with a basic diploma or degree and a professional nurse with further specialised training, such as an additional qualification in gerontology, which may lead to underutilising RNs with specialised training (Uys & Klopper, 2013:1–4).

Budget constraints: The mix of skilled staff in LTCFs may be affected by budget constraints. LTCFs may hire less-skilled staff to reduce costs, as RNs are considered the most expensive labour cost in health facilities (Mukamel *et al*., 2012:1791–1813; Uys & Klopper, 2013:1–4). For example, South African RNs earn an average of R260 930 annually, while caregivers earn an average of R58 248.96 annually (Labour Guide, 2024; Payscale, 2024).

LTCFs may avoid using agency staff, even in emergencies, to save costs. The hourly rate for RNs is approximately R135,90 versus R27,58 for caregivers (Labour Guide, 2024). Private for-profit and state-subsidised LTCFs are subject to the same labour costs, with the former earning revenue by charging residents for services as much as R30 000 to R40 000 per month (The Association for the Aged, 2024), while the latter generates income from residents' old age grants (state pensions) of R2 090 to R2 110 per month (Republic of South Africa, 2024). Bowblis and Lucas (2012:52–72) found that LTCFs in the United States hired more direct care staff, such as caregivers, and fewer RNs to meet minimum staffing standards. As in the United States, Canadian LTCFs reported that caregivers provide 90% of and nurses only 10% of all direct resident care (Estabrooks *et al*., 2020:651–619). Using more caregivers and fewer RNs could lead to caregivers being assigned more responsibilities. Greater responsibilities may include nursing tasks such as medication administration and complicated wound care, which raises concerns about care quality. The detection of residents' health problems by less-qualified staff may be delayed by non-recognition of the situation, impacting the residents' quality of life (Koopmans, Damen & Wagner, 2018:988).

2.10 SUMMARY

This chapter included an overview of the literature on the implementation of staffing models in LTCFs. To provide context for the implementation of staffing models, the demographics of South Africa and the Western Cape province were discussed, along with the national legislation and regulations pertaining to LTCFs and the relevant staffing model. Mueller's theoretical framework for nurse staffing in LTCFs was introduced, showing its relevance to the purpose of this study. Perceived barriers to implementing a nurse and caregiver staffing model were explored since they may influence the implementation of staffing models. The next chapter includes a detailed discussion of the study's methodology.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter contains a discussion of existing literature regarding staffing models in LTCFs. This chapter includes a comprehensive description and discussion of the methodology employed in this study. It also provides an overview of the design, including a description of the methods followed in each study phase to elucidate the selected methodology.

3.2 METHODOLOGY OVERVIEW

The research design encompassed a scoping review and a holistic multiple-case study. The two studies were done simultaneously to obtain information about the available literature on staffing and to explore the implementation of staffing models in real-life contexts. The information allowed for the development of a framework to inform staffing models for LTCFs in resource-constrained contexts. Specific objectives were formulated to guide the research process:

1. To describe the distinct characteristics of staffing models for LTCFs in resource-rich and resource-constrained contexts.
2. To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons.
3. To develop and validate a framework to inform staffing models for LTCFs for older persons in resource-constrained contexts.

The scoping review allowed the application of a systematic approach to explore and map existing literature on the topic studied (Joanna Briggs, 2015). The review focused on exploring the implementation of nurse and caregiver staffing models within LTCFs across resource-rich and resource-constrained contexts. By reviewing existing literature, an overview was obtained of the breadth and depth of the available research, i.e., what is already known about the topic. Moreover, the scoping review allowed the researcher to understand better how LTCFs implement nurse and caregiver staffing models, including staffing levels, skill mix, and staff allocation related to residents' acuity, nurses' scope of practice, and caregivers' job descriptions. After collating and synthesising this knowledge, the scoping review facilitated the identification of gaps in the existing body of knowledge.

Case study design: This study followed a holistic case study design, allowing the thorough exploration of a contemporary phenomenon or a complex issue within its real-life context (Yin, 2014:58–59). Yin (2014:32) suggested considering the research question when conducting case studies, which was how and why LTCFs

in resource-rich and resource-constrained contexts implement nurse and caregiver staffing models regarding staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions.

The *case or unit of analysis*, i.e., what the researcher was interested in exploring (Yin, 2014:65), was implementing a nurse and caregiver staffing model in LTCFs. Therefore, the case involved RNs, ENs, ENAs, and caregivers providing direct care to residents and the nursing service managers. Since the study centred around one unit of analysis, it can be classified as a *holistic* case study instead of an embedded case study whose design involves multiple units of analysis (Yin, 2014:59). To ensure manageability in the study, *boundaries* were set, stating precisely what the case would include or exclude (Yin, 2014:39). This was achieved by clearly defining the key concepts related to the case, such as skill mix, staffing levels, and staff allocation aligned with nurses' scope of practice and caregivers' job descriptions. Exclusion criteria were also formulated in Chapter 3 to set boundaries, e.g., RNs, ENs, ENAs, and caregivers from personnel agencies, based on their possible unfamiliarity with the barriers and facilitators to implementing the staffing model in the LTCF. Moreover, specific research questions and a framework (detailed in Chapter 1) were established to guide the study. The timeframe for data collection was set from 1 December 2022 until the study's conclusion in 2024. These measures assisted with maintaining focus and keeping the study manageable.

As Yin (2014:38) advises, the case study design was suitable for exploring a phenomenon in a real-life *context*. In this instance, the LTCFs presented real-life contexts, while the contemporary phenomenon explored was implementing a nurse and caregiver staffing model. Consequently, an understanding of organisational and economic factors in the LTCFs could be gained (Yin, 2014:58–59). In addition, the multi-case study allowed for exploring other factors influencing staffing in LTCFs, such as staff turnover and support staff availability (Mueller, 2000:262–267).

To provide greater confidence in the study's findings and answer the research question better, a *holistic multiple-case study* was chosen (where two LTCFs were studied in the same manner) as opposed to a single case study (where one LTCF was studied) (Yin, 2014:46, 2012:7; Heale & Twycross, 2018:7–8). According to Yin (2014:66), a multiple-case study may require more resources and time than a single-case study but may produce more robust evidence. The two LTCFs selected for this study were one state-subsidised and one private for-profit LTCF in the Cape Metropole, South Africa (detailed further in Section 3.4). Moreover, the multiple-case study method allowed for exploring and describing the findings of each case and across the two cases, thus allowing for literal replication since it was expected that the two cases would yield similar findings (Yin, 2014:67, 2012:8), which was what the researcher endeavoured to do. The *units of observation*, i.e., the units from which the data was collected (Sedgwick, 2014), encompassed both documents and individuals. Data collection from *multiple sources* occurred concurrently, including a review of documents

and interviews conducted with nurses and caregivers within each LTCF. Using multiple sources to collect data enabled the researcher to explore the practices followed in the LTCFs. The aim was to explore how and why the LTCFs implemented a staffing model. Furthermore, data could be collected to identify the barriers and facilitators to implementing a staffing model in these LTCFs.

Document review: Existing documents related to staffing in the LTCFs were reviewed. The documents offered background information from real-life settings. The information in the documents represented the empirical domain since it could be observed (Bhaskar, 2008:2–9). These documents provided contextual information to promote understanding of the LTCFs' policy content and implementation. Moreover, the documents revealed the LTCFs' processes when implementing the nurse and caregiver staffing model. Consequently, the researcher could observe how the LTCFs evolved over time.

Interviews: Nineteen interviews were conducted with employees from the two LTCFs, and field notes were made during the interviews for the researcher to reflect on and refer to. Participants included nurse managers, RNs, ENs, ENAs, and caregivers. By conducting the interviews, the participants' perspectives could be obtained on *how* and *why* the LTCFs implemented specific staffing models. The interviews also provided information on the participants' perceptions of the barriers and facilitators to implementing staffing models in the LTCFs. Interviews were chosen because they allowed for the exploration of complex underlying causal mechanisms and unobservable social realities in the domain of the *real* (Bhaskar, 2008:47; Fletcher, 2017:181–194) (e.g., an interplay between prior experiences of the nurses and caregivers with staffing models, the LTCFs' human resource practices, and the staff's experiences) that could explain the implementation of staffing models in the LTCFs (Lawani, 2021:320–333). Consequently, the interviews facilitated a better understanding of the practices embedded in implementing the staffing model.

Alignment between the document review and interviews: The document review and interviews were done concurrently, and the two data collection methods complemented each other. The findings from the document review were used to direct interview questions towards the underlying reasons why a staffing model was implemented in a particular manner in the LTCFs. Additionally, the document findings also directed interview questions to explore possible hidden facts or reasons for staffing practices that were not directly visible to the researcher (Bhaskar, 2008:47; Fletcher, 2017:181–194). For example, the private for-profit LTCF's duty rosters reflected that RNs led all shifts, but no ENs or ENAs were on any shifts. The reasons for or the implication of the absence of ENs or ENAs were not evident in the documents; thus, this phenomenon could be further explored by directing the interview questions towards the possible reasons for not including ENs and ENAs in the mix of skills. The findings from the document review also raised new interview questions and supplemented the data collection process with additional information (Bowen, 2009:27–40). For example, the minutes of a meeting conducted in the state-subsidised LTCF indicated that

disciplinary measures had been taken against seven nurses and caregivers in six months. Although there were no questions regarding disciplinary measures formulated in the semi-structured interview guide, questions were directed to participants during the interviews to obtain their perspectives on the reasons for the frequent disciplinary measures. Similarly, information shared by participants during the interviews provided direction for documents to review. For instance, participants in the state-subsidised LTCF shared that ENAs were required to perform housekeeping tasks. The ENAs job descriptions were again reviewed but did not include references to these tasks. Therefore, inquiries were directed to obtain other documents with directives about nurses having to perform housekeeping tasks. However, it was revealed that the LTCF did not have any job-specific policies and procedures. Moreover, the document analysis verified the interview findings, thus contributing to the study's credibility and broadening the knowledge base. Where contradictions occurred, it was an indication that further investigation was needed (Bowen 2009:27–40). By gathering insights from different sources, namely the documents and interviews with different categories of nurses and caregivers, the study provided a comprehensive understanding of how and why LTCFs implemented staffing models and the barriers and facilitators to implementing the specific staffing model chosen in the particular LTCF.

By combining a scoping review and a holistic multiple-case study, the researcher could comprehensively explore the underlying realities and processes of implementing a staffing model in LTCFs. Gathering data from multiple sources facilitated triangulation, i.e., merging the findings from the data from the scoping review, document review, and participant interviews (Noble & Healy, 2019:67–68). Integrating meaningful findings from the scoping review, document review, and participants' interviews allowed for the development of a framework to inform staffing models for LTCFs for older persons in resource-constrained contexts. The framework was subsequently validated by experts who assessed the framework's credibility, relevance, consistency, and accuracy.

3.3 PARADIGM

Implementing staffing models in the LTCFs was viewed through a critical realism philosophy lens. Critical realists hold that power relations shape a person's social reality. Critical realist researchers strive to expose and question these power relations because people's underlying, invisible experiences shape how they interpret incidents (Bhaskar, 2008:47; Allana & Clark, 2018; Lawani, 2021:320–333). By exploring the underlying structures of reality related to the implementation of a staffing model in LTCFs (e.g., a nurse manager feels empowered because the Board of Directors always compliments her on staying within the human resource budget) that shaped the observable events reality (e.g., a nurse manager refuses to provide replacement staff for staff members on leave, seemingly without reason), a researcher could gain a deeper and more accurate understanding of how and why a staffing model was implemented.

Critical realism's background: Roy Bhaskar developed the critical realism philosophy. Initially, Bhaskar developed a science philosophy, transcendental realism, and a social or human science philosophy, critical naturalism (Bhaskar, 2008:15). Transcendental realists believe there is a realm of reality which one accepts as true and accurate, but this realm falls beyond what one can directly observe or experience. To grasp reality, perception and reasoning are needed. Bhaskar considered this realm of reality the foundation of our understanding of the world. Bhaskar's human science philosophy, critical naturalism, suggests that social practices influence how one understands the world. Therefore, when social arrangements and practices are examined closely, one may better understand this reality. When one understands this reality, social change may follow. Transcendental realism and critical naturalism were synthesised into an umbrella term, critical realism (Bhaskar, 2008:15–17).

The theory: Critical realism is a meta-theory, a reflective, broad, philosophical approach that seeks to balance objectivity and subjectivity in our understanding of the world (Allana & Clark, 2018:1–9). As such, critical realism positions itself between an objectivist approach, such as positivism, and a subjectivist approach, e.g., interpretivism (Vincent & O'Mahoney, 2017:1056). Researchers using a positivist paradigm focus on factual knowledge obtained through scientific experiments and observation as trustworthy data sources. Subjective interpretations of reality are rejected. On the other hand, a subjectivist approach, e.g., an interpretive paradigm, is characterised by the belief that knowledge is subjective and can be obtained through qualitative methods. These methods are used to gain deeper insights into participants' experiences and perceptions and explore phenomena in the social sciences. Interpretivists believe that knowledge is influenced by the researcher's beliefs and experiences (Alharahsheh & Pius, 2020:39–43). Since critical realism positions itself between an objectivist and a subjectivist approach, critical realism offers an alternative approach to developing knowledge. Therefore, by using a critical realism approach, the researcher could obtain a balance between objectivity and subjectivity in this study to improve the understanding of implementing a staffing model in the LTCFs.

Epistemology in critical realism concerns itself with the nature of knowledge and asks how people can gain valuable and reliable knowledge about the world (Lawani, 2021:320–333). Knowledge is seen as shaped by both objective reality and people's subjective experiences. Critical realists argue that although the empirical level is the starting point for understanding reality, the empirical level is not enough to fully understand the nature of things (Bhaskar, 2008:16). Insofar as the role of social objects' subjective information in a particular context can be recognised, critical realists aim to uncover the underlying objective reality through participants' experiences and the critical examination of evidence (Lawani, 2021:320–333).

Ontology: While epistemology in critical realism concerns what we know, ontology concerns the nature of reality (what is real) (Bhaskar, 2008:5–7). Critical realism holds that reality exists independently of one's

perception but that one's experiences, beliefs, and biases shape one's perception. In other words, there is a real objective world, but understanding the real world is always filtered through one's subjective experiences.

Critical realists hold the assumption that whatever one knows or understands of the world is imperfect and riddled with theories. Therefore, how one understands the world is not always the reality. One develops knowledge of the world through social practice. However, this production of knowledge is not necessarily a nonstop nor a sporadic process. Social phenomena depend on concepts that must be understood and interpreted (Easton, 2010:118–128). Bhaskar (2008:210–212) argued that knowledge of the social world is stratified and contains objects (with specific powers and weaknesses), entities (with causal power, entities can make things happen), and structures (which can generate events). The stratified layers of knowledge of the social world are described in three domains (or ontological levels): the empirical, the actual, and the real domains (Bhaskar, 2008:47–49).

Ontological levels or domains: The *empirical* domain refers to what can be observed and measured through one's senses. The world of appearances is based on a person's experiences and empirical data, which is visible to the researcher. The *actual* domain refers to what exists independently of one's perceptions and thoughts. A researcher cannot directly access the events or physical objects present in the *actual* domain. However, a researcher can infer the presence of events or physical objects through data. The *real* domain includes the deeper social structures or practices that influence a person in the actual and empirical domains (Bhaskar, 2008:47–49). An awareness of the deeper social structures or practices is evolving since they are only illuminated when interacting with other components or experiences. Although a researcher cannot directly observe the deeper social structures or practices in the *real* domain, a researcher may use critical reasoning and scientific investigation methods to gain knowledge. For instance, social structures such as South Africa's wealth inequality, where one section of the population is classified as an upper-middle-income per capita group while others have a low income, and the country's unemployment rate of 34.4% in 2021 and a poverty rate of 55.5% (World Bank, 2022), have causal powers which may impose constraints when implementing a staffing model. For critical realists, the *real* domain is thus the most essential. Exploring events in the real domain may provide a better understanding of what causes and shapes a person's actions.

Through retroduction, thus inferring the existence of underlying structures and mechanisms that give rise to the observable phenomenon, the researcher can gain insight into the underlying structures and mechanisms that shape the participants' world. Bhaskar (2008:47) posited that although the three domains are separated, they are related. Thus, whatever causal mechanisms are present in the *real* domain will cause events in the *actual* domain, which will consequently be seen in the *empirical* domain as the participants' experiences. It stands to reason that one will only know the reason for someone's actions if one understands *why* someone

took that specific action. Consequently, the root cause of a social problem can be identified, and strategies developed to address these social problems (Lawani, 2021:320–333).

The value of critical realism informed research: Critical realism can enhance social science research as it is a qualitative causality theory with explanatory power. Bhaskar suggests that alternative approaches may enable researchers to study humans in the same way as physical objects. Alternative methods are required since researchers cannot make inferences about the social world by using experiments (Bhaskar, 2008:182; Lawani, 2021:320–333; Roberts, 2014:1–23). In critical realism-informed social studies, the focus is thus on understanding the deeper mechanisms that produce social events that the observer cannot visibly observe (Lawani, 2021:320–333).

Critical realism was applied in this study to guide how knowledge was researched and understood. The following simplified example is presented to illustrate the suitability of critical realism for this study:

Firstly, a critical realism approach prompts the following question in the empirical domain: "What observable indicators can explain how and why the LTCF implements a staffing model?" One potential observable indicator is the duty roster. The duty roster indicates the number of staff and the skill mix in the LTCF. For instance, if an RN went on a month's leave and an EN stood in for the RN, it may suggest that financial constraints influenced the decision.

Secondly, in the actual domain, the question becomes: "What observable or unobservable events in the LTCFs offer insight into how and why the LTCF implements a staffing model?" Events may or may not be generated by mechanisms in the real domain. Regarding the example, one may inquire whether a replacement RN was scheduled, not scheduled, or scheduled but cancelled on short notice. Using agency staff to cover for caregivers but not for RNs on leave may also indicate events in the actual domain.

Thirdly, insight could be gained on why the LTCF implements a staffing model in a specific way. However, it is necessary to explore possible causes in the real domain. For example, empirical evidence may suggest financial constraints as the reason for arranging for an EN to replace an RN on leave. However, processes or other events in the real domain may uncover alternative reasons. For instance, unsatisfying past experiences with agency RNs, the nurse manager's desire to stay within a budget and impress the CEO, ENs' confidence in their ability to replace the RN or distrust of outsiders may all play a role in the decision-making process.

The suitability of critical realism for this study: The critical realism approach was deemed appropriate for this case study because it acknowledges the complex social realities underlying people's beliefs. Therefore, the critical realism approach permitted the exploration of various viewpoints through multiple sources of evidence. Additionally, the critical realism approach prioritises scrutinising the context that corresponds with

Mueller's framework (Mueller, 2000:262–267) and recognising the significance of comprehending the underlying causal mechanisms and structures beyond just the observable aspects of implementing a staffing model in LTCFs.

3.4 PHASE 1: SUBSTUDY 1: SCOPING REVIEW

Phase 1, Substudy 1, comprised a scoping review based on the Joanna Briggs Institute's methodological framework (Joanna Briggs Institute, 2015). As described in Chapter 1, the nurse categories and scope of practice varied between countries and were considered when answering the sub-questions in the scoping review.

3.4.1 Review question and objective

The objective was to explore the implementation of nurse and caregiver staffing models within LTCFs across resource-rich and resource-constrained contexts. The following question guided the review: "What are the characteristics of staffing models implemented in resource-rich and resource-constrained contexts?" Additionally, sub-questions were formulated to capture the scope and diversity of available literature:

- How do LTCFs implement staffing models regarding staffing levels, skill mix, and allocation of tasks?
- Is allocating tasks aligned with the scope of practice of the nurses' categories and the caregivers' job descriptions, as described in the relevant country's legislation?
- Is the allocation of nursing and caregiver staff aligned with the acuity of the individual residents?

3.4.2 Population and sampling

The phenomenon of interest in this scoping review was the implementation of staffing models in LTCFs. The focus was on three central **concepts**: staffing levels, skill mix, and staff allocation aligned with residents' acuity, nurses' scope of practice, and the job descriptions of the caregivers. As discussed in Chapter 1, nurses' scope of practice refers to the tasks and procedures a nurse is qualified to and legally authorised to perform, which may vary between countries. The **context** was studies conducted in formal long-term care settings for older people, i.e. in international, Sub-Saharan and South African LTCFs in resource-rich and resource-constrained contexts.

Evidence sources: This scoping review considered evidence sources such as primary research studies with quantitative and qualitative designs. Grey literature sources such as government legislation and guidelines, institutional policies, conference papers, dissertations, and theses were also considered.

The **inclusion criteria** for the evidence sources were:

- Information about nurse and caregiver staffing in LTCFs and

- Grey literature sources about the matter presented in government legislation and policies (national and provincial), acts, guidelines, institutional policies, conference papers, dissertations, and theses.

The **exclusion criteria** were:

- Studies within community settings that were irrelevant to the research aim.
- Studies done in foreign languages as the researcher's language ability is limited to English and Afrikaans.
- Studies with unobtainable full texts.
- Studies where the bulk of the data were collected before 2010.

Timeframe: Published and unpublished literature from 2010 onwards was searched, and the search continued until the completion of this study in 2024. The year 2010 was selected because the South African staffing model was only published in 2010 despite promulgating the Older Persons Act in 2006.

3.4.3 Methods

The Joanna Briggs Institute recommends following a three-step process when conducting scoping reviews. The three-step process includes an initial first-level search of keywords, applying an adapted search strategy to all the selected databases, and hand-searching the reference lists of the selected studies (Joanna Briggs Institute, 2015; Peters, Marnie, Colquhoun, Garritty & Hempel *et al.,* 2021:263), which was done in this study as described in the next paragraph.

A qualified librarian from Stellenbosch University assisted with developing a search strategy. Medical Subject Headings (MeSH) terms and keywords such as 'long-term', 'staffing models', 'skill mix', 'staffing levels', 'staff allocation', 'acuity', and 'scope of practice' were used singularly and in various combinations. The Boolean operators (AND, OR, NOT) were used separately or in combination to exclude specific keywords during the search process. A PhD student with experience in scoping reviews was recruited to assist with the search strategy, and a librarian further assisted with the literature search for the scoping review. An initial first-level search included searching text words in titles and abstracts and indexed keyword lists in two electronic databases, PubMed and Medline. Based on this preliminary search, the search strategy was adapted and applied to the databases, such as CINAHL, Cochrane Library, PubMed, Medline, Sabinet African Journals, and Google Scholar, for additional sources not included in the central databases. The search also included grey literature such as legislation, policies, acts, and guidelines on government websites, institutional policies on institutions' websites, and unpublished studies, e.g., conference papers, dissertations, and theses in university repositories. Finally, the reference lists of the selected studies were hand-searched to ensure the

inclusion of articles that were not retrieved while searching the databases. Google Scholar was used to retrieve the hand-searched studies manually.

Based on the inclusion criteria, **selected studies** were gathered and uploaded to Mendeley (a reference management software application). Duplicate studies were removed. All studies that did not meet the inclusion criteria were listed with reasons for their exclusion. The researcher and the PhD student with experience in scoping reviews scrutinised the selected sources. Any disagreements regarding the inclusion or exclusion of sources were resolved by consensus. The process of the study selection was described and mapped using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR) (See Chapter 4, Figure 4.1) (Lockwood, dos Santos & Pap, 2019:287–294; Tricco *et al.*, 2018:467–473).

A **data extraction form** (see scoping review protocol, Addendum D) was developed and piloted on three randomly selected articles, with the rationale to modify and revise the form. The full-text articles' data were sifted, mapped, sorted, and tabulated into the data extraction form. The primary study supervisor and an uninvolved researcher with experience in scoping reviews reviewed the data extraction process.

Data charting included the recording of the study characteristics (see Chapter 4, Table 4.2) under headings according to the author(s), year of publication, context (LTCFs in resource-rich or resource-constrained contexts), data sources, sample description, the aim of the studies, the methodology, and outcomes (Arksey & O'Malley, 2005:19–32; Joanna Briggs Institute, 2015).

Data analysis included determining the number of sources, developing codes, creating subthemes and themes, and reporting the data in a narrative form in Chapter 4, as advised by Arksey and O'Malley (2005:19–32).

Section 3.8.2 contains a discussion on trustworthiness as it pertains to the scoping review.

3.5 PHASE 1: SUBSTUDY 2: HOLISTIC MULTIPLE-CASE STUDY

Phase 1, Substudy 2 entailed a holistic multiple-case study. The research question for the holistic multiple-case study was how and why LTCFs implemented nurse and caregiver staffing models in resource-rich and resource-constrained contexts concerning staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions.

Context: The two sites selected for this study were one state-subsidised and one private for-profit LTCF in the Cape Metropole of the Western Cape province, South Africa. Both LTCFs were registered as residential facilities with the Western Cape Department of Social Development. The Department of Social Development

issues a registration certificate to an LTCF if the LTCF is found to be compliant in terms of the provisions of the Older Persons Act 13 of 2006 and the Regulations Regarding Older Persons (containing the norms and standards applicable to LTCFs) (Republic of South Africa, 2006:18, 2010a).

The state-subsidised LTCF accommodated an average of 101 frail older persons at the time of data collection. The facility is a multilevel building and is not part of a broader retirement village or a larger LTCF chain. It is registered as a non-profit organisation under the Non-profit Organisations Act 71 of 1997 (Republic of South Africa, 1997). Consequently, it provides services to older persons for non-profitable purposes, and its members are not entitled to distribute income and property except as reasonable compensation for services rendered. The primary sources of revenue for the selected state-subsidised LTCF are residents' old age grants (state pensions) ranging from R2 090 to R2 110 per month (Republic of South Africa, 2024), private pensions and a state subsidy for eligible residents. In cases where residents do not qualify for an old age grant or subsequent state subsidy, and their private pensions are insufficient to cover the minimum rates of the state-subsidised LTCF, family members are approached to cover the difference. Additionally, the LTCF generates income through various ongoing fundraising projects.

At the time of data collection, the **private for-profit LTCF** accommodated an average of 35 frail older persons. The LTCF building is situated within a retirement village with various apartments where independent older individuals reside. The LTCF's nurse and caregiver staff also supported the independent residents in apartments outside of frail care. These support services were focused on medical emergencies and measuring independent residents' blood pressure. This private for-profit LTCF represented LTCFs in the average-income private sector LTCFs in South Africa. The revenue for private for-profit LTCFs is generated by commercialising services to older people, with fees ranging between R30 000 to R40 000 per month (The Association for the Aged, 2024). The selected private for-profit LTCF was considered more typical of private for-profit LTCFs in the country than high-income private for-profit LTCFs that might charge the residents up to R40 000 per month (The Association for the Aged, 2024).

The reason for selecting the specific LTCFs: As discussed in Chapter 1, the two LTCFs were chosen because the private for-profit LTCF might have more access to resources since an income or profit is generated by commercialising services to older people. The private for-profit LTCF may represent a resource-rich context. In comparison, the state-subsidised LTCF are reliant on social grants for older people and government subsidies provided to the LTCF (Republic of South Africa, 2024), and the assumption was that the state-subsidised LTCF might provide services to older people in resource-constrained contexts.

3.5.1 Document review

Documents related to implementing nurse and caregiver staffing models in the LTCFs were reviewed to reach the second research objective: To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons.

Methodology

Setting: Documents related to nurse and caregiver staffing were reviewed from the two LTCFs described above, one state-subsidised and one private for-profit in the Cape Metropole, South Africa.

Population and sampling: The study selection included documents from diverse sources in each LTCF, as detailed in Table 3.1. The documents were purposefully selected based on the researcher's judgement of their ability to provide background information and context, whether they supplemented the data collection process, and whether they provided new insights into implementing a staffing model in the LTCFs, as advised by Bowen (2009:27–40).

The number of documents selected was not predetermined but depended on the richness, depth, and level of detail of the available data, as well as its adequacy in answering the research question (Fusch & Ness, 2015:1408–1416; Varpio, Ajjawi, Monrouxe, O'Brien & Rees, 2017:40–50). Additionally, the sufficiency of the data was assessed based on whether it provided enough information to support transferability to other contexts and whether additional coding and theme-creating were counterproductive (Fusch & Ness, 2015:1408–1416; Sebele-Mpofu, 2020). The process of triangulating findings from various data sources (explained in 3.6) assisted in determining whether the selected number of documents was adequate.

Data collection tool: A data extraction sheet, included in Chapter 5, Table 5.1, was used to extract information from the documents and to maintain an audit trail. The information captured on the data extraction sheet included the LTCFs' codes, the name and source of the document, the document's date if applicable, the location of the document, whether it was a primary (e.g., duty rosters) or secondary source (e.g., archived records such as newsletters and professional news resources), and the document's authenticity and authorship, as advised by Hancock and Algozzine (2006:52,53). In addition, notes were made regarding the credibility and representativeness of the documents. Field notes and reflective comments were also included since the researcher used an interpretive lens to filter the data (Bowen, 2009:27–40).

Data collection: Appointments were scheduled between 1 and 29 December 2022 to retrieve copies of the documents (raw data) from the LTCFs at times convenient to the CEOs and nursing service managers, with careful consideration to avoid disrupting the daily operations of the LTCFs. Data from public documents that could answer the research question, e.g., Department of Social Development directives and the LTCFs'

institutional websites, were collected online between 1 April and 30 June 2023. Data collection continued until data saturation was reached, i.e., new data sources contained redundant information, as advised by Moser and Korstjens (2017:9–18).

Table 3.1: Population and sampling for document review

Population and sampling	Inclusion		Reason for exclusion
	Private for-profit LTCF (P1)	State-subsidised LTCF (S2)	
Quarterly reports	0	2	P1 is not required to submit quarterly reports to the Western Cape Department of Social Development as no funding is received from this department
Monthly bed lists	6	0	
Monthly duty rosters (staff attendance was indicated on the duty rosters)	6	6	
Staff allocation lists	0	15	P1 did not keep records of staff allocation since the staff verbally decided on allocation between themselves
Minutes of the annual general meeting in 2022	1	0	
Minutes of a Board of Directors meeting in 2022	0	1	
Minutes of staff meetings	0	0	No minutes were available
Adverse events report related to staff	0	0	None were recorded except in the quarterly reports
Job descriptions	4	4	
Institutional policies related to staffing	0	1	P1 did not have any written policies
Archived records	0	0	Not available
Institutional website	0	1	P1 had no institutional website, but its Facebook page was perused to obtain background information
	Public documents		
Western Cape Government Health Norms and Standards	1		
Regulations Regarding Older Persons	1		
SANCs' scope of practice	1		
Code of conduct for caregivers	1		

Data analysis: Braun and Clarke's (2006:77–101) inductive thematic analysis process was followed to analyse the extracted data qualitatively. Conducting inductive thematic analysis aligned with this study's paradigm, the meta-theory of critical realism. The researcher explored the documents or empirical data and reflected on what they conveyed. After initially exploring the documents, a deeper exploration of the documents' content enabled the identification of possible underlying reasons for actions that were not directly visible (*real* domain). Delving deeper into the documents was done to understand the content better. The data analysis assisted with exploring the underlying causal mechanisms (Bhaskar 2018:47) to ascertain how and why the staffing model was implemented in the LTCFs. For example, pointers in the duty rosters were the daily staff skill mix, the staffing levels, and whether replacement staff were deployed where needed.

Step 1 (The familiarisation process): The researcher engaged in a process to become familiar with the retrieved documents, reflecting on the entire data collection process, field notes, and reflective comments

made during data extraction. The documents were carefully read and reread to ensure the researcher's comprehensive understanding of their content and context. Field notes and reflective comments from the data extraction sheet were transcribed onto Microsoft Word documents. Additionally, the data within the documents were summarised in memos contained within the same Microsoft Word documents. While creating memos, the researcher added further notes and comments while filtering out irrelevant data that did not contribute to the study's objectives. ATLAS.ti, a qualitative data analysis programme, facilitated data management and coding. The study supervisors had access to ATLAS.ti to monitor data analysis processes.

Step 2 (Creating initial codes): The datasets in the documents were ordered, and initial codes were generated by highlighting and naming data sections. The highlighted sections represented ideas or concepts within the data. The text was read line by line to identify sections that could provide answers to the research questions and uncover underlying meanings in the text. By assigning codes to the datasets, the data was broken down into smaller, more meaningful groups (Braun & Clarke, 2006:77–101).

Step 3 (Theme searching): The list of the initially generated codes was reviewed to look for patterns and connections between the codes. The relationship between the codes was carefully considered by exploring the implied underlying meanings in the documents' paragraphs. Similar codes were grouped, i.e., data portions that reflected similar data aspects were placed into categories. Thereafter, the different categories were grouped into themes and subthemes. The themes and subthemes contained several codes that represented higher level concepts. Consequently, placing the data in categories meant the data was structurally organised to facilitate further data analysis and interpretation, as proposed by Braun and Clarke (2006:77–101). Some initial codes that did not fit into specific categories or themes or were redundant (unrelated to the topic under investigation) were set aside.

Step 4 (Reviewing the themes): The initially generated codes were revisited and reconsidered. The researcher contemplated whether the initially generated codes and themes were still relevant and formed coherent patterns. At this stage, some new themes were created. The iterative process (going back and forth) of reviewing and refining the themes continued until the researcher was confident that the themes accurately reflected the data extracted from the documents. After reviewing and refining, a map was created in Atlas.ti showing the patterns the themes and subthemes formed.

Step 5 (Defining and naming themes): During this step, the themes were carefully defined and named to ensure clarity and coherence. The themes were then explored further to ascertain that all the participants' perceptions reflected in the data were also portrayed in the themes. Additionally, the themes were explored to ensure they captured all the key research concepts, namely staffing levels, skill mix, and staff allocation. The study supervisors reviewed the final themes.

Step 6 (Report of findings): The key findings were reported concisely and coherently to reflect the alignment between the study's topic, research questions, and document analysis. The final report was written in narrative form and is presented in Chapter 5.

3.5.2 Interviews

In-depth interviews were conducted to explore the participants' perceived barriers and facilitators to implementing a staffing model in the LTCFs. Focusing on the *real* domain provided a deeper insight into the underlying causes and structures that influenced the participants' perceptions (Bhaskar, 2008:47). Events in the empirical domain reflected these underlying causes and structures. The in-depth interviews facilitated an understanding of *how* and *why* the LTCFs implemented a staffing model. The interview methodology employed in this study was as follows:

Methodology

Setting: The setting for all the interviews was the two selected LTCFs, as described in Section 3.5.1.

Population and sampling: The study population comprised nursing service managers, RNs, ENs, ENAs and caregivers working day and night duty in the selected LTCFs. A total of six nurses (six RNs) and 17 caregivers were employed in the private for-profit LTCF, and a total of 12 nurses (two RNs, seven ENs, three ENAs) and 25 caregivers were employed in the state-subsidised LTCF, as displayed in Table 3.2. A purposeful sampling method was used, and by considering maximal variation, i.e., the researcher purposefully selected participants with a variety in experience, gender, and age who could provide unique insights from various angles (Grove & Gray, 2019:248–249) into the barriers and facilitators to implementing the staffing model in the LTCFs.

Selection strategy: Appointments were scheduled with the CEOs of the LTCFs to explain the purpose of the study. Both CEOs indicated that they would inform their staff of the research and suggested a return date to meet with potential participants individually without the management present.

Recruitment: Potential participants were met face-to-face in the LTCFs. Their suitability was assessed against the inclusion and exclusion criteria. Suitable participants received a written invitation (Addendum H). After participants agreed to participate, written consent was obtained to conduct and record the interviews (Addendum H and I). Arrangements were made with them for the interviews regarding the dates, times, and venues. All interviews were conducted in the state-subsidised and the private for-profit LTCFs.

Limited sample: A small sample size was expected due to the limited number of nurses employed at the LTCFs across all categories despite including participants on day and night duty. Moreover, the private for-

profit LTCF's trustees and CEO decided to gradually replace all ENs and ENAs with RNs, which was accomplished before the commencement of the interviews. Therefore, only RNs and caregivers could be interviewed in the private for-profit LTCF. Despite the small number of interviews conducted, it was believed that obtaining diverse perspectives on the research topic was more important than the number of interviews.

Inclusion criteria comprised all RNs, ENs, ENAs and caregivers employed by the LTCFs who provided direct care to residents and the nursing service managers.

Exclusion criteria included RNs, ENs, ENAs, and caregivers who were on leave during the data collection period. Also, RNs, ENs, ENAs, and caregivers from personnel agencies were excluded based on their possible unfamiliarity with the barriers and facilitators to implementing the staffing model in the LTCF.

Table 3.2: Population and sampling for interviews

	Private for-profit LTCF (P1) (30 to 40 beds)		State-subsidised LTCF (S2) (90 to 110 beds)	
Population	**Target population**	**Sample**	**Target population**	**Sample**
Nursing service manager/ facility manager	1	1	0	0
RNs	5	3	2	1
ENs	0	0	7	2
ENAs	0	0	3	3
Caregivers	17	5	25	4
Totals	**23**	**9**	**37**	**10**

Data collection tool: A semi-structured interview guide was developed based on the study's research question and underlying paradigm and was used for the participant interviews (Addendum J). The research framework and underlying paradigm guided the broad questions to meet Objective 2: To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons. Probing words were used to elicit more information from the participants regarding particular questions (Grove & Gray, 2019:77). The following is an example of a question in the interview guide posed to the nursing service manager and registered, enrolled, and assistant nurses: "In your experience, what aspects decrease your ability to provide/ensure enough nurses and caregivers in your LTCF?" (Probing words**:** recruitment, appointment practices, absenteeism, staff turnover, availability of temporary staff, efforts to adjust staff totals during sick and vacation leave periods).

Interview skills: Between 2019 and 2020, the researcher received interview training based on Rogerian principles as a master's student at Stellenbosch University. The training included, among other things, role-playing to practise empathy, reflection, and summarising responses to questions. To further enhance

interview competencies, the researcher practised the interview skills with the support of the study supervisors during two Microsoft Teams meetings before conducting the pilot and primary interviews.

Preparation for data collection: The appointments for the interviews were made to suit the participants' choice of time and date, with careful consideration to avoid disrupting the daily operations in the LTCFs.

Data collection-pilot interview: One pilot interview was conducted with a caregiver from the state-subsidised LTCF. Since caregivers are non-nursing, non-professional team members in the LTCFs, it was anticipated that a caregiver would be less familiar with the terminology used in the mandatory nurse and caregiver staffing model. Therefore, the pilot interview aimed to confirm the terminology used for questions and the coverage of the questions and to assess the relevance of the data content generated in response to the questions to meet the study objectives. After reflection, the pilot interview was integrated into the study as suggested by Creswell and Creswell (2018:262), as rich data was elicited from it to facilitate meeting the study objectives.

Data collection - the interviews: The interviews commenced with an introduction, expressing gratitude for the participants' willingness to share their experiences, the study's aim, and the interview's purpose. Creswell and Creswell (2018:266) suggested recording each interview on a voice recorder to ensure data accuracy, which was done (consent for the recordings: Addendum I). Participants were reassured that codenames were assigned to the LTCFs and participants and used for interview transcripts, the audio recording of the interviews, and the final report on the study's findings (Creswell & Creswell, 2018:262). If the researcher was familiar with the participants based on her work as an auditor in the LTCFs, care was taken to explain the researcher's role in the interview versus her role as an auditor. Participants were informed that they could choose to be interviewed by another researcher, but all the participants were comfortable with the primary researcher conducting the interviews. To build trust and let participants feel at ease, they were informed that there were no right or wrong answers. Participants were allowed to ask questions to establish a rapport with the researcher before commencing the interview and sharing their experiences (Moser & Korstjens, 2017:9–18).

Of the nineteen interviews, fifteen were conducted in English and four in Afrikaans, based on the participants' preferences. The researcher started with broad, open questions to make the participants feel at ease, e.g., "Please take me through your typical day since you started working in the morning. What does your day look like?" After that, the questions in the semi-structured interview guide on exploring the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons guided the researcher. The sequence of the questions depended on the answers provided by the participants and how the interviews unfolded.

The researcher asked follow-up questions to encourage participants to share more details. Also, probes and prompts elicited more detailed responses from the participants, e.g., "Please tell me more about …". Other interview techniques used included active listening, body language and nods, clarifying what participants said, and reflecting on their words to gain a deeper understanding of what they had said. Also, by using short periods of silence, pauses were presented during the interview to provide the participants with an opportunity to reflect on what they wanted to add. It also allowed the researcher to reflect and look for hidden messages (Moser & Korstjens, 2017:9–18), which provided more profound insight into the underlying causes of how and why the staffing model was implemented. In addition, field notes and reflective comments were made during the interviews for the researcher to reflect on and refer to.

The participants' answers to the questions allowed the researcher to point towards and direct further inquiries into the underlying and unobservable facts (Bhaskar, 2008:47) about implementing the staffing model. The interviews were concluded by thanking the participants for their contributions. The interviews took place from 9 March to 17 May 2023. The duration of the interviews varied. The average length of an interview was 43 minutes, with the shortest lasting 31 minutes and the longest lasting 67 minutes. An excerpt from an interview is attached as Addendum K.

Data saturation: Seventeen interviews were conducted when new interview data appeared to contain redundant information, indicating data saturation was reached (Moser & Korstjens, 2017:9–18). However, another two interviews were conducted to ensure that data saturation was reached, i.e., sufficient rich and detailed data was available to address the research question, explain the concepts in the research framework underpinning the study, and achieve theme saturation (Sebele-Mpofu, 2020). The final sample consisted of nineteen interviews, ten in the state-subsidised and nine in the private for-profit LTCF, as presented in Table 3.2.

Data analysis: The data analysis from the document review and participants' interviews occurred concurrently. Data analysis was prepared immediately after the interviews by downloading the audio recordings onto a computer. Copies were made of the audio recordings and stored on a USB device for archive purposes, as advised by Creswell and Creswell (2018:266). The audio recordings were transcribed verbatim onto Microsoft Word documents in English or Afrikaans (depending on the language used during the interviews) and then uploaded to ATLAS.ti, a qualitative data analysis programme. To monitor the data analysis process, the study supervisors were provided with access to the project on ATLAS.ti. The researcher and the supervisors held frequent meetings via Microsoft Teams to ensure coder reliability.

The six steps of inductive thematic analysis suggested by Braun and Clarke (2006:77–101) were applied for data analysis as thematic analysis aligned with the meta-theory of critical realism used in this study. The data

analysis required constructing meaning by interpreting the participants' reality. Thus, the answers participants provided in response to the questions were only part of what the participants observed and could know about (Bhaskar, 2008:47). However, the critical realist believes that a world exists beyond one's ability to observe it (Bhaskar, 2008:47). Consequently, the researcher interpreted the participants' answers in response to the questions during the thematic analysis. In doing so, the data's underlying hidden meanings were explored. The underlying hidden meanings in the data conveyed information that the participants were possibly unconscious or unaware of (Bhaskar, 2008:47; Fletcher, 2017:181–194).

Step 1 (Familiarisation process): As Braun and Clarke (2006:77–101) advised, the transcribed interviews were extensively read and reread to engage with the data and become acquainted with it. The process also included listening to the audio recording several times. By familiarising herself with the data, the researcher understood the link between the data, the study's objectives, the research framework, and the paradigm underlying this study. The researcher became more familiar with the link between the data and key concepts of the study, which entailed staffing levels, skill mix, and staff allocation.

Step 2 (Creating initial codes): After reviewing the transcripts and listening to the audio recordings, initial codes were generated. Relevant sections in the data representing the participants' answers were identified, highlighted, and labels assigned, thus coding the data portions. The process of isolating selected data portions meant the data was arranged into small, meaningful groups. Structuring the data into meaningful groups facilitated further analysis and interpretation (Braun & Clarke, 2006:77–101).

Step 3 (Theme searching): Braun and Clarke (2006:77–101) advised that researchers search for commonalities between the data portions. Therefore, the researcher searched for similarities between what the participants shared during the interviews. Time was spent exploring the underlying meanings of the participants' perceptions. Consequently, relationships between the coded data became clearer. Data groups that appeared similar were then grouped. These groups formed categories reflecting essential aspects of the data. The categories were then organised into potential themes and subthemes. The themes contained several codes that portrayed higher level concepts. Braun and Clarke (2006:77–101) proposed that this categorisation process provides structured data organisation and a framework for analysis and interpretation. Some initial codes were set aside. This included redundant codes, codes that did not fit into specific themes or categories, or codes unrelated to the study's topic.

Step 4 (Reviewing the themes): This review entailed revisiting the initial codes, categories, and themes. Consideration was given to their relevancy in terms of the participants' perceptions. The researcher continued to review the themes iteratively and refined them until she was confident that the selected themes represented the interview data.

Step 5 (Define and name themes): Each theme was carefully defined and given appropriate names to ensure alignment with the overall concepts in the study (skill mix, staffing levels, staff allocation aligned with resident acuity, nurses' scope of practice and caregivers' job descriptions). The focus was on maintaining clarity and accurately describing what each theme represented. Theme saturation was achieved, indicating that the themes covered the data's comprehensive range of concepts and perspectives (Sebele-Mpofu, 2020).

Step 6 (Report of findings): The final stage involved synthesising the interview findings into a comprehensive report in Chapter 6. The report effectively conveyed the key insights from the interviews, thus ensuring coherence and alignment with the research question and study topic. It provided a narrative account of the barriers and facilitators to implementing the mandatory staffing model as perceived by the nurses and caregivers in the LTCFs.

3.6 TRIANGULATION OF THE FINDINGS

Triangulation, i.e., the merging of findings, was used in this study to enhance the trustworthiness of the findings (Noble & Healy, 2019:67-68). Following the guidance of Venkatesh, Brown, and Sullivan (2016:435-495), the integration of the findings of the scoping review, the document review, and the interviews was conducted. This was done through the development of overarching interpretive themes representing the meaning of all the data to provide comprehensive conclusions or theoretical statements regarding the implementation of a staffing model in LTCFs from different perspectives. The triangulation process was done by first separately summarising each dataset's findings, i.e., the scoping review, document review, and interviews (see Chapter 7, Sections 7.3, 7.4, and 7.5). Once these summaries were complete, the findings were carefully interpreted and then organised according to the key concepts of the underlying research framework: staffing levels, skill mix, and staff allocation (outlined in Addendum N). The findings were also cross-verified to identify convergent findings, i.e., consistent results across the different sources, complementary findings, i.e., findings that correspond with and enhance or contribute to one other, and findings that reflected opposing viewpoints (showing divergence). The findings were categorised into themes related to staffing levels, skill mix, and staff allocation, respectively. Chapter 7, Tables 7.1 to 7.4, contains a side-by-side comparison of these themes and their corresponding findings. The final column of each table represents the triangulated data, showcasing theoretical statements derived from the analysis, ultimately offering an integrative view and, consequently, a broader picture of the complex nature of implementing a staffing model in LTCFs (Venkatesh, Brown & Sullivan, 2016:435–495). Chapter 7 includes a more detailed description of the triangulation process.

3.7 FRAMEWORK DEVELOPMENT AND VALIDATION

Meleis (2012:381–387) recommended following a strategy during a framework development process. Following a specific plan may assist researchers with theorisation, i.e., the process of developing concepts and theoretical statements to include in the framework. Therefore, the framework to inform staffing models for LTCFs in resource-constrained contexts was developed using Meleis's proposed strategy. Chapter 8 includes a more detailed description of the process and the completed framework.

3.7.1 Developing the framework

Meleis suggested following seven steps for developing concepts and theoretical statements. The steps comprised "sensing and taking in the phenomena", "describing the phenomena", "labelling the phenomena", "developing concepts", developing statements", "explicating assumptions", and "sharing and communicating" (Meleis, 2012:381–387). Although the steps could occur simultaneously or out of sequence, the steps are presented linearly for easy reading.

Sensing and taking in phenomena involved using the triangulated data to identify phenomena that grabbed the researcher's attention. The data was attentively examined before describing it. This step entailed carefully delineating any events that demonstrated the implementation of a staffing model in the LTCFs.

Describing phenomena: In this study's context, describing the phenomena referred to describing the implementation of a staffing model in LTCFs. The process involved defining the occurrence, behavioural patterns, and limitations of implementing a staffing model. The findings of each dataset were organised according to Mueller's framework (Mueller, 2000:262–267) and Bhaskar's meta-theory of critical realism (Bhaskar, 2008;4–9).

Labelling phenomena: The key concepts of the study, namely staffing levels, skill mix, and staff allocation, were used to organise the data. Related findings were condensed into concepts or statements that conveyed a single idea aligned with the operational meaning in the study context. A label was given to describe the concepts or statements. The labels were then again considered to see if they were appropriate, conveyed a single idea, and had a consistent meaning in the study context.

Developing concepts was an evolving process of continuously identifying similarities or differences between concepts based on the concepts' meanings and properties across the three datasets. Considering the labelled concepts or statements, the phenomena were categorised, integrated, and described in detail.

Developing statements means organising propositions around developed concepts. Thus, by linking the concepts and assumptions, the statements explained concepts concerning the study objectives. Then, inferences were drawn from the concepts derived from the triangulated data to develop statements. These

inferences aimed to describe the developed statements' properties, dimensions, and relationships, thus providing a comprehensive understanding of the concepts.

Explicating assumptions required clarification of implicit and explicit assumptions through continuously pausing, reflecting, and questioning one's view, the research findings, and the theoretical underpinnings of the study. Chapter 8, Table 8.1, contains evidence from the integrated findings illustrating why statements were selected for inclusion in the framework. After continuous reflection on the authenticity of the data and that the data supported the framework, the framework was completed.

Sharing and communicating through discussions with experts and study supervisors enhanced the framework development process (Meleis, 2012:381–387). After synthesising the framework to inform staffing models for LTCFs in a resource-constrained context, the framework was validated by experts.

3.7.2 Validating the framework

A panel of experts was purposefully selected, as described in the 'population and sampling' section below, and the framework was validated. The panel members were requested via a discussion (see subheadings below: 'Preparation for data collection' and 'Data collection') to consider whether the proposed framework was comprehensive and complete, thus considering the extent to which the framework was based on the actual findings of the scoping review and holistic multiple-case study. The panel members were also asked to consider whether the study's findings appropriately supported the proposed framework and assessed its applicability to practical, real-life situations, specifically its relevance to the LTCFs. The aim was to validate the framework in terms of trustworthiness, including the framework's credibility, relevancy, consistency, and accuracy (Lincoln & Guba, 1985:296–323). The panel discussion workshop methodology employed in this study was as follows:

Methodology

Setting: The panel discussion was conducted online.

Population and sampling: Based on the researcher's understanding of their ability and experience to provide unique insights into validating the framework to inform staffing models for LTCFs in resource-constrained contexts, a purposeful sampling method was used to select participants for the panel with extensive experience in elderly care and LTCF management. The final panel comprised four RNs and two social workers actively involved in the Western Cape province LTCFs. Five participants held management positions in LTCFs, of whom two were responsible for overseeing multiple LTCFs. Two panel members represented the state-subsidised LTCFs, and three represented private for-profit LTCFs. One panel member was a university lecturer with experience in elderly care. The panel members' qualifications ranged from two having diplomas, two

holding bachelor's degrees, and one participant holding a master's degree and another a PhD. All the participants were female. The panel members were diverse and represented the three main race groups as per the Western Cape province's population. Since validating the trustworthiness of the framework included, among others, the framework's applicability to real-life contexts, a participant from the holistic multiple-case study was invited to form part of the expert panel. This RN participant was part of the population interviewed in the private for-profit LTCF during Phase 1 of the study (Table 3.2). This participant was also selected using the purposeful sampling method.

Selection strategy: Potential panel members' email addresses were available in the public domain. Therefore, the panel members were contacted via email to explain the purpose of the study and the framework validation process. They were also requested to consider whether they were willing to participate.

Recruitment: A written invitation was sent to the participants, comprising a participation information leaflet and an informed consent form (Addendum L). After the participants agreed to participate, arrangements for the panel discussion were made regarding the date and time. The initial arrangements indicated that the workshop would be held via Zoom, but a decision was made to use Microsoft Teams based on the time limitations imposed on some Zoom meetings.

Data collection tool: Data was collected via email before and after the online discussion and via the online discussion itself. The online discussion was recorded with all panel members' consent, as advised by Creswell and Creswell (2018:266). The automatic transcription was downloaded and edited. Addendum M contains an excerpt from the transcription. In addition, notes were made of reflective comments during the panel discussion.

Preparation for data collection: Before the workshop, a report was sent to the panel members reflecting on the background and main findings of the study, including theoretical statements proposed for inclusion in the framework. To prepare for the workshop, the panel members were asked to read the report and consider the trustworthiness of the framework regarding credibility, relevancy, consistency, and accuracy.

Data collection: The panel discussion workshop took place in June 2024. In addition to the panel members, two study supervisors attended the panel discussion as moderators. The Microsoft Teams workshop commenced with welcoming the attendees, introducing them to each other, and expressing gratitude for the panel members' willingness to share their expertise. The panel members were informed that the session would be recorded. However, the panel members were assured that their identities would not be revealed in the final report. All the panel members signed a consent form pledging to ensure the privacy and confidentiality of the other panel members (see Addendum L). To let the panel members feel at ease, they were informed that there were no right or wrong comments but that any comments were helpful and would

assist in validating the framework. The researcher shared an approximately twenty-minute presentation to provide an overview of the study, the key study findings, and the statements proposed for the framework. After the presentation, the panel members offered comments and input. Follow-up questions were asked where needed to encourage panel members to share more details. The workshop lasted approximately one hour. The framework was adjusted after the workshop to reflect the input of the panel members and then emailed to the panel participants for final comments. The subsequent feedback from the panel members via email included an additional suggestion, which was included in the framework.

Data saturation: A workshop was held via Microsoft Teams, with additional feedback from the panel members via email after the discussion. The conversations via email continued until data saturation was reached, i.e., sufficient data was available to confirm the framework's validity.

Data analysis: Data analysis commenced immediately after the panel discussion. The panel members' feedback and suggestions were discussed with the primary supervisor via Microsoft Teams. The comments from the panel members were transcribed on a Microsoft Word document to maintain an audit trail. Braun and Clarke's (2006:77–101) inductive thematic analysis process was followed to qualitatively analyse the panel members' feedback. The researcher reflected on the summarised content and carefully read and reread the notes to facilitate an understanding of the content and meaning of the panel members' words. Codes were generated by highlighting data sections, and patterns were searched among the panel members' statements. Similar statements were grouped and categorised according to the framework's key concepts. Statements that did not fit into the study's key concepts were grouped, for example, statements that related to the nurses' and caregivers' wellbeing. An iterative process was followed by going back and forth between the statements until all the appropriate suggestions were contained in the framework. Chapter 8, Section 8.3 includes a more detailed description of the panel members' comments and recommendations.

3.8 TRUSTWORTHINESS

Lincoln and Guba (1985:301) recommend that researchers apply specific quality criteria to promote the trustworthiness of qualitative studies, such as this scoping review and holistic multiple-case study. Consequently, specific strategies were used in this study to promote credibility, transferability, reliability, confirmability, and reflexivity, as detailed below.

3.8.1 Trustworthiness as it pertained to the study in general

Credibility refers to the extent to which the study's findings reflect the original information obtained during data collection (Lincoln & Guba, 1985:301) to determine whether the conclusions of the scoping review, the document review and the interviews were correctly interpreted. To support the credibility of the findings

(Korstjens & Moser, 2018:120–124), regular meetings with the study supervisors were held to enhance the coding, verify the data, data analysis and interpretation as advised by Lincoln and Guba (1985:305).

Multiple methods were used for data collection, i.e., a scoping review, document review, and interviews. Data triangulation was thus done from these various sources (Lincoln & Guba, 1985:305–307), such as the selected studies from the scoping review, the data from multiple documents sourced and the interviews with the different categories of nurses and caregivers.

Also, see Section 3.9.1 on the researcher as an insider, i.e., how the researcher managed her pre-knowledge on the issue studied since the management thereof concerns credibility.

Transferability was facilitated by the research report that included a thorough description of the research process, including the settings, e.g., an LTCF in a resource-rich and a resource-constrained context, populations, eligibility criteria for selecting the articles for the scoping review, documents for review (including the characteristics of the documents), and the participants allowing readers to decide whether the study's findings resonated with them and were transferable to their settings (Korstjens & Moser, 2018:120–124). Furthermore, transferability was strengthened by the research framework and by using the key concepts, namely staffing levels, skill mix, and staff allocation aligned with resident acuity, the nurses' scope of practice, and caregivers' job descriptions in the data collection and analysis processes.

To promote **dependability,** all the research steps were explicitly documented as a clear audit trail, thereby enhancing the transparency of the research process (Korstjens & Moser, 2018:120–124; Peters *et al*., 2021:263; Tricco *et al*., 2018:467–473). Data derived from the scoping review, the document review, and interviews were aligned with the research framework, the study aims and objectives. The supervisors were granted access to the Atlas.ti project that contains the data sets of the document review and the interview transcripts. Therefore, the supervisors could co-code randomly selected excerpts from these data sets, view the sets for over- and/or under-coding, and the presence or undertones of bias.

Confirmability was applied through the use of the expertise of the study supervisors to ensure alignment between the raw data and the final findings and to confirm that the findings were based on the original data (Korstjens & Moser, 2018:120–124; Lincoln & Guba, 1985:318).

The researcher applied the criterium of **reflection**, considering her preconceived ideas, assumptions, and biases based on her work as an auditor of LTCFs. Through intense critical self-reflection, she was made more aware of how her world lens might influence research decisions (Korstjens & Moser, 2018:120–124). Then, the researcher carefully reflected on whether the information in the data was linked to the research question

and the purpose of the study, as well as with the concepts of staffing levels, skill mix, and staff allocation aligned with residents' acuity, the nurses' scope of practice, and caregivers' job descriptions.

3.8.2 Trustworthiness pertaining to substudies and data collection methods

Scoping review: To ensure the trustworthiness of the scoping review, a detailed description of the methodology was provided, promoting transparency and strengthening the credibility and dependability of the findings. A detailed description of the method also allows readers to assess this scoping review's transferability to their settings (Batten & Brackett, 2021:220–222). The review question and sub-questions were formulated, and explicit inclusion and exclusion criteria were established. Keywords were identified, and a comprehensive search strategy aligned with the study's research question was developed with a research librarian from Stellenbosch University. The researcher and a PhD student with scoping review experience conducted the literature search and subsequent data extraction.

Method triangulation was achieved by searching multiple electronic databases, including PubMed/Medline, CINAHL, Cochrane Library, and Sabinet African Journals. In addition, Google Scholar and university repositories were searched for unpublished studies. This comprehensive search enhanced the rigour of the study (Batten & Brackett, 2021:220–222). The search strategy was detailed to facilitate transparency and reproducibility (Batten & Brackett, 2021:220–222). The search strategy included the details regarding the timeline, search history, and search terms. In addition, the decision-making process regarding the exclusion of studies was recorded.

Data triangulation was achieved by collecting information from diverse sources (Lincoln & Guba, 1985:305–307), including primary research studies employing quantitative and qualitative designs and grey literature. The primary researcher developed a data extraction form, which the study supervisors validated. After that, the data extraction form was piloted on three articles, reviewed by an impartial researcher experienced in scoping reviews, and subsequently used for data extraction. Additionally, the primary supervisor and an external researcher with expertise in scoping reviews supervised the data extraction process. Data was managed using Mendeley, a reference management software application. The recorded data included the characteristics of all the studies. The data was analysed, and themes were created to portray the underlying meaning of the data. Regular meetings between the researcher and the study supervisors facilitated alignment between the raw extracted data and the findings. Aligning the raw data with the findings helped strengthen the credibility of the scoping review.

Holistic multiple-case study

Document review: To enhance the study's dependability, Baxter and Jack (2010:544–559) advised using a data extraction sheet that included all the details in the documents. The data extraction sheet included the LTCFs' codes, sources of the documents, authenticity, authorship, credibility, representativeness, and locations where it was found. In addition, the sheet contained information on whether the documents were primary sources (e.g., duty rosters) or secondary sources (e.g., LTCFs websites). The sheet also made provision for adding field notes and reflective comments (Hancock & Algozzine, 2006:52,53).

Interviews: A semi-structured interview guide was developed based on the study's research question and underlying paradigm. The researcher received interview training based on Rogerian principles, as explained in Section 3.5.2. Based on these principles, probing words were used to elicit more information from the participants. Credibility was further facilitated by the study supervisors acting as moderators, thus randomly co-checking three to six transcriptions, comparing them with the audio recordings of the interviews, and physically observing three random interviews. Data triangulation was applied by collecting data in two LTCFs and from different categories of nurses and caregivers. Member checking was included to strengthen the data by offering participants' verbatim transcripts of their interviews. Participants could, therefore, check the authenticity of the transcripts to see if the wording reflected their intentions, and it provided them with the opportunity for corrections, clarification, and feedback (Korstjens & Moser, 2018:120–124). The researcher applied critical self-reflection during interviews to facilitate self-awareness of potential power imbalances. In addition, an independent expert in qualitative research (supervisor) audited the pilot interview and the subsequent research steps.

3.9 ETHICAL CONSIDERATIONS

The study commenced after ethical approval was granted by the Stellenbosch University Health Research Ethics Committee (HREC) on 21 November 2022 (S22/10/216—Addendum A). After that, the Western Cape Department of Health and the Western Cape Department of Social Development were contacted to obtain permission to conduct the research. Both departments stated that only facility permission was required, which was obtained from the managers of the selected facilities (Addendum C).

3.9.1 Role of the researcher as an insider

In Chapter 1, it was acknowledged that the researcher had a dual role as researcher and auditor of LTCFs. Collecting data as a researcher-insider could raise concerns about validity and insider bias (Creswell & Creswell, 2018:259). Due to the participant-auditor relationship, power imbalances also existed. Participants' answers might have been influenced by how they view the researcher; they might have experienced fear of

being judged or might have been wary of the implications of sharing information with the researcher (Fleming, 2018:311–320), who, as a health auditor, would probably audit the LTCFs in future.

To mitigate the consequences of her dual role as researcher and auditor of LTCFs before the interviews, trust relationships were built by frequently visiting the LTCFs and interacting informally with the participants while scheduling the interviews. The researcher proceeded cautiously and showed sensitivity by offering the participants the option to be interviewed in their home language and by someone other than the researcher. Thus, a better rapport was established with the participants. The researcher endeavoured to show empathy for the participants' needs, unconditional positive regard, and approachability by only using her first name and being open-minded, good-humoured, and non-judgemental. Participants were assured that the focus was on the study's research question, objectives, and purpose, not on exposing potential errors in the staffing model. Also, the study's relevance to the participants' practical work situation was thoroughly explained. The researcher endeavoured to provide assurances to the participants regarding protecting their identities. The participants were also assured that all shared information would be handled confidentially.

During the interviews, some participants assumed that the researcher knew the answers to the questions and, therefore, did not expand sufficiently when answering questions. Thus, probes were used to elicit the participants' perspectives' deeper meaning and prevent premature conclusions. The semi-structured interview guide ensured the researcher posed the same questions to lower-qualified, middle, and senior staff. In addition, the researcher endeavoured to manage her subjectivity by bracketing her assumptions, being aware of her biases, referring to the triangulated data from the scoping review and document review and constantly practising reflexivity (Dwyer, 2009:54–63). In addition, to prevent participants from feeling judged, they were assured that there were no right or wrong answers. The researcher also refrained from sharing her own experiences with the participants. By showing interest in the participants' experiences and conveying an understanding of how the participants do things in the LTCFs, the researcher strived to understand the underlying realities of using the mandatory nurse and caregiver staffing model in the LTCFs. Additionally, the study supervisors ensured no coercion occurred during the recruitment and data collection process. A study supervisor audited the pilot interview and the subsequent research steps and randomly observed the interviews. The study supervisors acted as moderators and randomly co-checked three to six transcriptions versus the audio recordings of the interviews. During data analysis, the study supervisors confirmed that the findings of the interviews were grounded in the received data. In reflecting on preconceived ideas and discussing these ideas regularly with the study supervisors, who were aware of the researcher's dual role, self-awareness to minimise bias was created (Korstjens & Moser, 2018:120–124). Self-reflection also contributed to a more honest narrative when writing the research report, which might resonate with the readers.

The dual role of researcher and auditor of LTCFs also had certain advantages. My experience and expertise gave me advanced knowledge of staffing issues in the LTCFs. Being familiar with the intricacies of the LTCFs' operations, potential participants, the jargon, language, culture (Fleming, 2018:311–320), and roles and responsibilities of the nurses and caregivers assisted in thoroughly exploring staffing issues. Moreover, it helped to understand possible tensions the participants experienced based on the differences between what is prescribed in the nurse and caregiver staffing model and the practical use of the staffing model in the LTCFs. Regarding my research journey, it was rewarding that the caregivers were enthusiastic about being included in a research project and expressed gratitude for the opportunity to be heard. Fortunately, no health audits were required for the private for-profit or state-subsidised LTCF since the onset of the research project, during the data collection period, and up to the completion of this study, thus further minimising the possible influence of my position on the participants' responses.

3.9.2 Ethical considerations pertaining to the participants

The following ethical considerations pertained to the participants:

Right to self-determination: CEOs of the LTCFs and potential participants were provided with a detailed information letter to explain the purpose of the study. Recruited participants were informed that participation was voluntary, that there would be no coercion, and that they could withdraw from the study at any point without penalty. Written informed consent was obtained from the participants for the study, including for the interviews and audio recordings (Addendums H and I). The consent forms were in English, the official business language of the LTCFs in the Western Cape province. However, isiXhosa and Afrikaans-speaking participants were informed that the consent forms would be translated and made available if preferred. All the participants declined the offer and chose a consent form in English. Due to limited resources, interviews were conducted in either English or Afrikaans, per the interviewee's choice.

Right to protection from discomfort and harm: All participants have the right to protection from discomfort and harm despite agreeing to participate in interviews. Nevertheless, Vanclay, Baines, and Taylor (2013:243–253) suggest minimal danger was associated with participating in qualitative studies such as this. However, participants might still experience discomfort during the interviews. To minimise possible discomfort, a trusting relationship was built between the researcher, the staff employed at the selected LTCFs, and the participants during the research process. Participants were informed beforehand of the duration of the interviews and the nature of the questions so they could prepare their thoughts before the interviews and that the researcher would be sensitive and respectful throughout the study. Furthermore, the interviewer was equipped with the contact information of the Western Cape Government's Independent Counselling and Advisory Services (ICAS) (Republic of South Africa, 2022b). ICAS offers counselling services to participants who did not have medical insurance in case they encountered emotional discomfort due to personal

reflections during the interviews. Alternatively, for participants preferring to utilise their medical insurance for counselling services, assistance was available to help them locate appropriate counselling services. However, none of the participants exhibited any signs of distress due to personal reflections during the interviews. Participants were again assured that they could withdraw from the study at any time should discomfort or unwillingness to proceed occur.

Right to confidentiality and anonymity: To indicate respect for the LTCFs and participants, their identities and information were protected as required by the Protection of Personal Information Act 14 of 2013 (Republic of South Africa, 2013). The confidential management of the LTCFs and participants' information ensured anonymity (Vanclay, Baines & Taylor, 2013:243–253). Participants' and the LTCFs' privacy was ensured by not revealing their personal information without explicit permission. The individual LTCFs and participants were assigned codes used on the interview transcripts, audio recordings, and final research report. The list with codenames, interview transcripts, and audio recordings of interviews was saved in separate password-protected files in the OneDrive Microsoft cloud service and on a USB portable flash drive to prevent possible data losses. Only the researcher and study supervisors had access to the raw data. Hard copies of the interview transcripts and field notes were locked in a safe. Participants were assured that the hard and electronic copies would be destroyed after five years.

The participants were allowed to choose the time and place for the interviews. All the participants preferred that the interviews be done at their workplace while on duty. Therefore, careful consideration was given to avoid disrupting the daily operations in the LTCFs. For example, as many residents rest daily between 13:00 and 15:00, this was a convenient time for conducting the interviews. Various interviews were also conducted over weekends as that was more suitable for the participants. The researcher declared to the participants that she did not receive funding for the study. All the participants received an incentive in the form of a data or airtime voucher to the value of R55 after an interview as a token of appreciation and to compensate them for their time, inconvenience, and effort, as recommended by the South African Health Products Regulatory Authority (Republic of South Africa, 2018).

3.10 SUMMARY

This chapter included an overview of the study's paradigm and methodology. The research design included a scoping review and a holistic multiple-case study. The approach followed in data extraction was described, including mapping the existing literature. Regarding the holistic multiple-case study, the case or the single unit of analysis comprised implementing the staffing model in the LTCFs. Two LTCFs were selected, one state-subsidised and one private for-profit in the Cape Metropole, South Africa. Data were collected through a comprehensive review of selected documents related to implementing nurse and caregiver staffing models in the LTCFs and in-depth interviews with nineteen participants. The study population included nursing

service managers, RNs, ENs, ENAs and caregivers working in LTCFs. Triangulation was employed to combine and analyse the findings from the different data sets. Following data triangulation, the integrated findings were synthesised into a framework to inform staffing models for LTCFs in resource-constrained contexts. The framework was validated by experts, after which it was refined and adapted. The next chapter includes the findings obtained from the scoping review.

CHAPTER 4
SCOPING REVIEW RESULTS AND DISCUSSION

4.1 INTRODUCTION

The previous chapter contains an overview of the methodology employed in this study and a description of the methods used in the scoping review. The review protocol for the scoping review (Addendum D) was structured and prepared per the guidelines of the Joanna Briggs Institute (2015) and according to Arksey and O'Malley's (2005:19–32) recommendations. The review protocol showcases the transparency of the process and delineates the plan for conducting the scoping review. The scoping review was conducted during Phase 1 of this study and was indicated as Substudy 1 (see Figure 1.2).

4.2 SEARCH RESULTS

The search commenced by identifying studies relevant to the research question, as advised by Arksey and O'Malley (2005:19–32). After identifying relevant studies, the studies were selected, and data was abstracted from them, collated, and summarised. Last, the results were reported in a narrative format.

Identification of potential sources: Search strings were used to identify relevant sources. The search strings for one database are provided as an example in Table 4.1. The complete search strings are attached as Addendum E. The three-step search process was followed as recommended by the Joanna Briggs Institute (Joanna Briggs Institute, 2015) and as discussed in Chapter 3, Section 3.4. The same search strings were applied across four databases: PubMed (Medline), CINAHL, Cochrane Library–Wiley, and Sabinet African Journals. While systematic reviews were excluded from the study, their references were manually searched through Google Scholar to identify potential additional sources. The original search was conducted in December 2022; an updated search using the same search strings was performed in July 2023. The initial and updated search across the four databases yielded the same results, namely 1028 (n=1028) potentially relevant citations. One additional study (n=1) was identified through reference lists and accessed via Google Scholar, bringing the total number of records to 1029 (n=1029). The search results are displayed in Figure 4.1.

Table 4.1: Example of search strings for one database

#	PubMed (Medline) search strings	Filters	# of results n=446
1	"long-term" OR "nursing home" AND "nurse staffing models" OR "staffing models" OR "staffing strategy" NOT hospital	Full text, from 2010/1/1 - 2023/12/31	116
2	"long-term" OR "nursing home" AND "nurse staffing levels" OR "nurse staffing ratio"	Full text, from 2010/1/1 - 2023/12/31	53
3	"staffing levels" AND Nurse AND "long-term"	Full text, from 2010/1/1 - 2023/12/31	44
4	"long-term" OR "nursing home" AND "skill mix" OR "staffing mix" OR "nurse skill mix"	Full text, from 2010/1/1 - 2023/12/31	115
5	"long-term" OR "nursing home" AND "staff allocation" OR "personnel allocation" OR "nurse allocation" OR "staff scheduling"	Full text, from 2010/1/1 - 2023/12/31	101
6	"nurse staffing models"	Full text, from 2010/1/1 - 2023/12/31	17

The selection of relevant publications required several steps. The flow of the search strategy is presented in Figure 4.1 and includes the initial identification to the final inclusion of relevant studies. Firstly, 235 duplicated records were removed from the 1029 potentially appropriate citations. After deduplication, the abstracts and titles of the remaining 794 records were screened to determine relevance to the study's topic. Of these 794 records, 696 were found to be irrelevant and thus were excluded, leaving 98 records for further screening. Two records were excluded from the 98 due to the unavailability of complete texts. Full text articles were retrieved from the remaining 96 records for a detailed review. From the 96 records, more were excluded during the full text review.

Records were excluded for the following reasons: irrelevant population (n=2), the incorrect context or setting (n=10), ongoing studies (n=1), protocols, periodicals, opinions, perspectives, commentary, or systematic/integrative reviews (n=17), records addressing less than two of the three central concepts of the study (staffing levels, skill mix, and staff allocation aligned with residents' acuity, nurses' scope of practice, and caregivers' job descriptions) (n=35), and studies collecting data between 1997 and 2009 (n=11). A complete list of the excluded studies is available in Addendum F. After these exclusions, the final sample comprised twenty studies.

Data abstraction: Data was abstracted from the twenty studies, and the general information was recorded, as advised by Arksey and O'Malley (2005:19–32). General information included the charting of authorship, year of publication, country of origin, income level (high, medium, or low-income country), data sources used, study design, study aim(s), setting, sample description, and sample size. The general characteristics of the studies are displayed in Table 4.2 and described in Section 4.3.

Collating, summarising, and reporting the results: The last step in this scoping review included collating and summarising the results (Arksey & O'Malley, 2005:19–32). The results were organised thematically according to the study's key concepts: staffing levels, skill mix, and staff allocation aligned with residents' acuity, nurses' scope of practice, and caregivers' job descriptions. Table 4.3 contains the themes derived from the studies.

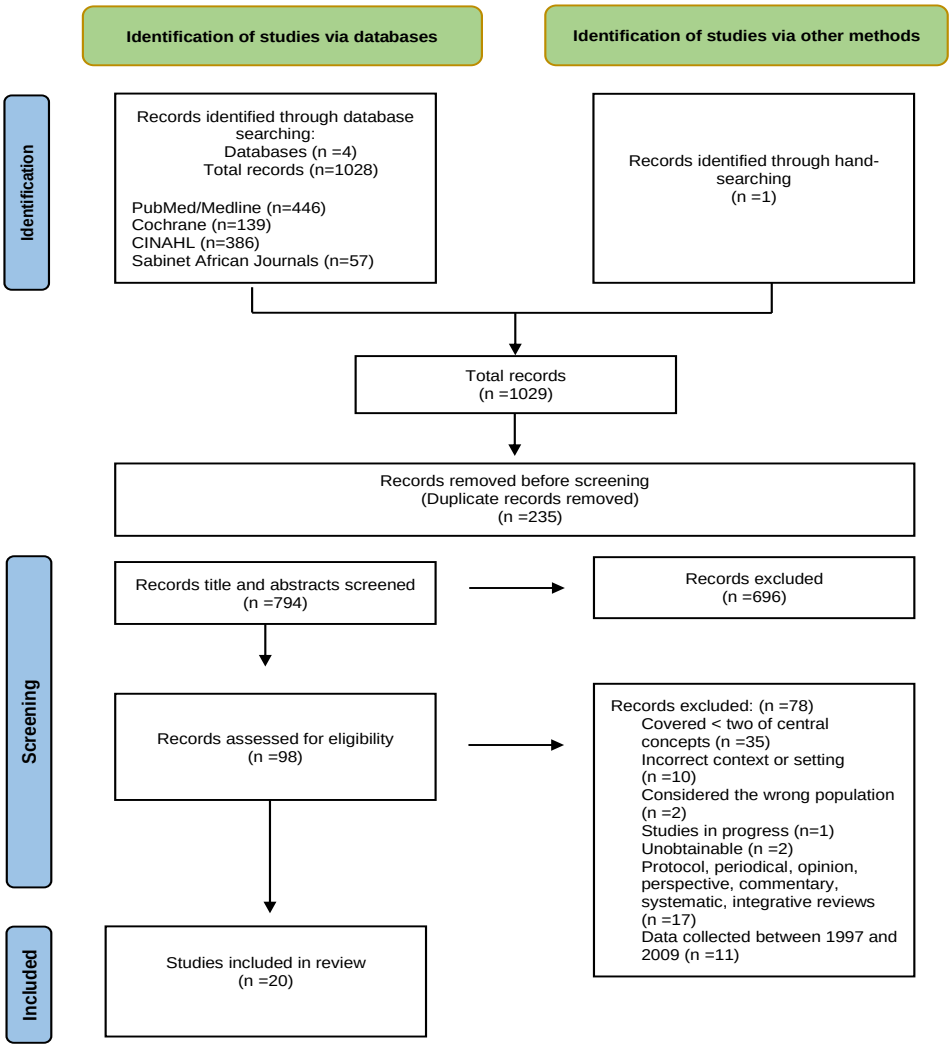

Figure 4.1: PRISMA flow chart of the literature identification and selection process

4.3 SUMMARY OF STUDY CHARACTERISTICS

Table 4.2 contains the **general characteristics** of the included studies. All the studies were conducted in high-income countries since studies conducted in low- and medium-income countries could not be found. However, resource-constrained environments are not exclusive to low- and medium-income countries. LTCFs in high-income countries may also experience resource constraints regardless of the countries' incomes. Consequently, studies conducted in high-income countries may apply to low- to medium-income countries and were thus considered applicable. The specified search strings used to identify relevant sources did not yield any studies with qualitative designs or grey literature that could answer the research question. All the studies were published between 2012 and 2022.

The studies included data from eight different countries. Most studies were published in the United States (n=8, 40%) (Chappell, Kirkham & Seitz, 2022:1787–1792; Gorges & Konetzka, 2020:2462–2466; Lerner, 2013:123–128; Schnelle, Schroyer, Saraf & Simmons, 2016:970–977; Shin, 2013:133–143; Shin, Park & Huh, 2014:788–805; Yang, Carter, Trinkoff & Nelson, 2021:1081–1087; Yoon, Trinkoff, Galik, Storr & Lerner *et al*., 2022:728–737). Following the United States, the highest number of study reports were published in South Korea (n=6, 30%) (Kim & Han, 2018:518–524; Lee *et al*., 2022:15–25; Shin, 2018:705–713; Shin 2019:569–579; Shin & Hyun, 2015:555–564; Shin & Shin, 2019:296–301).

One study was conducted across multiple countries, including the United States, Canada, England, Germany, Norway, and Sweden (n=1, 5%) (Harrington *et al*., 2012:88–98). Another study covered South Korea and the United States (n=1, 5%) (Lee, Shin & Harrington, 2015:137–143). The remaining studies took place in Canada (n=1, 5%) (McCloskey *et al*., 2015:1475–1483), Germany (n=2, 10%) (Zimmermann & Pfaff, 2018:48–56; Zirves, Demirer & Pfaff, 2021), and the Netherlands (n=1, 5%) (Tuinman, Greef, Krijnen, Nieweg & Roodbol, 2016:148–154).

Types of settings: The studies were all conducted in LTCFs (100%). The studies refer to LTCFs as "nursing homes" in the United States, "residential care facilities" or "residential care homes for the aged" in Canada, "long-term care hospitals" in South Korea, and "residential care facilities" in the Netherlands. The term “long-term care facilities” (LTCFs) was used in this scoping review.

Types of designs: All twenty studies followed a quantitative approach. Using the specified search strategy, no studies with a qualitative approach or grey literature could be located that could answer the research question. As shown in Table 4.2, eleven of the twenty studies (55%) employed a cross-sectional design (Chappell, Kirkham & Seitz, 2022:1787–1792; Gorges & Konetzka, 2020:2462–2466; Harrington *et al*., 2012:88–98; Lerner, 2013:123–128; McCloskey *et al*., 2015:1475–1483; Shin & Hyun, 2015:555–564; Shin, Park & Huh, 2014:788–805; Shin & Shin, 2019:296–301; Tuinman *et al*., 2016:148–154; Yang *et al*., 2021:1081–1087; Yoon *et al*., 2022:728–737). Four studies (20%) used correlational designs (Schnelle *et al*., 2016:970–977; Shin, 2013:133–143; Zimmermann & Pfaff, 2018:48–56; Zirves, Demirer & Pfaff, 2021). Three studies (15%) were longitudinal (Kim & Han, 2018:518–524; Shin, 2018:705–713; Shin, 2019:569–579), and two studies (10%) were descriptive (Lee, Shin & Harrington, 2015:137–143; Lee *et al*., 2022:15–25).

Types of populations: Eighteen out of the twenty studies (90%) included RNs and certified nurse assistants (CNAs) or nurse assistants (NAs). Nine studies (45%) included licensed practical or vocational nurses (LPNs or LVNs). Care workers were included in nine studies (45%), and residents in ten studies (50%). Three studies (15%) specifically addressed healthcare assistants separately from care workers. One study (5%) included medication aides or technicians. Lastly, one study (5%) involved nurse aids in training.

Table 4.2: Characteristics of the included studies

Author(s), year published	Country, income level	Setting	Study design	Data sources	Description of sample	Sample size	Study purpose	Outcomes
Chappell, Kirkham & Seitz, 2022	United States (High-income country)	United States nursing homes with more than 50 beds, complete staffing data, and were under the federal government's jurisdiction.	Quantitative study: Cross-sectional design	Nursing Home Compare LTCFocus datasets	RNs, LPNs, NAs, long-stay residents	n=10 436 nursing homes	To investigate the relationship between staffing and prescribing antipsychotic medications in LTCFs between 2016 and 2018.	When the total staffing levels were higher, antipsychotic medication prescribing rates were lower. When the licensed staff (RNs + LPNs) increased with 1 HPRD, inappropriate antipsychotic prescribing decreased by 3.09%. Nursing aide staffing was not associated with residents' use of antipsychotic medication.
Gorges & Konetzka, 2020	United States (High-income country)	All United States nursing homes in the CMS COVID-19 Nursing Home Dataset	Quantitative study: Cross-sectional design	CMS Nursing Home Compare archives LTCFocus datasets	RNs, LPNs, CNAs, residents	n=13 167 nursing homes	To understand the relationship between COVID-19 cases, the impact of outbreak severity, and baseline staffing.	When the RN HPRD was higher, there was a higher possibility of experiencing COVID-19 cases (the reason was not provided) but lower odds of COVID-19 outbreaks (due to efforts to contain transmission). Low LPN hours were unrelated to COVID-19 outbreaks, but fewer deaths were reported. When the nursing aide levels were higher, the odds of COVID-19 outbreaks were lower, and there were fewer deaths.
Harrington, Choiniere, Goldman, Jacobsen & Lloyd *et al*., 2012	United States Canada England Germany Norway Sweden (High-income countries)	Nursing homes in the United States, Canada, England, Germany, Norway, and Sweden	Quantitative study: Cross-sectional design	Staffing regulations Policies Statistical data from government staffing reports and documents	RNs, LPNs, CNAs, care workers	Data (number not specified) from documents, regulations, internet searches, government websites, research papers and reports	The purpose of this study was to collect data to compare nurse staffing standards and levels across six countries: the United States, Canada, England, Germany, Norway, and Sweden.	Staffing standards and actual staffing levels were lower in most countries than what an expert panel and the CMS in the United States recommend. Most countries do not adjust staffing standards to residents' acuity. Actual staffing data in nursing homes were sometimes unavailable, and the care models differed.
Kim & Han, 2018	South Korea (High-income country)	All long-term care hospitals (nursing homes) in South Korea	Quantitative study: Longitudinal design	HIRA website	RNs, CNAs, residents	Long-term care hospitals (South Korean nursing homes): n=481 in 2010 n=631 in 2012 n=881 in 2013	To describe the characteristics of long-term care hospitals in 2010-2013 and to examine the relationship between staff turnover and patient outcomes over time.	Resident acuity increased in the LTCFs, leading to higher care needs, which necessitated staff with higher educational preparation. However, the skill mix in the LTCFs decreased from 2010 to 2013. Consequently, the proportion of RNs in the total nursing staff was reduced. The lower

								proportion of RNs was associated with adverse patient outcomes.
Lee, Shin & Harrington, 2015	South Korea United States (High-income countries)	Nursing homes	Quantitative study: Descriptive design	Documents and regulations of nursing home staffing standards from government websites, government documents, research papers, reports	RNs, LPNs, CNAs, caregivers	–Data from n=50 USA states and the District of Columbia in 2010 –Medicare Nursing Home Compare Website 2013 –Data about each country's nomenclature for nursing homes, number of homes, educational and training requirements	This study compared nurse staffing standards, actual nurse staffing levels, and education and training requirements in United States and South Korean nursing homes.	The Korean RN education requirements are similar to those of RNs in the United States, the Korean CNAs' job description is similar to LPNs in the United States, and Korean care workers' job description is similar to CNAs in the United States. The United States appeared to have higher RN and CNA standards and levels but lower caregiver levels than South Korea. South Korean LTCFs were required to have higher staffing levels when residents' acuity levels increased, while the United States did not apply acuity-based staffing.
Lee, Shin, Lee, Harrington & Jung, 2022	South Korea (High-income country)	All nursing homes in South Korea	Quantitative study: Descriptive design	Korean Government's Information Disclosure System Korean National Health Insurance Corporation website	RNs, CNAs, residents	n=3389 nursing homes n=118315 residents	This study examined organisational factors and staffing characteristics in nursing homes during the peak of the COVID-19 pandemic. The authors explored the relationship between staff-to-resident ratios, the proportion of RNs in the total nursing staff, and the number of resident deaths.	Nursing homes that maintained a significant proportion of RNs within their nursing staff, resulting in a lower RN-to-resident ratio (1:113), experienced no COVID-19 outbreaks. Conversely, nursing homes with a higher RN-to-resident ratio (1:132) did encounter COVID-19 outbreaks. When compared to nursing homes without COVID-19, which had a CNA-to-resident ratio of 1:21, those with COVID-19 outbreaks had a slightly higher CNA-to-resident ratio of 1:19. There was no difference in the ratio of care workers to residents (1:2) between nursing homes with or without COVID-19 outbreaks. However, these ratios of care workers to residents (1:2) were positively correlated with the infection rate (p=0.33).
Lerner, 2013	United States (High-income country)	Nursing homes in the state of Maryland	Quantitative study: Cross-sectional design	Data from the Nursing Home Compare website	RNs, CNAs	n=225 nursing homes	To explore whether nurse staffing levels and skill mix influenced Maryland nursing facilities' deficiencies in terms of severity and numbers.	Higher proportions of RNs to CNAs were associated with lower deficiency severity, although not with the number of deficiencies. Higher CNA HPRD was associated with fewer deficiencies being issued.

McCloskey, Donovan, Stewart & Donovan, 2015	Canada (High-income country)	Not-for-profit nursing homes in one Canadian province	Quantitative study: Cross-sectional design	Primary data: observations	RNs, LPNs, resident attendants/ care aids	n=7 nursing homes	The study aimed to determine how nurses and caregivers spend their time in nursing homes and explored whether differences existed between the seven nursing homes, the work shifts, and the staff's licensure levels.	The seven included nursing homes all showed adherence to the government-mandated skill mix. RNs and LPNs performed activities that could have been delegated to non-regulated care workers. Care aids spent considerably more time on activities that did not add value (such as waiting or looking for equipment) than other care providers, indicating poor efficiency.
Schnelle, Schroyer, Saraf & Simmons, 2016	United States (High-income country)	Nursing homes nationwide in the United States	Quantitative study: Correlational design	CMS data	Nursing aides	n=211 424 quarters of CMS data n=13 533 nursing homes	A DES model was used to describe associations between nurse aide staffing levels and the ADL workload.	There was a low correlation between staffing levels and the care the residents needed based on their ADL needs. Nurse aides provide the most labour-intensive care to residents by assisting with ADLs, such as bathing, feeding, incontinence care, and mobility.
Shin, 2013	United States (High-income country)	One was government-owned, and there were twelve for-profit and twelve not-for-profit nursing homes in Iowa, United States. Rural nursing homes: 15, urban areas: 10	Quantitative study: Correlational design	OSCAR MDS version 3.0 (The Quality of Life section in MDS 3.0-questionnaire for residents)	Residents, RNs, LPNs/LVNs, CNAs	n=231 residents n=25 nursing homes	To investigate associations between nurse staffing and United States nursing home residents' quality of life.	A higher portion of RNs to LPNs/LVNs and CNAs was associated with a higher ability of residents to function and complete tasks. However, as the proportion of RNs increased to LPNs/LVNs, it did not positively contribute to residents' autonomy (possibly because the RNs are less involved in direct care activities such as clothing the residents) and spiritual wellbeing (maybe because RNs do not transport residents to religious services).
Shin, 2018	South Korea (High-income country)	South Korean nursing homes	Quantitative study: Longitudinal design	Primary data: Quarterly surveys	Nursing home administrators, RNs, and CNAs are workers	n=45 nursing homes	To examine the relationship between nurse staffing and nursing home residents' quality of care longitudinally.	In a skill mix where more RNs and fewer CNAs or care workers were employed, residents were less aggressive, showed fewer signs of depression and weight loss, and were less on bed rest.
Shin, 2019	South Korea (High-income country)	South Korean nursing homes	Quantitative study: Longitudinal design	Six quarterly nurse staffing HPRD data and fifteen quality care indicators	RNs, CNAs, care workers	n=45 nursing homes	To develop appropriate optimisation models for determining the optimal nursing staff HPRD to achieve better care outcomes for nursing home residents.	An increase of 12% in RN HPRD corresponded to a 3% enhancement in care quality. Similarly, a 20% increase in RN HPRD showed a 5% to 8% improvement in quality of care outcomes without increasing the CNA HPRD. Furthermore, a 30% increase in RN HPRD without an increase in CNA HPRD led to a 5% to 8% increase in the quality of all the care outcomes combined.

Shin & Hyun, 2015	South Korea (High-income country)	Nursing homes from six provinces in South Korea	Quantitative study: Cross-sectional design	Primary data: surveys	RNs, CNAs, care workers	n=19 nursing homes	To investigate the association between quality of care in nursing homes and nurse staffing in Korea using fifteen quality of care indicators.	Compared to certified nurse assistants, RNs contribute uniquely to resident outcomes in fall prevention, decreased aggressive behaviours, less use of tubes for feeding, and better mobility in nursing homes in South Korea. There was no significant statistical difference between the skill mix ratio of certified nurse assistants and qualified care workers in proportion to the total staffing and the quality of care outcomes.
Shin, Park & Huh, 2014	United States (High-income country)	Nursing homes within 100 miles of Buffalo, New York, United States.	Quantitative study: Cross-sectional design	OSCAR data Primary data using the Nursing Personnel Data Collection Tool Self-reported Quality of life instrument	Residents, RNs, LPNs, CNAs	n=142 residents n=8 nursing homes	To explore associations between QOL and nurse staffing in Western New York State nursing homes.	A higher portion of LPNs and CNAs than RNs in the total skill mix had a better impact on residents' meaningful activities, security, and food enjoyment domains. In contrast, the more stable the RN staffing was (less turnover), the more content the residents were with their meaningful activities, security, and food enjoyment.
Shin & Shin, 2019	South Korea (High-income country)	Nursing homes were randomly sampled from seventeen administrative districts in Korea.	Quantitative study: Cross-sectional design	Data from the 60 nursing homes and open-access government data	RNs, CNAs, care workers	n=60 nursing homes	To explore relationships between nurse staffing and quality of care outcomes by considering the healthcare market characteristics in South Korea.	An increase in RN HPRD resulted in reduced administration of psychotropic medications to residents, lowered the likelihood of residents experiencing inadequate nutrition and weight loss, and did not exhibit a statistically significant impact on staff turnover.
Tuinman, Greef, Krijnen, Nieweg & Roodbol, 2016	The Netherlands (High-income country)	Three chains of residential care facilities and nursing homes were selected in the north of the Netherlands. Five facilities were included: four residential care units, three somatic units, and six psycho-geriatric units.	Quantitative study: Cross-sectional design	Primary data: Structured questionnaires for observations Delphi panel	RNs, nursing assistants, primary caregivers, health care assistants, residents	n=5 long-term institutional care facilities n=19 RNs n= 89 nursing assistants n=9 primary caregivers n=19 healthcare assistants n=335 residents	This study used a standardised nursing intervention classification to examine relationships between how nurses use their time, the type of nursing staff, the acuity levels of residents, and the types of units.	The association between the nursing staff's time spent on nursing intervention classification domains and residents' acuity levels was insignificant. This may indicate that residents mostly receive the same care regardless of their acuity levels or individual needs. Role differentiation appeared blurred since task allocation between RNs, nursing assistants, and primary caregivers was limited.
Yang, Carter, Trinkoff & Nelson, 2021	United States	United States nursing homes with Medicare/ Medicaid licensure in the 2018 CASPER period.	Quantitative study: Cross-sectional design	CMS CASPER AHRF	RNs, LPNs, CNAs	n=14325 nursing homes	The aim was to identify patterns in the nurse staffing levels and skill mix and estimate whether these staffing patterns affected	Nursing homes with a more significant proportion of RNs than the national average had the lowest emergency department visit and rehospitalisation

	(High-income country)						nursing home residents' emergency department visits or rehospitalisation rates.	rates. In contrast, the nursing homes that relied more on LPNs than RNs and CNAs for care delivery had the highest emergency department visits and rehospitalisation rates. A poor alignment existed between LPNs' scope of practice and residents' needs.
Yoon, Trinkoff, Galik, Storr & Lerner *et al*., 2022	United States (High-income country)	Federal regulations govern United States nursing homes with Medicare/ Medicaid licensure.	Quantitative study: Cross-sectional design	CASPER Payroll-Based Journal data	RNs, LPNs, CNAs, nurse aides in training, certified medication aides or technicians	n=13 614 nursing homes	To examine associations between nurse staffing levels and how often nursing homes received deficiency citations for the improper use of psychotropic medications to treat residents with Dementia symptoms.	Higher nurse and caregiver staffing levels in nursing homes were associated with fewer chances of receiving deficiency citations for improper use of psychotropic medications than in nursing homes with lower staffing levels.
Zimmermann & Pfaff, 2018	Germany (High-income country)	Most nursing homes were non-profit organisations in the federal states of North Rhine-Westphalia and Bavaria. The areas included Saarland, Schleswig-Holstein, Baden-Wuerttemberg, Rhineland-Palatinate, and Hesse.	Quantitative study: Correlational design	Project EQisA. data (Project EQisA was developed to examine quality outcomes in German nursing homes).	Residents, RNs, nursing assistants, additional care staff	n=166 nursing homes n=8665 residents	To determine the staffing level differences between facilities with residents who showed no weight loss and facilities with residents experiencing unintentional weight loss.	Staffing levels varied between regions in Germany and were calculated based on the residents' dependency levels. In weight loss, the nurse-resident ratio or staffing level seemed to be a factor for cognitively abled residents but did not affect those with cognitive impairment. RNs are responsible for residents' nutrition, and additional care staff assist with eating. Nutritional care may improve with feeding assistance from the additional care staff.
Zirves, Demirer & Pfaff, 2021	Germany (High-income country)	Nursing homes from the Diocesan Caritas Association North Rhine-Westphalia	Quantitative study: Correlational design	Project in QS (Project used indicators to promote quality)	Residents, RNs, nursing assistants, additional care staff	n=30 nursing homes, n=1782 residents over 80 years of age	To explore whether there was a relationship between the RN-to-resident ratio and residents older than 80 with or without dementia.	The RN-to-resident ratio was significantly associated with residents who did not have Dementia's ability to organise their lives independently and maintain social contact. This might have been because RNs can promote residents' independence. However, the RN-to-resident ratio was not related to residents with Dementia's ability to organise their lives independently and maintain social contact. This may be due to RNs not being much involved with direct resident care and the residents with Dementia already being restricted regarding their abilities.

Abbreviations: AHRF, Area Health Resources File; CASPER, Certification and Survey Provider Enhanced Reporting System; CMS, Centres for Medicare & Medicaid Services; CNA, certified nurse assistant; DES, Discrete event simulation model; HIRA, Health Insurance Review and Assessment Service; HPRD, hours per resident day; LPNs, licensed practical nurses; LTCFocus, long-term care focus; LVNs, licensed vocational nurses; MDS, minimum data set; NAs, nursing assistants; OSCAR, Open Super-large Crawled Aggregated coRpus; RNs, registered nurses.

Sample sizes: Six studies (30%) collectively included analysed data from 129,470 residents. Eighteen of the twenty studies (90%) collectively analysed data from 71,092 LTCFs. One study (5%) utilised 211,424 Centres for Medicare & Medicaid Services (CMS) data quarters. In one study (5%), the sample size included 19 RNs, 89 NAs, nine caregivers, and nineteen healthcare assistants. Two studies (10%) did not include specific details on the sample sizes from sourcing data from documents, regulations, internet searches, websites, research papers, and reports.

Data collection: Only five studies (25%) collected primary data. Four of these studies had cross-sectional study designs. Structured questionnaires were used for observations, and a Delphi panel (Tuinman *et al*., 2016:148–154), surveys (Shin & Hyun, 2015:555–564), a Nursing Personnel Data Collection Tool and a self-reported QOL instrument (Shin, Park & Huh, 2014:788–805), and observations (McCloskey *et al*., 2015:1475–1483). Shin (2018:705–713) used quarterly surveys for data collection in her longitudinal study from 2014 to 2017.

Fifteen studies (75%) collected secondary data without mentioning specific instruments or tools to extract the data. It is necessary to consider the limitations imposed by collecting secondary data. For instance, Kim and Han (2018:518–524) noted that secondary data sources restricted their gathering of additional information due to limited variables. In the fifteen studies that used secondary data sources, data were obtained from the following sources: Nursing Home Compare and LTCFocus (Chappell, Kirkham & Seitz, 2022:1787–1792), United States' Centres for Medicare & Medicaid Services, Nursing Home Compare archives, and long-term care focus datasets (LTCFocus) (Gorges & Konetzka, 2020:2462–2466), data from different countries' policies and regulations related to staffing and data from government reports and staffing documents (Harrington *et al*., 2012:88–98), the Korean HIRA website (Health Insurance Review and Assessment Service's data) (Kim & Han, 2018:518–524), documents and regulations of LTCF staffing standards from government websites, government documents, research papers, and reports (Lee, Shin & Harrington, 2015:137–143), the Korean Government's Information Disclosure system and the Korean National Health Insurance Corporation website (Lee *et al*., 2022:15–25), and the United States Nursing Home Compare Website (Lerner, 2013:123–128).

One study used secondary data from the Centres for Medicare & Medicaid Services (Schnelle *et al*., 2016:970–977), Shin (2013:133–143) used OSCAR (data from Open Super-large Crawled Aggregated coRpus) and the QOL section in the United States Minimum Data Set (MDS) 3.0-questionnaire for residents, Shin (2019:569–579) used six quarterly data from nursing homes, and Shin and Shin (2019:296–301) used open-access government data and data from the included LTCFs.

Furthermore, Centres for Medicare & Medicaid Services 2018 data, Certification and Survey Provider Enhanced Reporting System (CASPER) 2018 data, and the Area Health Resources File (AHRF) were used (Yang *et al*., 2021:1081–1087), 2017–2018 data from the United States Certification and Survey Provider Enhanced Reporting System (CASPER) and Payroll-Based Journal data from 2017–2018 (Yoon *et al*., 2022:728–737), and data from Project EQisA, a project developed to examine quality outcomes in German LTCFs (Zimmermann & Pfaff, 2018:48–56). Data from Project inQS, a project using indicators to promote quality in German LTCFs, was used by Zirves, Demirer and Pfaff (2021).

Data analysis methods varied across the studies. Zirves, Demirer, and Pfaff (2021) cautioned that their data analysis process had limitations which must be considered when interpreting the data. The authors only had access to secondary data, including specific variables, and could thus not include additional variables. Eight studies employed descriptive statistics for data analysis (Chappell, Kirkham & Seitz, 2022:1787–1792; Harrington *et al*., 2012:88–98; Kim & Han, 2018:518–524; Lee, Shin & Harrington, 2015:137–143; Lee *et al*., 2022:15–25; McCloskey *et al*., 2015:1475–1483; Yoon *et al*., 2022:728–737; Zirves, Demirer & Pfaff, 2021). One study used an optimisation model (Shin, 2019:569–579). Two studies employed logistic regressions for data analysis (Gorges & Konetzka, 2020:2462–2466; Zimmermann & Pfaff, 2018:48–56), while one study used multiple regression analysis (Lerner, 2013:123–128). One study used descriptive statistics, cluster analysis, and multinomial logistic regressions (Yang *et al.,* 2021:1081–1087). A multilevel linear model was used for data analysis in one study (Shin & Hyun, 2015:555–564), a weighted linear regressing model was used by Shin and Shin (2019:296–301), and a mixed-effects model was applied in the study done by Shin, Park and Huh (2014:788–805). Linear mixed models were utilised in one study (Tuinman *et al*., 2016:148–154). Shin (2013:133–143; 2018:705–713) employed a hierarchical linear model in two of her studies. Furthermore, Schnelle *et al*. (2016:970–977) used simulation modelling and predictive analytics in their study.

4.4 SYNTHESIS OF RESULTS

The data extracted and synthesised from the studies were categorised into five groups inspired by the implementation of staffing standards across the studies. Table 4.3 contains a thematic representation of the staffing standards elements.

4.4.1 Varied global perspectives on LTCF skill mix standards

This theme related to the variations in countries' national staffing standards and included a description of the skill mix in the studies. Furthermore, the discrepancies between licensed staff (e.g., RNs and LPNs – see list of definitions before Chapter 1) qualifications and competencies versus unlicensed staff (e.g., caregivers) were highlighted, followed by a discussion of the skill mix's impact on resident outcomes.

Seven studies mentioned the **variations in countries' national staffing standards** regarding the skill mix, i.e., the proportion of RNs to the total staff mix in LTCFs.

In Germany, the legislation mandates that RNs comprise 50% of care staff with no other requirements for the rest of the staff component (Zimmerman & Pfaff, 2018:48–56; Zirves, Demirer & Pfaff, 2021). Harrington *et al*. (2012:88–98), in their study across six countries, including Germany, confirm Germany's situation but add that the RN staffing of 50% must be spread over 24 hours.

Table 4.3: Thematic representation of staffing standards elements

Themes	Subthemes	Research questions for scoping review (RQ)
Varied global perspectives on LTCFs skill mix standards.	*Variations in countries' national standards *Description of skill mix in the studies *Discrepancies between licensed and unlicensed personnel's qualifications and competencies *Better resident outcomes are achieved with a higher skill mix, thus resulting in more staff with higher qualifications and competencies.	(RQ1) How do LTCFs implement staffing models regarding staffing levels, skill mix, and allocation of tasks?
Unanimity: Staffing levels vary, but higher staffing standards may improve outcomes	*Variations in countries' national standards *Description of staffing levels in the studies *Association between staffing levels and resident outcomes *Favourable outcomes predicted with increased staffing levels	
Congruence between staff with more qualifications and competencies (a higher skill mix), staffing levels, and resultant positive organisational outcomes	*Association between skill mix, staffing levels, and organisational outcomes *Fewer deficiency citations and less severe deficiency citations *Staff turnover: Inconsequential?	
Division of labour: Caregivers on the front line with skilled nurses behind the scenes?	*The RN's scope of practice: comprehensive or elusive? *The LPN's scope of practice: In between *Direct resident care: All in the hands of caregivers? The blurring of roles	(RQ2) Is task allocation aligned with the scope of practice of the nurses' categories and the caregivers' job descriptions as described in the relevant country's legislation?
Disinterest in acuity-adjusted staffing	*Increase in complex health needs *Poor alignment between staffing and resident acuity	(RQ3) Is the allocation of nursing and caregiver staff aligned with the acuity of the individual residents?

In the United States, federal standards require the continuous presence of at least one RN on duty for eight consecutive hours every day of the week, which includes the presence of a full-time director of nursing. Additionally, an RN and a licensed nurse must be on duty for the remaining two 8-hour shifts in the 24 hour day. Furthermore, the federal standards specify that enough staff must be available to ensure residents' physical, psychological, and mental wellbeing. The different states may set higher staffing standards than those required by the federal government (Harrington *et al*., 2012:88–98; Lee, Shin & Harrington, 2015:137–143).

Canada's different provincial governments determine the country's LTCF staffing standards, with resultant variety across the provinces (Harrington *et al*., 2012:88–98). Adherence to the provincially mandated skill mix of 20% RNs, 40% LPNs, and 40% resident aids (equivalent to caregivers) was shown in one Canadian province by way of a multicentre, cross-sectional observational study done by McCloskey *et al*. (2015:1475–1483) in seven LTCFs in the specific province.

Norway, Sweden, and England do not have specific staffing standards. In England, the Department of Health has a broad statement indicating that the skill mix and staffing levels must be appropriate for residents' needs and the purpose of the homes (Harrington *et al*., 2012:88–98).

In South Korea, large nursing homes (more than 30 beds) must have one RN or CNA per 25 residents; the rest of the staff comprises care workers (Shin & Shin 2019:296–301). According to Shin (2019:569–579), small nursing homes with less than ten beds and medium nursing homes with ten to 30 beds require one RN or CNA along with the care workers.

Eight studies included **descriptions of the skill mix.** The cross-sectional, retrospective study done by Yang *et al*. (2021:1081–1087) in the United States indicated the proportion of RNs to the total nurse and caregiver staff as 13.2%. The proportion of LPNs to the total nurse and caregiver staff was 23.4%. The proportion of unlicensed staff, such as CNAs, caregivers, or resident aids, to the total nurse and caregiver staff was 63.4% (Yang *et al*., 2021:1081–1087).

In South Korea, RNs may be substituted with CNAs. In the study done by Lee *et al*. (2022:15–25), using secondary data from 3389 LTCFs, the skill mix consisted of 15,87% RNs or CNAs, and caregivers provided the rest of the resident care. Kim and Han (2018:518–524) did a retrospective study using longitudinal secondary data analysis in South Korea. The authors found that the skill mix in the LTCFs decreased from 2010 to 2013. Consequently, the proportion of RNs in the total nursing staff was reduced from 48.4% to 43.6%. The average number of residents per RN increased from 10.8 to 11.5.

Shin and Shin (2019:296–301) used data from 60 South Korean LTCFs and open-access government data to show that 68.4% of the 60 South Korean LTCFs included in their study did not employ RNs. However, in another study done by Shin (2019:569–579) in South Korea, the author found by way of the analysis of secondary longitudinal data that the specific 45 South Korean nursing homes in her study employed more RNs than other nursing homes across South Korea, as indicated in the higher HPRD. The 45 nursing homes showed an RN HPRD of 0.78 HPRD versus the national RN HPRD of 0.2.

A multicentre, cross-sectional observational study in Canada indicated that the proportion of RNs to the total nurse and caregiver staff was 20% (McCloskey *et al*., 2015:1475–1483). The proportion of LPNs to the total

nurse and caregiver staff was 40%, and the proportion of unlicensed staff to the total nurse and caregiver staff was 40% (McCloskey *et al*., 2015:1475–1483).

A descriptive study by Harrington *et al*. (2012:88–98) showed that the skill mix varied between weekends and weekdays in Norway. While the weekend skill mix consisted of 14,3% RNs and 38,1% auxiliary nurses, the weekday skill mix consisted of 24,1% RNs and 46,3% auxiliary nurses. Moreover, the weekend skill mix showed that 47.6% of unskilled care workers were used as opposed to 29.6% during weekdays.

Germany had the highest proportion of 56.68% RNs to the total nurse and caregiver staff, as found in a study of secondary data by Zimmerman and Pfaff (2018:48–56).

Seven studies included the **qualifications and competencies** of the staff. In Germany, Zirves, Demirer, and Pfaff (2021) mention that RNs undergo three years of training and NAs one year. The additional care staff in this study completed a two-week internship under the supervision of the Caritas Association, a Catholic welfare organisation.

In the United States, RNs must have an associate's or bachelor's degree, while LPNs complete a one-year full-time nursing course approved by the government. Both RNs and LPNs must pass their nurse category's licensure examination (Yang *et al*., 2021:1081–1087). Yoon *et al*. **(**2022:728–737) found that compared to other nursing staff, RNs in the United States provide care that requires higher levels of clinical judgement, decision-making, and critical thinking. Consequently, RNs may have a higher awareness of the potential serious adverse events resulting from the improper use of psychotropic medications in residents who have Dementia (Yoon *et al*., 2022:728–737). This situation implies that LPNs' training may not adequately prepare them for higher decision-making and critical thinking levels, such as supervising unlicensed personnel, resident assessment, evaluation, and delegation (Yang *et al*., 2021:1081–1087). Chappell, Kirkham and Seitz (2022:1787–1792) support these observations, as findings from their cross-sectional study (United States) indicate that RNs have more expertise in using nonpharmacological strategies to address behavioural and psychological symptoms and mental health conditions, possibly reducing the administration of unnecessary antipsychotic medication amongst the elderly.

The RN education requirements in South Korea and the United States appear similar (Lee *et al*., 2022:15–25), with South Korean RNs being licensed healthcare providers with 103 credits from a nursing college and more than 1000 practical hours (Shin, 2019:569–579). South Korean CNAs' job description seems comparable to LPNs in the United States (Lee *et al*., 2022:15–25), with the South Korean CNAs receiving 1520 hours of training at private nursing institutes or occupational high schools, although not at a nursing college (Shin, 2019:569–579). South Korean care workers' job description is similar to CNAs in the United States (Lee *et al*., 2022:15–25), with South Korean care workers receiving 240 hours of training, including classroom hours and

practical hours completed in Home Care (Shin, 2018:705–713; Shin, 2019:569–579). However, many care workers in South Korea receive training from education centres that are not qualified to provide training (Lee *et al*., 2022:15–25).

Eleven studies reported the **impact of the skill mix on resident outcomes** and showed that better resident outcomes are achieved with a higher skill mix; thus, more staff with higher skills, qualifications, experience, and expertise in the total staff mix (Backhaus *et al*., 2014:383–393). The retrospective longitudinal secondary data analysis done by Kim and Han (2018:518–524) in South Korea showed that higher proportions of RNs were associated with a decreased proportion of patients with deteriorated activities of daily living among the residents with Dementia group (B = −0.008, p =.016). More residents had indwelling urinary catheters if they were high-risk residents; they were thus incontinent and entirely dependent on staff for their needs.

In Lee *et al*.'s (2022:15–25) analysis of secondary data in South Korea, the authors found that higher proportions of RNs in the total nursing staff were associated with lower COVID-19 infection rates (0.626% lower) and mortality rates (0.088% lower). Shin and Hyun (2015:555–564) conducted a cross-sectional study on nineteen South Korean LTCFs. The authors observed that RNs uniquely contributed to resident outcomes in fall prevention, decreased aggressive behaviours, and better mobility for residents in South Korean LTCFs than CNAs. Furthermore, when the proportion of RNs increased, tube feedings were reduced. The authors postulated that RNs may consider tube insertions as the last way of introducing more feeding for residents. The authors found that the ratio of CNAs and qualified care workers to residents was not statistically significant for quality care outcomes (Shin & Hyun, 2015:555–564). Shin's quantitative study (2018:705–713) in 45 South Korean LTCFs revealed that more RNs and fewer CNAs and care workers in the total staff mix decreased residents' aggressive behaviour, depression, weight loss, bed rest and led to less deterioration in residents' activities of daily living. However, more RNs, fewer CNAs, and fewer care workers in the total staff mix also increased the number of residents receiving nasogastric tubes. The author inferred that RNs may be more concerned about residents' nutritional status. Hence, more nasogastric tubes are used (Shin, 2018:705–713). This finding of an increase in residents with nasogastric tubes contrasted with the results of an earlier study done by Shin and Hyun (2015:555–564), who found that tube feedings were reduced probably since RNs may consider this a last option to introduce more feeding for residents.

Lerner (2013:123–128) analysed data from 225 LTCFs in Maryland, United States, and reported that a higher RN skill mix was associated with lower infection rates and weight loss in residents, decreased restraint use, and improved quality of care. Shin's (2013:133–143) cross-sectional correlation study in the United States found that a higher proportion of RNs to LPNs/LVNs and CNAs in the skill mix was associated with higher functional competence, such as residents' ability to function and complete tasks. However, a higher proportion of RNs to LPNs/LVNs and CNAs in the skill mix was not conducive to residents' autonomy (e.g.,

changing clothes, getting up), possibly because the RNs are less involved in direct care activities such as clothing the residents (Shin, 2013:133–143).

In their cross-sectional correlation study in the United States, Shin, Park, and Huh (2014:788–805) found that a higher proportion of RNs to LPNs/LVNs and CNAs had a lesser impact on residents' meaningful activities, security, and food enjoyment domains. However, the more stable the RNs in the total skill mix (less turnover among the RNs), the more content the residents were with their meaningful activities, security, and food enjoyment.

A further study conducted by Shin and Shin (2019:296–301) in South Korea (multilevel cross-sectional design) found that a higher proportion of RNs than CNAs to the total nurse and caregiver staff decreased deterioration in residents' outcomes by 0.58%. A higher RN HPRD led to a lower use of psychotropic medications, reduced risk of residents with poor nutrition and reduced weight loss. A higher RN HPRD led to a lower use of psychotropic medication and a lower risk of residents being exposed to poor nutrition, resulting in a loss of weight.

Yang *et al*.'s (2021:1081–1087) cross-sectional, retrospective study in the United States found that LTCFs with a higher proportion of RNs than the national average had lower rehospitalisation and emergency department visit rates. LTCFs relying on LPNs to provide most care instead of RNs and CNAs presented with the highest emergency department and rehospitalisation visit rates.

According to Yoon *et al*. (2022:728–737), a more considerable proportion of RNs in the total staff mix was more related to quality resident care than merely having higher numbers of staff. Their secondary data indicated that LTCFs with more RNs in the skill mix had lower odds of antipsychotic medication use than LTCFs with a lower RN skill mix.

Zirves, Demirer, and Pfaff (2021) used secondary data for analysis in their study in Germany. The authors found that the RN-to-resident ratios were not associated with the ability of residents with Dementia to organise life independently and maintain social contacts. The authors ascribed this lack of association to the fact that RNs were not much involved with direct resident care, and residents with Dementia were already restricted regarding their abilities. The authors' evidence contrasted with other studies, which indicated a positive relationship between a higher proportion of RNs and resident outcomes.

4.4.2 Unanimity: Staffing levels vary, but higher staffing standards may improve outcomes

This theme related to the variations in countries' national standards for staffing and included detailed descriptions of staffing levels in the research studies. Additionally, the association between staffing levels

and resident outcomes was described, as were the predictions in the studies regarding the influence of higher staffing levels on resident outcomes.

Variations occurred in countries' national standards, as observed in different Canadian provinces and the various states in the United States. For instance, in 2011, the Canadian province of Alberta specified 1.9 HPRD, while Saskatchewan specified 2.0 HPRD. However, Harrington *et al*. (2012:88–98) found that comparing data across Canadian provinces is complicated as HPRD sometimes includes non-residential care statistics. Harrington *et al*. (2012:88–98) also provided the United States minimum state staffing standards for 2010. Like the Canadian provinces, the staffing levels in the United States varied across the states. For example, Florida had a total nursing HPRD of 3.9, while South Carolina had a total nursing HPRD of 2.56 (Harrington *et al*., 2012:88–98).

In South Korea, national standards stipulate one RN *or* CNA for every 25 residents, and the ratio of care workers to residents is one to 2.5 (Lee *et al*., 2022:15–25; Shin, 2019:569–579). Lee, Shin, and Harrington (2015:137–143) converted the South Korean staff-to-resident ratio into HPRD. However, the authors noted that the South Korean authorities have different staffing standards for small and large LTCFs. Smaller LTCFs with less than 30 residents require 0.28 HPRD for RNs or CNAs. In contrast, larger LTCFs exceeding 30 residents must provide 0.32 HPRD for RNs or CNAs. For small and larger LTCFs, the HPRD for care workers is 3.2 (Lee, Shin & Harrington, 2015:137–143).

As mentioned in the discussion on skill mix, England's regulations in 2011 did not specify total staffing levels for LTCFs; instead, the registration authority determine staffing levels based on residents' needs (Harrington *et al*., 2012:88–98).

In Germany, staffing levels vary between regions and are calculated based on the residents' dependency levels. For example, a resident with a dependency level of 3 would require ≥5 HPRD for assistance and ≥4 HPRD for basic care (Zimmerman & Pfaff 2018:48–56).

Twelve studies provided **descriptions of the staffing levels.** Chappell, Kirkham and Seitz (2022:1787–1792) found a mean staffing level of 3.69 HPRD (including RNs, LPNs, and nursing assistants) across 10,436 LTCFs in their cross-sectional study in the United States. Harrington *et al*. (2012:88–98) compared staffing standards across six countries, with the HPRD values being as follows: United States: 3.9 HPRD, Canada: between 2.1 and 3.3 HPRD, England: 4.26 HPRD, and Sweden with the highest reported staffing levels of 5.19 HPRD. Staffing levels for Germany and Norway were not available. Harrington *et al*. (2012:88–98) noted that the staffing levels in most countries were lower than the 4.55 HPRD recommended by an expert panel and the Centres for Medicare & Medicaid Services in the United States (Harrington, Kovner, Mezey, Kayser-Jones & Burger, 2000:5–16).

In a study that compared nurse staffing between the United States and South Korea (Lee, Shin & Harrington, 2015:137–143), South Korea had an estimated 0.47 HPRD for RNs or CNAs, compared to 0.63 HPRD for RNs in the United States and 11.7 HPRD for caregivers in South Korea compared to 0.80 HPRD for LPNs and 2.38 HPRD for CNAs in the United States. However, the authors cautioned that the South Korean caregivers' HPRD may be overrated. It appeared that many caregivers could have been part-time staff. The statistics could not be verified due to a lack of official statistics. A separate study conducted by Lee *et al*. (2022:15–25) showed the mean staffing ratios across the 3,389 LTCFs as RNs, 1:111; CNAs, 1:20; and care workers, 1:2. Shin and Shin's (2019:296–301) cross-sectional study in South Korea found that the HPRD was as follows across 60 LTCFs: 1.10 HPRD for RNs, 0.16 HPRD for CNAs, and 2.58 HPRD for care workers. In another article based on the parent study done by Shin and Shin (2019:296–301) in South Korea, one author (Shin, 2019:569–579) used secondary data to analyse the status quo in 45 South Korean nursing homes. The author found higher RN and care worker staffing levels than in the parent study by Shin and Shin (2019:296–301). The ratio of staff to residents in the article published by Shin (2019:569–579) was: RNs, 1:33 (0.17 HPRD); CNAs, 1:40 (0.16 HPRD); and care workers, 1:2 (2.69 HPRD).

Lerner's (2013:123–128) analysis of secondary data from 225 LTCFs in Maryland, United States, found that the mean staffing level was 1.71 HPRD, with an average RN HPRD of 0.77 and an average CNA HPRD of 2.37.

In the study conducted across seven Canadian LTCFs by McCloskey *et al.* (2015:1475–1483), the staffing level averaged 3.1 HPRD, with an RN-to-resident-ratio ranging from 1:24 to 1:50 during the day and 1:64 to 1:100 during evenings. Schnelle *et al*. (2016:970–977) aimed to describe the association between nurse aide staffing and the workload resulting from assisting with residents' daily activities using a discrete event simulation model (DES) in 13,533 LTCFs in the United States. The nurse aide staffing levels ranged from 1.6 to 4.0 HPRD, with an average of 2.3 to 2.5 HPRD. Shin, Park, and Huh (2014:788–805) investigated the link between residents' QOL and nurse staffing in eight LTCFs in Western New York State. The HPRD for RNs was 0.65; for LPNs was 0.87; and for CNAs was 2.21.

Yang *et al*.'s (2021:1081–1087) cross-sectional, retrospective study in the United States examined skill mix patterns and nurse staffing in LTCFs to determine their impact on residents' emergency department visits and rates of rehospitalisation. According to the authors, the Centres for Medicare & Medicaid Services recommend 4.1 HPRD. However, the actual reported HPRD in the study was 3.45. Even the LTCFs with more RNs than the national average had a lower HPRD of 3.86 compared to the recommended 4.1 HPRD. LTCFs in the high LPN cluster (LTCFs with a higher percentage of LPNs than the national average) displayed an average of 3.30 HPRD. LTCFs in a high CNA cluster (LTCFs with a higher percentage of CNAs than the national average) had an HPRD of 3.39. Yoon *et al*. (2022:728–737) examined whether nurse staffing levels were associated with deficiency citations for the improper use of psychotropic medicines in residents presenting with

symptoms of Dementia in 13,614 LTCFs in the United States. The mean and standard deviation (M ± SD) was indicated as follows: the average total nursing HPRD was 3.61 ± 0.91, with the RNs at 0.46 HPRD, LPNs at 0.81 ± 0.36 HPRD, CNAs at 2.20 ± 0.56 HPRD, nurse aides in training at 0.03 ± 0.09 HPRD, and certified medication aides at 0.10 ± 0.21.

Eight studies reported an **association between staffing levels and resident outcomes.** Chappell, Kirkham and Seitz (2022:1787–1792) reported that the average staffing level of 3.69 HPRD across 10,436 LTCFs in the United States was linked to a mean antipsychotic use rate of 15.24%. The higher total staffing levels appeared to be associated with lower rates of prescribing antipsychotic medicines. This may be because more staff are available to provide higher quality care. The higher staffing levels may also allow time for nonpharmacological strategies. Therefore, the staff could address the residents' behavioural and psychological symptoms (Chappell, Kirkham & Seitz, 2022:1787–1792). Yoon *et al*. (2022:728–737), also in the United States, reported that low RN staffing levels negatively affected RNs' job performance. The low staffing levels seemingly led to high workloads, which in turn led to more psychotropic medication being used for residents. In contrast to low RN staffing levels, higher RN staffing levels allowed the RNs more time to explore the underlying causes of disruptive behaviours. As a result, the RNs could develop comprehensive care plans for residents with Dementia. Gorges and Konetzka (2020:2462–2466) used secondary data from 13 167 LTCFs in the United States to examine whether COVID-19 cases and severity of outbreaks were linked to baseline nurse staffing. The authors found that staffing levels did not influence the probability of LTCFs having only one COVID-19 case. However, higher staffing levels were associated with controlling the number of COVID-19 cases. Consequently, outbreaks could be prevented, and deaths reduced. Similar to the study done by Gorges and Konetzka (2020:2462–2466), Lee *et al*. (2022:15–25) also used secondary data to examine whether staffing was associated with the COVID-19 outbreak in South Korea. The authors found that the ratio of care workers to residents was positively associated with infection (p =.033) and mortality rates (p =.033). However, the CNA-to-resident ratio was not significantly associated with residents' COVID-19 infections or mortality rates.

Shin (2013:133–143) reported in her cross-sectional correlational study in the United States that higher RN HPRD was associated with residents' enjoyment (such as enjoying their favourite food) and better comfort domains (e.g., better pain management) but was not conducive to residents' meaningful activities like religious life (e.g., attending church services) and relationships (e.g., making friends). The author also found that a higher LPN HPRD was linked to better dignity (e.g., feelings of being treated politely) but was not conducive to residents' functional competence (the ability to complete tasks). A higher CNA HPRD was associated with better functional competence and security (security related to possessions and getting help from staff when needed). On the other hand, Shin, Park, and Huh (2014:788–805) also conducted a cross-sectional study in the United States. In contrast to the findings by Shin (2013:133–143), the authors did not

find a significant association between higher RN HPRD and residents' enjoyment and comfort. The authors found that more LPN hours led residents to enjoy their food less ($\beta = -4.9$, $p < .05$). More CNA HPRD led to residents being more satisfied with their spiritual wellbeing ($\beta = 5.013$, $p < .05$). Schnelle *et al*. (2016:970–977), using a discrete event simulation model (DES) in 13,533 LTCFs in the United States, found that an average HPRD of between 2.3 and 2.5 in their study was below what was needed for assisting residents with their activities of daily living.

In Germany, Zimmerman and Pfaff (2018:48–56) found no association between nursing assistants' ratios and weight loss in residents without cognitive impairment.

Predictors of favourable resident outcomes with increased staffing levels: Four studies employed statistical analysis to demonstrate the effect that increased staffing levels may have on resident outcomes. In a cross-sectional study analysing data from 10,436 United States LTCFs to examine the link between prescribing antipsychotic medicine and staffing, it was found that an hour per resident day (1 HPRD) increase in licensed staff (RNs and LPNs) resulted in a 3.09% decrease in the improper prescription of antipsychotic medication. Furthermore, the improper prescribing of antipsychotic medicines decreased by 2.25% when the RN HPRD was increased by one hour. When the LPN HPRD was increased by one hour, the improper prescribing of antipsychotic medicines decreased by 1.83%. When the overall staffing HPRD was increased by one hour, the improper prescribing of antipsychotic medications decreased by 0.75% (Chappell, Kirkham & Seitz, 2022:1787–1792).

In a quantitative study conducted in 45 South Korean LTCFs, Shin (2018:705–713) found that a 1 HPRD increase in RN staff led to a 3.88% decrease in the percentage of residents with depression, a 5.72% decrease in residents with bed rest, and a 1.092% decrease in residents with restraints. The results also showed that more residents had nasogastric tubes (an increase of 1.17%) since RNs were more focused on residents' nutritional status. With one hour more CNA HPRD, aggressive behaviours in residents increased by 4.238%. In addition, weight loss in residents increased by 0.52% and cognitive impairment in residents increased by 171.45%. An increase of 1 HPRD in care workers led to a 1.648% increase in residents with weight loss, a 5.047% increase in residents on bed rest, and a 10.094% increase in residents showing deterioration in activities of daily living (Shin, 2018:705–713).

In their cross-sectional study of 19 LTCFs in South Korea, Shin and Hyun (2015:555–564) reported that increasing the CNA's HPRD with one hour resulted in a 5.3% increase in feeding tube use. Similarly, an hour increase in care workers' HPRD led to a 4.1% increase in residents' aggressive behaviours and a 5.2% increase in residents with feeding tubes. Increased staffing levels were associated with the following effects: a 1 HPRD increase in direct RN care resulted in 6.8% fewer resident falls, 6.5% less feeding tube use, and a 5% decrease

in the decline of mobility. Furthermore, a 1 HPRD increase in administrative RN hours led to a 12% decrease in aggressive resident behaviours and a 324% (ß = −324.14, *p* =.003) decrease in the prevalence of cognitively impaired residents. However, the authors did not elaborate on this value of 324% (Shin & Hyun, 2015:555–564). Shin's (2019:569–579) study with secondary data in South Korea found that an increase in CNA HPRD was not significantly associated with enhancing the quality of care. However, quality of care improved by 3% when RN HPRD were increased by 12%. Moreover, quality of care improved between 5% and 8%, with a 20% increase in RN HPRD (Shin, 2019:569–579).

4.4.3 Congruence between staff with more qualifications and competencies (a higher skill mix), staffing levels, and resultant positive organisational outcomes

Lerner (2013:123–128) and Yoon *et al*. (2022:728–737) explored the link between **skill mix, staffing levels, and organisational outcomes**, focusing on deficiency citations issued to the United States's LTCFs. LTCFs in the United States are subject to evaluations by state surveyors to determine the quality of care and deficiency citations are given to LTCFs that fail to meet the federally required standards of care (Yoon *et al*., 2022:728–737). Lerner (2013:123–128) found that a higher CNA HPRD was associated with fewer deficiency citations. Conversely, a higher proportion of RNs to CNAs was linked to lower deficiency severity, although not with the number of deficiencies. In Lerner's study (2013:123–128), the mean total staffing level of 1.71 HPRD across the 225 LTCFs resulted in an average of 9.76 deficiency citations, with some LTCFs receiving none and others having as many as 51 deficiency citations. The mean severity of the deficiencies issued was 2.02 on a scale from 0 (no deficiencies) to 4 (immediate risk to residents' safety and health) (Lerner, 2013:123–128). On the other hand, Yoon *et al*. (2022:728–737) found that LTCFs with a higher nurse skill mix (a more significant proportion of higher qualified nurses in the total staff mix) were less likely to receive deficiency citations for improper psychotropic medication administration. This applied especially to residents with Dementia and behavioural symptoms. Similarly, LTCFs with an overall staffing level that provided 3.61 HPRD were also less likely to receive deficiency citations than LTCFs with a lower overall staffing level providing an HPRD of 3.51. The study's results indicated that LTCFs with an RN HPRD of 0.47 had no deficiency tags, whereas LTCFs with an RN HPRD of 0.41 received deficiency tags (Yoon *et al*., 2022:728–737). Shin and Shin (2019:296–301) explored staff turnover by examining the relationship between nurse staffing and quality of care outcomes by considering the healthcare market characteristics in South Korea. The authors found that the staff turnover rate in a year across the 60 nursing homes included in their study was 50.5% for RNs, 44.99% for CNAs, and 34.37% for care workers. Shin (2018:705–713) found that staff consistency, thus a low staff turnover, leads to better quality of care outcomes, e.g., lower anti-depressant medication usage in residents. In contrast, a high RN staff turnover worsens residents' outcomes. Using agency staff produced mixed results (Shin, 2018:705–713).

4.4.4 Division of labour: Caregivers on the front line with skilled nurses behind the scenes?

This theme revolved around the roles and responsibilities of the staff within the broader context of direct resident care and the interplay with caregivers in LTCFs. The results reflected the comprehensive nature of RNs' scope of practice, the in-between status of LPNs, and the shift of direct care responsibilities to caregivers. Moreover, the results indicated a blurring between the staff's roles and responsibilities.

The RNs' scope of practice: Comprehensive or elusive? Several authors discussed the scope of practice of RNs in different countries. According to Lee *et al*. (2022:15–25), South Korean RNs are responsible for clinical practice in the LTCFs. Their responsibilities include providing health education and counselling residents' families. The RNs are also responsible for disease prevention, health promotion, and creating therapeutic environments for residents. Furthermore, the RNs conduct residents' physical assessments, make decisions on behalf of residents and request medical treatment for residents when needed. Moreover, they are in charge of infection control (Lee *et al*., 2022:15–25). However, Shin and Shin (2019:296–301) reported that weight management was not included in the South Korean RNs' work scope, leading to poor nutrition, and 4.6% of residents in their study had weight loss problems.

In the study conducted by McCloskey *et al*. (2015:1475–1483) in seven Canadian LTCFs, RNs spent considerable time (between 3.5% and 28.9%) on activities that did not add value to resident care. These activities included replenishing supplies, searching for supplies and equipment, distributing linen and locating other staff. The RNs also spent a substantial portion of their time (41.7%) on activities indirectly related to residents. These activities included documentation, communication, and reviewing records. Furthermore, the RNs spent 16.9% of their time walking through the unit (McCloskey *et al*., 2015:1475–1483). Shin (2013:133–143) found that RNs in the United States were less focused on residents' overall wellbeing, friendship relationships, and activities but tended to focus more on residents' health-related issues, such as weight gain and pain management. Conversely, Yoon *et al*. (2022:728–737) more recently reported that the role of the RNs in the United States was more holistic, with accountability for evaluating overall nursing outcomes and preventing harm. RNs identified behavioural symptoms, developed individualised nonpharmacological interventions for residents, and monitored and assessed the adverse effects of psychotropic medication. Higher RN HPRD allowed more time to examine the underlying causes of behavioural symptoms (Yoon *et al*., 2022:728–737).

In the Netherlands, the study conducted by Tuinman *et al*. (2016:148–154) revealed that RNs spent most of their time on activities not directly related to resident care, such as recordkeeping and shift reports. RNs also tended to provide care to residents who had higher acuity levels.

In Germany, RNs are responsible for the complete nursing process, overseeing nursing assistants and additional care staff. RNs are also responsible for residents' nutritional status but may delegate the feeding of residents to nursing assistants under their supervision (Zimmermann & Pfaff, 2018:48–56).

The LPNs' scope of practice varies in different countries and can be influenced by factors such as role clarity. In Canada, McCloskey *et al*. (2015:1475–1483) found that LPNs worked below 20% of their full scope of practice. LPNs spent 18.5% of their time on activities that did not add value to resident care, like walking around the unit, searching for other staff, and retrieving linen. The LPNs' scope of practice in the United States is more task-oriented, focusing on documentation, treatments, and medication administration (Yoon *et al*., 2022:728–737).

Direct resident care: All in the hands of caregivers? The work scope of unlicensed staff varies across countries. In South Korea, care workers provide the most direct resident care by assisting residents with daily activities. The care workers work under the supervision of licensed staff, i.e., RNs and CNAs (Shin, 2019:569–579). Also, in the United States, CNAs provide most of the direct resident care under the supervision of licensed staff, i.e., RNs and LPNs (Yang *et al*., 2021:1081–1087; Schnelle *et al*., 2016:970–977). According to Yoon *et al*. (2022:728–737), CNAs are essential in assisting licenced staff with planning evidence-based care. CNAs also report issues such as residents' behavioural symptoms to licenced staff.

According to Zirves, Demirer and Pfaff (2021), German additional care staff do not conduct medical or nursing activities but provide most direct resident care. However, nursing assistants may change bandages and measure blood pressure. They also assist residents with taking their medication and feeding them (Zimmermann & Pfaff, 2018:48–56).

In Sweden, part of the care workers' job descriptions is cleaning residents' rooms (Harrington *et al*., 2012:88–98).

The blurring of roles: Authors noted various reasons why the roles between nurse categories and caregivers are becoming less distinct.

Despite clear distinctions in the scope of practice and qualifications between RNs and CNAs in South Korea, LTCFs may use them interchangeably due to a lack of differentiation in staffing requirements. Therefore, the roles between the South Korean RNs and CNAs become blurred (Lee *et al*., 2022:15–25; Shin, 2019:569–579; Shin & Hyun, 2015:555–564; Shin & Shin, 2019:296–301).

McCloskey *et al*. (2015:1475–1483) stated that the overlapping roles between the RNs, LPNs, and resident aides raised questions about role clarity and the use of human resources. It appeared that various activities performed by RNs and LPNs could have been delegated to non-regulated care workers.

Role blurring was also observed in the United States. The tasks of RNs and LPNs sometimes overlap despite these nurse categories having different training and scopes of practice (Yang *et al*., 2021:1081–1087). When a shortage of RNs occurs, LPNs appear to work beyond their scope of practice. Conversely, when a shortage of CNAs occurs, the LPNs work below their scope of practice (Yoon *et al*., 2022:728–737).

4.4.5 Disinterest in acuity-adjusted staffing

This theme centred around the difficulties and opportunities related to healthcare staffing in the context of the changing resident acuity and increasing complexity of health needs.

Increase in complex health needs: Five studies emphasised the increasing complexity of residents' health needs.

In South Korea (Kim & Han, 2018:518–524) and in the Netherlands (Tuinman *et al*., 2016:148–154), long-term care settings are facing a rise in patient severity and complex nursing care requirements. This includes both short-and long-stay residents in LTCFs, where the acuity of residents is increasing (Lerner, 2013:123–128). Shin and Shin (2019:296–301) reported that in their multilevel cross-sectional study, across the 60 South Korean LTFCs, 6.1% of the residents presented with falls, 65.1% used psychiatric medications, 72.8% had cognitive problems, 72.5% had urinary or faecal incontinence, 4.6% residents had weight loss issues, and 1.2% had pressure ulcers.

Two provinces in Canada, British Columbia and Ontario, reported significant rises in acuity levels among residents. LTCFs in British Columbia reported an increase in residents' acuity levels from 4% to 38% between 1996 and 2006. Similarly, Ontario reported that in 2008, more than 85% of all residents required high levels of care (Harrington *et al*., 2012:88–98). In the Netherlands, factors such as population ageing contribute to this increase in acuity (Tuinman *et al*., 2016:148–154). Despite the growing complexity of resident needs, current LTCF standards do not adequately address these changes, as Harrington *et al*. (2012:88–98) indicated when comparing nurse staffing standards and staffing levels in six countries.

Poor alignment between staffing and resident acuity appears to exist since most countries, including the United States and Canada, do not implement acuity-based staffing standards. Harrington *et al*. (2012:88–98) state that this may be the reason for not addressing residents' complex health needs.

An exception may be Germany, where residents' dependency levels are used to determine staffing levels. For instance, residents with higher dependency levels require more staff hours for assistance and basic care (Zimmermann & Pfaff, 2018:48–56).

South Korean LTCFs are encouraged to have higher staffing levels to match the increased resident acuity levels (Lee *et al*., 2022:15–25). This approach acknowledges the importance of having higher staffing levels aligned with residents' acuity levels. Similarly, Kim and Han (2018:518–524) found that a greater demand exists in South Korea for professional healthcare providers with higher educational preparation as patient severity increases. Furthermore, in the United States, with the increase in the complexity of resident cases, a higher skill mix is vital as higher qualified staff can address the more complex needs of residents (Chappell, Kirkham & Seitz, 2022:1787–1792).

However, Schnelle *et al*. (2016:970–977), using a discrete event simulation model (DES) in 13,533 LTCFs in the United States, observed a low correlation between staffing levels and the care needed based on residents' activities of daily living. With high resident acuity levels, there was a 22% omission of care. Moreover, Tuinman *et al*. (2016:148–154) in the Netherlands found that although RNs spent more time providing care to residents with higher acuity levels, overall care did not significantly differ based on residents' needs.

4.5 DISCUSSION

This scoping review provided an overview of the literature concerning staffing in LTCFs, i.e., the skill mix, staffing levels, staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. The quality of the included studies was not assessed in this scoping review, which aligns with the recommendations made by Arksey and O'Malley (2005:19–32) for conducting scoping reviews. The results primarily drew from secondary data analysis performed in high-income countries, relying on government data sources. The compilation of evidence focused on how LTCFs implement staffing models regarding staffing levels, skill mix, and allocation of tasks (scoping review: Sub-question 1).

Varied global perspectives on LTCF skill mix standards: The studies revealed a considerable variation in skill mix standards between and within countries. Different countries have adopted diverse approaches to staffing standards in LTCFs. For example, the United Kingdom uses broad statements on staff appropriateness, such as that the number of staff and the skill mix must be appropriate for the LTCFs' layout, size, purpose, and service users' needs. Although the national regulations do not specify minimum standards, an LTCF registration certificate may specify minimum staffing standards based on the individual needs of LTCF residents (Harrington *et al*., 2012:88–98). Similarly, Norway and Sweden did not have specific staffing standards. In contrast, other countries adopted approaches that specify minimum federal standards with

variations allowed at the state (in the United States) or provincial levels, e.g., in Canada (Harrington *et al*., 2012:88–98).

The proportion of RNs in the total staff mix differed between countries since the skill mix standards varied. Some countries, such as Germany, require higher proportions of RNs. German legislation requires that 50% of all the care staff must be RNs, and an RN must be available 24 hours (Zimmerman & Pfaff, 2018:48–56); Zirves, Demirer & Pfaff, 2021). In contrast to Germany, South Korea allows the substitution of RNs with CNAs, resulting in lower proportions of RNs (Lee *et al*., 2022:15–25; Shin, 2019:569–579) or LTCFs without any RNs (Shin & Shin, 2019:296–301). In the United States, the federal standards require at least one RN on duty for eight consecutive hours every day of the week. An RN and a licensed nurse (e.g., an LPN) must cover the other two eight-hour shifts. Additionally, LTCFs must ensure enough staff are available to ensure residents' wellbeing (Harrington *et al*., 2012:88–98). Higher skill mix levels (a more significant proportion of higher qualified nurses in the total staff mix) have been emphasised as essential in LTCFs to respond effectively to the increasing complexity of resident cases. Some authors postulated that qualified staff with advanced knowledge and skills could better address residents' complex care needs and positively influence resident outcomes (Chappell, Kirkham & Seitz, 2022:1787–1792). RNs contribute to reducing adverse events. Based on their expertise in nonpharmacological interventions and safety-oriented attitudes, they may prevent the prescribing of unnecessary antipsychotic medications and prevent falls (Chappell, Kirkham & Seitz, 2022:1787–1792; Kim & Han, 2018:518–524; Shin & Hyun, 2015:555–564). Moreover, higher RN staffing levels have been associated with reduced rehospitalisation and emergency department visits. This was especially relevant for LTCF residents with clinically complex health conditions (Yang *et al*., 2021:1081–1087). Lee *et al*. (2022:15–25 found that, during the COVID-19 pandemic, a higher proportion of RNs in the skill mix was associated with reduced infection and mortality rates.

Although employing RNs may be costlier than LPNs or CNAs, using RNs offers potential cost-effectiveness, and the impact on quality improvement may make it a valuable investment for LTCFs (Lerner, 2013:123–128). Regarding quality improvement, RNs versus LPNs receive more extended and extensive training, which may impact the quality of care (Lee, Shin & Harrington, 2015:137–143). However, some countries found it difficult to achieve an optimal skill mix. For example, South Korean LTCFs lack RNs due to cost considerations and unappealing working conditions (Lee, Shin & Harrington, 2015:137–143; Shin, 2018:705–713).

Moreover, LTCFs should assess which expertise, skills, and education are needed for the different types and levels of resident care (Harrington *et al*., 2012:88–98). However, Zirves, Demirer and Pfaff (2021) cautioned that regardless of staff qualifications, the actual competence of staff in LTCFs is not measured. Thus, improving the quality of care may involve providing specialised staff training, such as managing residents with Dementia (Zimmerman & Pfaff, 2018:48–56). The results showed that regulatory standards, workforce

composition and staff education influence resident outcomes and healthcare quality. Moreover, the results underlined the importance of considering the relationship between the staff's skill sets and qualifications and their influence on resident care within diverse international contexts. In sum, the studies' results indicated that promoting a higher skill mix may lead to better care outcomes for residents in LTCFs.

Unanimity: Staffing levels vary, but higher staffing standards may improve outcomes. Staffing level standards in LTCFs exhibit significant variation across different studies. For example, the variance between 2.3 HPRD in the United States (Schnelle *et al*., 2016:970–977) and 5.19 HPRD in Sweden (Harrington *et al*., 2012:88–98). Many countries reported staffing levels lower than the recommended 4.55 HPRD suggested by experts in the United States while urging nursing researchers and clinicians to prioritise transparency in reporting staffing data and researching appropriate standards to ensure high-quality care (Harrington *et al*., 2012:88–98). Shin and Shin (2019:296–301) found that lower staffing levels may increase the staff's workloads, leading to burnout. The staff's ability to assist residents with their daily activities may be impeded, possibly leading to inadequate care (Lee, Shin & Harrington, 2015:137–143; Schnelle *et al*., 2016:970–977). Inadequate RN staffing levels may compound adverse events, such as using more psychotropic medication in residents. By contrast, higher RN hours may allow more time for the staff to address behavioural issues in residents with Dementia (Yoon *et al*., 2022:728–737).

The studies indicate that higher staffing levels may lead to positive resident outcomes. There may be less need to manage residents' behavioural and psychological symptoms with antipsychotic medications. More staff may also lead to higher quality care (Chappell, Kirkham & Seitz, 2022:1787–1792). In addition, higher staffing levels were associated with fewer deaths and COVID-19 outbreaks (Gorges & Konetzka, 2020:2462–2466). Further positive outcomes of higher staffing levels included reduced emergency department visits among LTCF residents and rehospitalisation (Yang *et al*., 2021:1081–1087). Residents' enjoyment (such as enjoying their favourite food) and comfort improved (Shin, 2013:133–143), as well as their satisfaction with their spiritual wellbeing (Shin, Park & Huh, 2014:788–805). Moreover, Shin (2018:705–713) found that higher staffing levels ensured fewer residents on bed rest. Residents were also less likely to have depression, and there was less need to restrain residents. These findings showed that adequate staffing levels and enough qualified staff may promote resident outcomes. As such, the quality of care may be enhanced in the LTCFs.

Congruence between staff with more qualifications and competencies (a higher skill mix), staffing levels, and resultant positive organisational outcomes: The results showed that state surveyors in the United States issued fewer deficiency citations to LTCFs with a higher CNA HPRD. In contrast, a higher proportion of RNs to CNAs in the total skill mix was not linked to receiving fewer deficiency citations issued to the LTCFs. However, with a higher proportion of RNs to CNAs in the total skill mix, the severity of the deficiency citations was lower (Lerner, 2013:123–128). Since RNs receive more extended training, which leads to higher levels of

decision-making, critical thinking, and clinical judgement, RNs may be better equipped to address residents' behavioural and psychological symptoms and mental health conditions (Chappell, Kirkham & Seitz, 2022:1787–1792). Moreover, RNs are trained to notice serious adverse events (Yoon *et al*., 2022:728–737). Therefore, one can deduce that LTCFs and their residents benefit from having enough staff with the right competencies.

Division of labour: Caregivers on the front line with skilled nurses behind the scenes? RNs receive more extensive training than other nurse categories and have a comprehensive scope of practice. In addition, RNs take responsibility for the complete nursing process (Zimmermann & Pfaff, 2018:48–56) with accountability for overall nursing outcomes, harm prevention, identification of behavioural symptoms, and the development of individualised nonpharmacological interventions for residents, including comprehensive clinical assessments (Yoon *et al*., 2022:728–737). Furthermore, the RNs supervise less-qualified nursing staff and caregivers (Lee, Shin & Harrington, 2015:137–143; Lee *et al*., 2022:15–25; Shin & Hyun, 2015:555–564). However, despite the RNs' training and skill set, RNs often spend a significant amount of time on indirect care activities, such as documentation, communication, chart reviews, and walking throughout the unit (McCloskey *et al*., 2015:1475–1483; Tuinman *et al*., 2016:148–154). Although the RNs' scope of practice was addressed in the included studies, little information was gained on the actual tasks completed by the RNs. While the LPNs' role is more task-oriented and requires them to work under the supervision of RNs (Yoon *et al*., 2022:728–737), McCloskey *et al*. (1475–1483) found that LPNs worked below 20% of their full scope of practice. Moreover, the results indicated that RNs and LPNs perform activities during day and night shifts that could have been delegated to non-regulated care workers (McCloskey *et al*., 2015:1475–1483). McCloskey *et al*. (1475–1483) suggested that RNs and LPNs spend approximately 53.7% of their working hours on activities that do not directly contribute to patient care, such as stock distribution. Although RNs spend less time on direct resident care and more on indirect activities like care planning, the activities carried out by RNs must add value to resident care. Consequently, RNs should feel comfortable delegating non-value tasks to others. The authors recommended thoroughly examining workflow processes and delegating non-value tasks to non-regulated care workers. By doing so, RNs can focus on their scope of practice, thus enhancing their overall efficiency (McCloskey *et al*., 2015:1475–1483). Compared to the work scope of the nurses, the unlicensed caregivers appear to be the frontline workers providing most of the direct care to the residents. The studies included in this scoping review all indicate that caregivers assist residents with their daily activities under the supervision of an RN or an LPN (Lee *et al*., 2022:15–25; Shin, 2013:133–143; Yang *et al*., 2021:1081–1087). Although a valuable contribution of the direct care staff is their ability to provide information to the licensed staff for evidence-based care planning (Yoon *et al*., 2022:728–737), it may lead to overextending the caregivers (Lee *et al*., 2022:15–25; Yang *et al*., 2021:1081–1087) as discussed below.

The blurring of roles: The roles between the different nurse categories and caregivers in the LTCFs appeared to become increasingly less distinct (Lee *et al*., 2022:15–25; McCloskey *et al*., 2015:1475–1483). RNs may be replaced with LPNs and caregivers due to cost-saving measures. As a result, staff members may assume higher responsibilities than those they are qualified for. Lee *et al*. (2022:15–25) found that 22% of South Korean LTCFs did not employ RNs. Instead, CNAs are used despite the difference in qualifications and scope of practice between RNs and CNAs. Moreover, shortages of RNs may force LPNs to go beyond their designated scope of practice, potentially leading to overextension (Yang *et al*., 2021:1081–1087). Furthermore, despite being unlicensed, caregivers bear great responsibility. The total staffing in some LTCFs comprises 88.1% of caregivers, who provide the bulk of direct resident care (Lee *et al*., 2022:15–25; Yang *et al*., 2021:1081–1087). Therefore, clear distinctions between staff roles are necessary for effective staff delegations. For example, United States LTCFs delegate medication administration to LPNs, thus freeing up time for RNs to complete more specialised tasks (Yoon *et al*., 2022:728–737). Establishing role clarity becomes essential to optimise resource utilisation within LTCFs and ensure quality care (McCloskey *et al*., 2015:1475–1483). The literature also addressed this scoping review's second research sub-question: "Is the allocation of tasks aligned with the scope of practice of the nurses' categories and the caregivers' job descriptions as described in the relevant country's legislation?"

Disinterest in acuity-adjusted staffing: The increasing health needs of ageing residents in LTCFs demand more complex nursing care (Kim & Han, 2018:518–524; Tuinman *et al*., 2016:148–154). Authors found that a greater demand exists for professional healthcare providers with higher educational preparation (Kim & Han, 2018:518–524) since higher qualified staff can address the more complex needs of residents (Chappell, Kirkham & Seitz, 2022:1787–1792). However, despite the growing complexity of residents' health needs, most LTCFs do not currently employ acuity-based methods to determine staffing levels based on residents' activities of daily living care needs (Schnelle *et al*., 2016:970–977; Harrington *et al*., 2012:88–98). Authors found that residents receive the same basic care regardless of their needs and acuity levels (Tuinman *et al*., 2016:148–154). Moreover, omission of care occurred with higher resident acuity levels (Schnelle *et al*., 2016:970–977). Harrington *et al*. (2012:88–98) and Tuinman *et al*. (2016:148–154) agreed that residents' acuity levels and individual needs should be considered when determining staffing levels. Additionally, the nursing staff's education, skills, and expertise should be regarded to ensure different levels and types of care (Harrington *et al*., 2012:88–98; Tuinman *et al*., 2016:148–154).

A summary of recommendations from the included studies is provided in Addendum G.

4.6 STRENGTHS AND LIMITATIONS

A scoping review protocol was designed to delineate the plan for conducting the scoping review to gain insight into the implementation of staffing models in LTCFs (Addendum D). A rigorous strategy and search

were employed to answer the research question. The search was extensively recorded to ensure transparency. This review's robustness was strengthened by including two independent reviewers for article screening and involving more than one supervisor during the review phases. Limitations include introducing potential bias, as some articles may have been overlooked. This was possible since the literature search was limited to specific search terms and four databases. The articles were also limited to English and Afrikaans language studies. The search only included articles published since 2010 due to the South African staffing model's publication in 2010. The evidence also mainly originated from developed countries, and all studies employed quantitative approaches. Furthermore, the researcher could not locate studies done in Sub-Saharan countries that answered the research question. In addition, not assessing the studies' quality might have included studies (and disseminating their results), while their generalizability might have been limited due to excluding specific populations and contexts. Although quality assessments are not mandatory for scoping reviews (Arksey & O'Malley, 2005:19–32), this review's robustness was thus diminished.

4.7 FUTURE DIRECTIONS

Further investigation of acuity-based staffing models in LTCFs is needed due to the increasing ageing population. With an increase in the number of older people worldwide, optimum staffing levels should be explored. The increased ageing of residents residing in LTCFs may indicate that they have more complex care needs. Therefore, further investigation into the relationship between the staff's qualifications and skill sets is suggested to optimise resident outcomes. Furthermore, a knowledge gap exists regarding the use of nurses and caregivers in LTCFs. Exploring the different responsibilities of nurses and caregivers may ensure a more appropriate use of available human resources. Lastly, since most of the evidence was generated in developed countries, future research should focus on implementing staffing models in resource-constrained countries.

4.8 SUMMARY

A total of twenty studies were included in this scoping review. This review provided insight into the implementation of staffing models in LTCFs, including staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. Five themes emerged from the data. The literature highlighted the importance of having the appropriate type and number of staff. Additionally, using the staff effectively may improve resident outcomes. The findings specifically emphasised the need for acuity-based staffing methods to determine staffing levels effectively. The limitations of this scoping review were discussed, and suggestions were made for future research. The findings of the scoping review contributed to the development of a framework for informing staffing models in LTCFs for older persons in resource-constrained contexts. The following chapter contains the analysis and findings from purposefully selected documents from the state-subsidised and private for-profit LTCF and provincial and national records.

CHAPTER 5
DOCUMENT REVIEW FINDINGS AND DISCUSSION

5.1 INTRODUCTION

The findings of the scoping review are presented in Chapter 4. These findings offered insights into implementing staffing models in LTCFs. The scoping review findings encompassed staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions in the global context. In transitioning from the worldwide perspective provided in Chapter 4 to the local context, Chapter 5 contains a detailed discussion of the analysis and findings derived from purposefully selected documents from a South African private for-profit and a state-subsidised LTCF, provincial and national-level resources, e.g., the Older Persons Act 13 of 2006 (Republic of South Africa, 2006) and the Western Cape Government's (WCG) Health Norms and Standards (Republic of South Africa, 2015). The document review was conducted during Phase 1 (Substudy 2) to reach Objective 2 of this study: To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons (part of the holistic multiple-case study).

5.2 PREPARATION FOR DATA ANALYSIS

The following documents were included in the review and are listed in Table 5.1: Job descriptions, duty rosters, pages from the staff allocation book, resident bed lists, policies related to all categories of nurses and caregivers, minutes of an annual general meeting and Board of Directors' meeting, a Facebook page and website, quarterly reports (submitted to the Western Cape Department of Social Development), the Older Persons Act 13 of 2006, the Regulations Regarding Older Persons, 2010, the WCG's Health Norms and Standards, and all the nurse categories' scopes of practice. The documents were collected between December 2022 and August 2023. A qualitative data analysis software program, ATLAS.ti, was used to organise and code the data. To enhance transparency, the study supervisors were granted access to the project on ATLAS.ti to oversee the data analysis process. The general characteristics of the documents were transcribed onto a **data extraction sheet**, as displayed in Table 5.1. To safeguard the anonymity of the LTCFs involved, codes were assigned to each LTCF, identifying the private for-profit LTCF as "P1" and the state-subsidised LTCF as "S2." Documents such as the duty rosters containing shift data in numerical form, for example, 7/19 (i.e., a shift that commences 07:00 and ends 19:00), were summarised in a **Microsoft Word document**.

With an awareness of the context surrounding the creation of these documents, meaning they were created not for a research project but for use in the LTCFs (Bowen, 2009:27–40), specific standards produced by the South African government were used to assess the documents to ensure trustworthiness. The standards

include, among other things, the Western Cape Government Health Norms and Standards (Republic of South Africa, 2015), the Older Persons Act 13 of 2006 (Republic of South Africa, 2006), Regulations Regarding Older Persons (Republic of South Africa, 2010a), SANC's scope of practice (Republic of South Africa, 2022; South African Nursing Council, 1984), and standards reflecting best practices. For example, as the WCG Health Norms and Standards state that nurses' job descriptions must be aligned with their scope of practice, the job descriptions were compared to the different nurse category's scope of practice. In addition, various sources were triangulated to verify documents. For instance, the researcher confirmed whether the names of staff members shown on the duty rosters corresponded with those of the staff members in the allocation book.

As per Bowen's (2009:27–40) recommendations, the documents' authenticity (originality), credibility (how trustworthy the records were), completeness (whether the documents were comprehensive, e.g., whether staff allocation pages covered all aspects of staff allocation or were selective, i.e., the staff allocation pages only contained partial information), and representativeness (whether the documents contained enough detail regarding the research topic to enable answering the research question or determine whether information was omitted) were assessed and mapped. The data was cross-referenced with the authors (it was confirmed with the management whether the person who signed a document was indeed the author of a document), document dates, and where they were retrieved from, as advised by Batten and Brackett (2021:220–222). The origin of the sources was indicated as being primary, i.e., documents generated by the LTCFs, or secondary, i.e., public records, such as the different categories of nurses' scope of practice. The credibility of the documents was verified against other sources where possible. Furthermore, the representativeness of the documents was assessed and documented, such as whether the quarterly reports covered information related to the residents and nurse and caregiver staff of the specific LTCF.

Some of the mined documents were incomplete, e.g., symbols not contained in a legend were used on the private for-profit LTCF's duty roster, which required further exploration to find their meanings. The expected documents were absent in other cases, such as minutes from staff meetings. However, as Bowen (2009:27–40) mentioned, even incomplete documents or the absence of documents proved valuable. The presence of incomplete or a lack of documents offered a unique glimpse into the inner workings of the LTCFs, showing how they implemented staffing models related to skill mix, staffing levels, and staff allocation aligned with residents' acuity, nurses' scope of practice and caregivers' job descriptions. Beyond enriching the research context, these documents served a purpose in pre-and post-interview scenarios. Since the review of documents and the interviews took place concurrently, the documents were instrumental in cross-referencing interview data and, conversely, led to questions being asked, such as additional probing questions to enhance understanding of situations. Consequently, the reviewed documents complemented the interview data and augmented the research. To ensure confidentiality and protect the LTCFs' identities,

the dates of specific documents are not stated in this report but are only referenced by year or month where applicable. However, the exact dates are available in the raw data.

5.3 SUMMARY OF THE STUDY CHARACTERISTICS

This section contains an overview of the general characteristics of the documents included in the private for-profit (P1) and state-subsidised LTCF (S2), as displayed in Table 5.1.

5.3.1 Private for-profit LTCF (P1)

The seventeen documents included in the analysis were four job descriptions, including one for RNs, ENs, ENAs, and caregivers, despite the organisation not employing ENs and ENAs. Also, included in the analysis were one meeting report, six monthly bed lists containing the residents' details, and six duty rosters. The documents were dated 2022. In addition, P1's Facebook page was perused since they did not have a website. A staff allocation book was not available for perusal since the LTCF did not document staff allocation.

The generic **job descriptions** for RNs, ENs, ENAs, and caregivers were not dated (Table 5.1). Regarding the authenticity of the job descriptions, no name or signature was available to indicate who compiled them. However, the documents were labelled with the LTCF's details and were credible because they were specific to the LTCF's context.

The **minutes of the annual general meeting** were appropriately dated in 2022. Regarding authenticity, the minutes were typed by the LTCF's receptionist, who also managed the LTCF's finances and human resources. The document was not signed but filed in the facility's financials folder. The record contained facility-specific information and included various staff-related topics discussed at the meeting, such as caregivers receiving awards for long service.

P1 had no **website**, but a Facebook page was created years before. The Facebook page contained social media photos focusing on resident activities and the facility's contact information. However, the content has not been updated in recent years.

The facility manager created the duty rosters. The facility manager was also the RN in charge of P1 (see Table 5.1). Regarding the authenticity of the duty rosters, the names of the staff were typed, the shifts were completed by hand, and the rosters were hand-signed by the RN in charge. The credibility of the duty rosters was confirmed by correlating the dates and staff designations on the duty rosters with the calendar and the employed staff. However, in various instances, tippex or stickers were used to cover up errors.

Table 5.1: General characteristics of the documents

Facility code	Data source	Document date(s)	Location of document(s)	Authorship	Primary or secondary source	Authenticity	Credibility	Representativeness
P1	Job descriptions	Not dated	Administrative Office	No name or signature was available to indicate who compiled the job descriptions.	Primary	The documents were typed with the LTCF's details.	The job descriptions were facility-specific.	The documents included key performance areas linked to performance indicators.
P1	Minutes of the annual general meeting	Dated 2022	Administrative Office	They were typed by the LTCF's receptionist, who also manages the finances and human resources. The document was not signed.	Primary	The document was filed in the facility's financials folder.	The content in the record contained facility-specific information.	The Annual General Meeting (AGM) minutes included various staff issues discussed at the meeting, e.g., long service awards and salary negotiations.
P1	Facebook page	N/a	Online	P1	Secondary	The name, physical address, and contact number correlated with the information verified during the physical visits to P1.	The Facebook page could be viewed publicly.	The Facebook page mainly contained social media photos of events involving the residents of the LTCF.
P1	Duty rosters	Month of July, August, September, October, November, and December 2022	Administrative Office	Created by the facility manager.	Primary	The staff's names were typed, and the shifts were completed by hand. The facility manager signed it.	Dates and staff designations on the duty roster correlated with the calendar and employed staff.	The duty roster format for the month included all day and night staff shifts. The roster reflected the shift hours each staff member had to work during each month from July to December 2022, including staff on leave.
P1	Bed lists	Month of July, August, September, October, November, and December 2022	Administrative Office	The LTCF's receptionist, who manages the finances and human resources, created the bed lists.	Primary	The documents were typed with the LTCF's name, including the residents' names and the numbers of the invoices issued.	The record contained the names of residents still residing at the facility.	The documents included all the residents per month and the balance of their accounts.
S2	Job descriptions	RN job description: Dated 2021 ENs, ENAs, and caregivers: Dated 2022	Office of the RN in charge.	Created by the RN in charge.	Primary	The documents were typed with the LTCF's details and the RN in charge's name. However, the documents were not signed.	The job descriptions were facility-specific.	The documents were lists of tasks that had to be completed according to timeslots.
S2	Policies related to staff (internal), e.g., job-specific and human resource policies	July 2016	Office of the RN in charge.	No name or signature was available to indicate who compiled the policies.	Primary	The documents were typed with the LTCF's details.	The policies appeared generic, as compiled by an outsourced human resource company.	Contained general human resource policies.
S2	Quarterly reports	September and November 2022	Office of the RN in charge.	Prepared by the RN in charge.	Primary	The documents were typed with the LTCF's details. However, the documents were not signed.	The staffing information correlated with the duty rosters.	The report covered information related to residents, nurse and caregiver staff, and operational statistics.

Facility code	Data source	Document date(s)	Location of document(s)	Authorship	Primary or secondary source	Authenticity	Credibility	Representativeness
S2	Minutes of the meeting held by the Board of Directors	Dated 2022	Facility manager's office	The minutes were signed and dated by the chairperson and secretary.	Primary	The minutes were on the LTCF's official letterhead.	The minutes reflected facility-specific information.	The minutes included the LTCF's various maintenance and fundraising projects, operational issues, and staff member disciplinary action.
S2	Website	N/a	Online	The website was maintained by a company providing office technology services.	Secondary	The logo, name, physical address, and contact number were correlated with the information verified during the physical visits to the facility.	The photos correlated with the inside and outside of the LTCF and the general information provided, such as the contact details.	The LTCF's website contains its vision, mission, physical address and contact details, services offered, and pricing structures.
S2	Staff allocation book	Dated between November and December 2022, two lists per day, including the day and night shifts.	On-site Nurses' Duty room	The forms were not signed by the person drafting them to indicate they were approved.	Primary	Handwritten forms. The forms displayed the facility details. Some of the staff signed next to their names.	The allocation pages correlated with the staff reflected on the duty roster.	The day and night staff duties were indicated on the allocation pages.
S2	Duty rosters	Month of July, August, September, October, November, and December 2022	On-site Nurses' Duty room	The RN in charge created the duty rosters.	Primary	The documents were typed, dated, and in Afrikaans (the most used language in S2). The RN in charge signed only one of the monthly duty rosters, although the RN responsible for the duty roster's name was typed in.	Dates and staff designations on the duty roster correlated with the calendar and employed staff.	The duty roster format for the month included all day and night staff shifts. It reflected the shift hours each staff member had to work during each month from July to December 2022, including staff on leave.
N/a	Older Persons Act 13 of 2006	2006	Online	Republic of South Africa.	Secondary	Government Gazette no. 29346	Official document.	It contains the conditions under which an LTCF may operate, including 24-hour care for older persons with Dementia and other diseases.
N/a	Regulations Regarding Older Persons, 2010	1 April 2010	Online	Republic of South Africa, Department of Social Development.	Secondary	Government notice Regulation 260	Official document.	Contains the national norms and standards for LTCFs, including the staffing model.
N/a	WCG Health Norms and Standards	2015	Western Cape Department of Social Development	WCG.	Secondary	Branded by the WCG.	Official document.	Contains nine standards related to LTCFs, including the staffing model for LTCFs.
N/a	SANC's Scope of Practice, 1984	30 November 1984	Online	South African Nursing Council.	Secondary	Government notice Regulation 2598	Official document.	The document contains the scope of practice for ENs in South Africa.
N/a	SANC's Scope of Practice, 2022	3 June 2022	Online	Republic of South Africa, Department of Health.	Secondary	Government notice Regulation 2127	Official document.	The document contains the scope of practice for professional, general, and auxiliary nurses in South Africa.

The representativeness of the duty rosters was reflected in the inclusion of the employed staff's day and night shifts. The receptionist also manages the LTCF's finances and human resources and creates **monthly bed lists**. Regarding authenticity, the documents were labelled with the LTCF's name, including the residents' names and the numbers of the invoices issued. Most residents on the 2022 documents still resided at the LTCF during the 2023 document review.

5.3.2 State-subsidised LTCF (S2)

The 28 documents included in the analysis for S2 included four job descriptions (one each for RNs, ENs, ENAs, and caregivers), one meeting report, two quarterly reports to the Western Cape Department of Social Development, fifteen staff allocation pages, and six duty rosters. The documents were dated 2022. In addition, S2's website and policy manual were reviewed.

The **job descriptions** were dated 2021 (RNs) and 2022 (ENs, ENAs and caregivers), as shown in Table 5.1. Regarding the authenticity of the job descriptions, the documents were created by the RN in charge and were labelled with the LTCF's details and the RN in charge's name. However, the documents were not signed. Regarding the credibility of the job descriptions, they were written explicitly for S2 and reflected the processes followed in S2 at designated times. The RN in charge did not have a separate job description with management duties.

Policies and procedures: The 2016 human resource policy manual contained S2's name. However, no representative's name or signature was available to indicate who compiled the guidelines or whether the Board of Directors approved the policies.

Quarterly reports: All state-subsidised LTCFs must submit quarterly reports to the Department of Social Development every three months. The reporting periods are as follows: Quarter 1: April to June, Quarter 2: July to September, Quarter 3: October to December, and Quarter 4: January to March. In S2, two reports were prepared for 2022 and were submitted for Quarters 2 and 3. The RN in charge of S2 compiled the reports for the LTCF's Board of Directors, after which the reports were submitted to the Western Cape Department of Social Development. Although the documents were labelled with the LTCF's details, they were not signed.

Meeting minutes: The Board of Directors meeting minutes, dated 2022, were signed by the chairperson and the secretary. They reflected facility-specific information, including S2's various maintenance and fundraising projects, operational issues, and a staff member's disciplinary action.

Website: S2's website revealed the facility's mission and vision and detailed the available bed capacity and accommodation options. The website also summarised the services offered to older persons and provided information on associated costs. Additionally, the website hosted a frequently asked questions section and provided contact details for the facility.

Staff allocation book: Fifteen staff allocation pages from the staff allocation book of both the day and night shifts were collected between November and December 2022, as shown in Table 5.1. Regarding the authenticity of the forms, the facility details were displayed, but the handwritten pages were not signed to indicate who allocated the staff. Also, only some staff signed their names in the allotted spaces, indicating recognition of their allocation for the day. The credibility of the allocation pages was confirmed by comparing the staff names on the allocation pages with the staff names included in the duty rosters.

Duty rosters: The six selected duty rosters covered the period from July to December 2022, with one duty roster per month. The duty rosters were typed and dated, with the facility's name typed in. The RN in charge created the duty rosters but only signed one of the six monthly duty rosters (displayed in Table 5.1). The nurses' and caregivers' designations were indicated in Afrikaans (the language most used in S2). Regarding the document's credibility, the dates and staff designations on the duty roster correlated with the calendar and employed staff. The duty rosters reflected the shift hours and the areas where each staff member had to work, e.g., the corridor in the facility, and included the names of staff on annual leave and a staff member on maternity leave.

5.4 DOCUMENT REVIEW FINDINGS

Braun and Clarke (2006:77–101) propose following an inductive thematic analysis process when analysing the data, which was done in this study. The inductive thematic analysis process also aligned with the meta-theory of critical realism underlying this study. Chapter 3, Section 3.5.1, contains an outline of the process followed. The documents were a reality that could be observed, thus reflecting the empirical domain (Bhaskar, 2008:16). The researcher reflected on the content of the documents to explore the potential underlying and unobservable causes or events in the *real* domain. This iterative process assists with gaining a deeper understanding of the document's significance. Moreover, the data analysis facilitated a deeper understanding of how and why the LTCFs implemented a staffing model. The data extracted and synthesised from the documents were categorised into six themes and thirteen subthemes to indicate how LTCFs implemented a staffing model. These themes and subthemes are presented in Table 5.2. As reflected in Table 5.2, the findings are discussed per the respective LTCF, i.e., the private for-profit LTCF (Section 5.4.1) and the state-subsidised LTCF (Section 5.4.2).

After presenting the document review findings for each facility, a discussion of the integrated findings from the private for-profit and state-subsidised LTCFs follows in Section 5.5.

Table 5.2: Thematic representation of themes derived from the documents

Themes	Subthemes	Examples of codes
Human resource practices influence staff management	Contextual factors influence staffing in the LTCF	Employee benefits and welfare Staff turnover Relief staff Absenteeism Disciplinary measures
	Shift scheduling was implemented to provide 24-hour care	Shift characteristics Work hours
Nurses and caregivers were left to their own devices	Limited guidelines for nurses and caregivers	Job descriptions Human resource policies Job-specific policies and procedures
	Limited communication between nurses and caregivers and management	Annual general meetings and Board meetings Staff meetings
Staffing levels favour a lower-cost model of nursing categories	Low nurse staffing levels in total staffing	Actual nurse staff levels Nurse-to-resident ratios
	High caregiver staffing levels in total staffing	Actual caregiver levels Caregiver-to-resident ratios
	A mismatch between total nurse and caregiver levels	Comparison with prescribed standards
Disparities in the skill mix with an overuse of lesser qualified caregivers	The available knowledge and skills as delineated in job descriptions	Work experience Competencies Training
	Low nurse-to-caregiver ratios	Actual skill mix Proportion of nurses versus caregivers Comparison with prescribed standards
Residents' acuity was seemingly neglected in staff allocations	The care required by residents	Resident totals Acuity levels Required staffing levels Required skill mix
	Aligning nurses' and caregivers' skills with resident needs	Acuity consideration Allocation strategies
A perceived indifference to residents' acuity with staff allocations	Disregarding nurses' scope of practice	Scope of practice Non-nursing tasks Adverse events
	Overburdening caregivers	Job scope Nursing responsibilities

5.4.1 Private for-profit LTCF (P1)

The themes and subthemes are discussed in the order of Table 5.2 for the private for-profit LTCF (P1).

Theme 1: Human resource practices influence staff management

This theme pertains to the practices followed in the LTCF and the contextual factors that influenced nurse and caregiver staffing in P1. The contextual factors include those benefits the nurses and caregivers received beyond their salary, the prevalence of staff turnover, the availability of relief staff for scheduled and unscheduled absenteeism, the prevalence of absenteeism of nurses and caregivers, and the prevalence of disciplinary actions taken by management against the nurses and caregivers. Furthermore, a discussion follows on how shift scheduling was done in P1, including the shift characteristics, such as the nurses' and caregivers' work hours to provide 24-hour coverage.

Contextual factors influence staffing in the LTCF: The staffing dynamics within the LTCF were influenced by various contextual factors. P1's management prioritised its employees' welfare and provided employee benefits. In addition to the employees' salaries, the AGM minutes showed that employees also received shoe allowances, pension fund contributions, and uniforms. Furthermore, personal loss was recognised, and condolences were extended to team members who lost family members due to the COVID-19 pandemic in the same meeting. A special tribute was paid to a staff member with a lengthy history of dedicated service at the LTCF, who succumbed to the COVID-19 virus.

When considering **staff turnover**, it is noteworthy that no resignations or new staff appointments were documented between July and December 2022, according to the duty rosters. The AGM minutes reflected the low staff turnover. During the meeting, staff members were acknowledged for having ten to thirty years of service at the facility.

P1's management appeared committed to providing **relief staff** for caregivers' absenteeism. Per the duty rosters, the RNs seemingly covered all shifts sufficiently with supplemental caregiver staff where needed. The only full-time nurse on staff was the facility manager, who also served as the RN in charge and worked day shifts four days a week. The remaining five RNs hold employment contracts as 'locums' and have worked at the facility for durations ranging from one to five years. Given the on-demand nature of their work, meaning they could choose to work additional shifts when available, relief staff were not needed for the RNs.

The duty rosters for RNs were structured to meet the LTCF's specific needs, ensuring RN coverage during the day shifts from 08:00 to 17:00 and from 19:00 to 07:00 during the night shifts. P1 did not employ ENs or ENAs. Five relievers always appeared to be available for caregivers, and they were used when caregiver shortages occurred due to illness, special vacation requests, and annual leave.

Absenteeism among the seventeen permanently employed caregivers varied between eight and 16 days per month. The duty rosters indicated that the absenteeism was due to illness or requesting vacation leave for

one to three days. On the other hand, the duty rosters did not reflect any absenteeism between the RNs. This may be ascribed to the fact that the RNs worked on an on-demand basis. There was no discernible pattern in absenteeism, meaning that absent days were not higher during weekends than, for example, during the week. During the AGM, it was underscored that any absence must be promptly communicated to the shop steward. However, the available documents did not mention **disciplinary measures** taken by management.

Shift scheduling implemented to provide 24-hour care: The six duty rosters reviewed from July to December 2022 provided insights into the staff members' shift hours. The **shift characteristics** encompassed the staff's schedules (work hours and shifts) and monthly variations, such as annual and sick leave. Caregiver work shifts were seemingly based on rotation. For example, a caregiver will work one to two consecutive months of night duty followed by day duty shifts or annual leave. The caregivers appeared to work about seven days out of every fourteen days.

The RNs' **work hours** were varied. The RN in charge worked 36 hours weekly, from Monday to Thursday. The remaining five RNs' shifts were not predetermined but varied from 9 to 48 hours per week. Their work shifts were from 08:00 to 17:00 (9-hour shifts) or 19:00 to 07:00 (12-hour shifts) based on the facility's needs and coverage requirements, i.e., between the remaining five RNs, they covered the shifts not covered by the RN in charge.

In the absence of ENs and ENAs, one RN was always on duty between 08:00 and 17:00 and 19:00 and 07:00. The caregivers' day shift hours were from 07:00 to 18:00, amounting to 11-hour shifts. Conversely, night shift caregivers worked from 18:00 to 07:00, or 13-hour shifts.

The findings related to Theme 1 indicated that P1's management provided employee benefits and considered the nurses' and caregiver's welfare. There was no staff turnover, and relief staff were available for caregivers. However, absenteeism was high among the caregivers, as their absenteeism varied from eight to 16 days per month. Despite the caregivers' high absenteeism rate, management took no disciplinary measures. According to the duty rosters, there was always one RN on duty between 08:00 to 17:00 and 19:00 to 07:00, leaving the caregivers without any category of nurse on duty between 07:00 and 08:00 and 17:00 and 19:00 daily. The effect of caregivers working without any category of nurse present for three hours daily is discussed in Theme 6.

Theme 2: Nurses and caregivers were left to their own devices

This theme includes the availability of guidelines to direct the staff, such as job descriptions and human resource and job-specific policies and procedures. It also includes a discussion of the communication

dynamics between management and the staff within the organisation, including the annual general and staff meetings.

Limited guidelines for nurses and caregivers: The **job descriptions** at P1 comprised multiple sections, including introductions, job purposes, educational prerequisites, qualifications, experience requirements, proficiencies, oversight roles and staff allocation, and personnel traits. These job descriptions also featured specific performance indicators tied to performance expectations. According to the RNs' job descriptions, they supported the facility manager and led the care teams. Caregivers were expected to implement residents' care plans. Their tasks seemingly entailed providing residents with practical, physical, social, and emotional care. In addition, the caregivers provided non-medical assistance to the residents. This non-medical assistance included ensuring residents' comfort and safety and providing companionship. Despite the comprehensive information in the job descriptions, there were no established **human resource** or **job-specific policies and procedures** to guide staff. The RNs' job descriptions explicitly stated their accountability for adhering to professional clinical and nursing care standards through stipulated regulations, policies, and procedures. Still, such supportive documents were absent. The caregivers' job descriptions included key performance indicators emphasising the alignment of resident care provision with care plans and company policies, although company policies were absent.

Limited communication between nurses, caregivers, and management: Employees, including the facility manager (the RN in charge) and the LTCF owner, attended an **AGM** in 2022. Discussions regarding staff issues included the possibility of reducing the LTCF's official retirement age from 65 to 55. The minutes reflected that this option would be explored. Regarding salary increases, the LTCF owner explained that they could not commit to the request for increases or bonuses at that stage. However, management would reevaluate the LTCF's financial situation later that year. This economic uncertainty was attributed to significant financial losses during the COVID-19 pandemic due to increased costs, such as for personal protection equipment, despite increased occupied beds (more residents admitted). It was explained to the staff that the LTCF was obligated to adhere to the bed count stipulated by the Department of Social Development. Therefore, P1 could not admit more residents than the Department of Social Development stipulated.

Aside from the AGM, P1 did not maintain records of **staff meetings** despite the RNs' job descriptions emphasising their active participation in such meetings. Interviews with participants confirmed that no official staff meetings occurred at P1, as discussed in the next chapter. The findings showed that the RNs and caregivers were left to their own devices in P1. P1 had job descriptions for the RNs and caregivers but no human resource or job-specific policies and procedures to guide the staff. Formal communication in the form of staff meetings did not occur in P1. Formal communication between the RNs, caregivers, and management

was limited to an annual general meeting where staff-related discussions took place, such as salary negotiations.

Theme 3: Staffing levels favour a lower-cost model of nursing categories

This theme concerns the efforts of P1 to obtain an adequate staffing level, which was to increase the caregiver staffing levels to reach higher caregiver-to-resident ratios, seemingly to compensate for low nurse staffing levels.

Low nurse staffing levels in total staffing: As discussed, the **actual nurse staffing level** in P1 was obtained by employing one full-time RN and using five RNs for the other shifts - thus, a full-time equivalent of four RNs. The nurse staffing level was limited to one RN on duty per shift between 08:00 and 17:00 and 19:00 and 07:00. Since the LTCF did not employ ENs or ENAs, there were no nurses available between 07:00 and 08:00 and 17:00 and 19:00 daily. The average **nurse-to-resident ratio** (RN-to-resident) during the 9-hour day and 12-hour night shifts was 1:35.

High caregiver staffing levels in total staffing: Regarding the **actual caregiver staffing levels**, the 17 full-time caregivers were supplemented with one relief care worker per shift. Therefore, P1 seemed to have a full-time equivalent of eighteen caregivers. Since relief workers supplemented the shifts, the average was six caregivers per 11-hour day shift and three caregivers per 13-hour night shift. Thus, during 11-hour day shifts, the average **caregiver-to-resident ratio** was 1:6, while during 13-hour night shifts, it was 1:12.

A mismatch between total nurse and caregiver levels: When comparing the staffing levels in P1 with the **prescribed standards**, the total staffing level (including all categories of nurses and caregivers) exceeded the minimum prescribed staffing levels for the 35 Category 3 (frail) residents. Based on the calculation method in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), P1 had to provide a minimum of sixteen staff units (one staff unit equals one person - any category of nurse or a caregiver) for the 35 Category 3 residents, as displayed in Table 5.3. This calculation is based on the formula as follows:

Total residents X 18 hours of care per week / 40 hours work week = 15.75 staff units (rounded to sixteen staff units). As discussed in Chapter 2, the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) specifies that *"a decimal fraction of 0.6 and higher must be calculated as one unit",* although one example provided in the mentioned regulations did not calculate the 0.6 as one unit, without explaining the anomaly.

The actual staffing level in P1 was 22 staff units.

The minimum prescribed HPRD was 2.57 (Republic of South Africa, 2010a:64), calculated as

(Total staff units X 40 hours workweek / 7 days) / total of residents.

P1 exceeded the minimum prescribed HPRD of 2.57 for 35 Category 3 residents since P1 provided 3.59 HPRD.

Table 5.3: The prescribed staffing level versus P1's actual staffing level

Total Residents Per Category in P1		Regulations Regarding Older Persons			P1	
Category Of Resident	**Number Of Residents In P1**	**Minimum Prescribed Hours Of Care Per Week**	**Minimum Prescribed Staffing Level** *(Including all categories of nurses and caregivers for P1)* **(0.6 and higher was rounded to one)**	**Minimum Prescribed HPRD**	**Actual Staff Level** *(Total staffing level including all RNs and caregivers)*	**Actual HPRD**
Category 1	0	0	No staff provision			
Category 2	0	9	0			
Category 3	35	18	16			
		Total	**16**	**2.57**	**22**	**3.59**
HPRD: Hours per resident day						

The findings suggest that P1 reached their staffing levels by increasing the number of caregivers while employing fewer nurses. The total RN and caregiver staffing level comprised 22. This staffing level was higher than the minimum standard of 16. However, the minimum standard of 16 includes all nurse categories and caregivers. The actual nurse staffing level comprised four (full-time equivalent) RNs, compared to the caregiver staffing level of eighteen. This mismatch between total nurse and caregiver levels led to a disparity in the skill mix, as discussed in the following theme.

Theme 4: Disparities in the skill mix with an overuse of lesser qualified caregivers

Theme 4 contains the findings concerning the available knowledge and skills of all the categories of nurses and caregivers, including their work experience, competencies, and training. Furthermore, the nurse-to-caregiver ratios are discussed, showing the actual skill mix and the proportion of nurses versus caregivers. To illustrate the disparity in the skill mix, the actual skill mix was compared to the staffing standards contained in the Regulations Regarding Older Persons (Republic of South Africa, 2010a).

The available knowledge and skills as delineated in job descriptions: P1's job descriptions outlined the requirements for nurses and caregivers, including the knowledge and skills they must possess. The RNs were advised to have five to ten years of **experience** in geriatric care, demonstrate leadership exposure, and show

recent involvement in aged care. In contrast to the RNs, P1 seemingly required the caregivers to have experience in a care environment.

The job descriptions also outlined the **competencies** deemed essential within P1. The RNs were expected to have qualifications in Dementia care, frail care, palliative care, sub-acute care, and rehabilitation. A certificate specifying the RNs' basic life support competencies was also deemed advantageous. Performance expectations were delineated in key performance indicators linked to specified tasks with specific requirements. These indicators covered a broad spectrum, including handover procedures, staffing and staff distribution, shift scheduling, medication management, training initiatives, admissions and discharges, catering arrangements, resident and service-related aspects within the retirement village, nursing and clinical responsibilities, risk management encompassing critical incidents and emergencies, administrative duties including reporting and communication, and fiscal matters. The caregivers' key performance indicators comprised handover processes, administrative responsibilities, resident care aligned with care plans and company policies, infection control, health and safety, activity facilitation, exercise supervision, and financial matters.

Notably, the RNs' job descriptions highlighted **training** initiation as a key performance indicator despite the absence of documented training sessions at P1 (confirmed via the participant interviews and discussed in Chapter 6). Caregivers were expected to possess recognised training from reputable organisations, with accreditation from Sector Education and Training Authorities (SETA) considered advantageous.

Low nurse-to-caregiver ratios: The **actual skill mix** in P1 comprised no ENs or ENAs, only RNs and caregivers, as indicated in Tabe 5.4. The **proportion of nurses versus caregivers:** The four RNs (n=4) (six RNs sharing the four shifts in 48 hours, thus four full-time equivalents) in the total staff mix (N=22) equalled 18.1% of nurses. Conversely, the eighteen caregivers (n=18) (17 full-time and one relief caregiver) in the total staff mix (N=22) constituted 81.82%.

As discussed in Chapter 2, in an LTCF that only accommodates Category 3 residents, 50% of RNs may be replaced with ENs. Thus, in P1 (see Table 5.4), six RNs were required (a proportion of 33.5% of the total skill mix), but three RNs (16.75%) could be replaced with three ENs (16.75%). However, P1 did not employ ENs. Similarly, ten ENAs were required (a proportion of 66.5% of the total skill mix), but five ENAs (33.25%) could be replaced with five caregivers (33.25%). P1 did not employ ENAs. Thus, when assessing P1's skill mix against the **prescribed standards** outlined in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), the following disparities were found:

- The proportion of 18.1% RNs in the skill mix exceeded the minimum prescribed 16.75% for RNs.

- However, due to the absence of other nurse categories (ENs and ENAs), P1 fell short of the prescribed 16.75% ENs and 33.25% ENAs in the total skill mix. Thus, the total percentage of RNs in the skill mix was 18.1% versus 66.75% (including RNs, ENs, and ENAs), as prescribed in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), as shown in Table 5.4.
- Conversely, the proportion of 81.8% of caregivers in the total skill mix exceeded the recommended 33.25% by far.

Regarding the total HPRD (discussed in the previous section and displayed in Table 5.3), P1 exceeded the minimum prescribed HPRD of 2.57 for 35 Category 3 residents since P1 provided 3.59 HPRD. Since P1 had 18.1% of RNs in the total skill mix (Table 5.4), they provided 18.1% of the total HPRD of 3.59, thus 0.65 HPRD, while the total prescribed nursing HPRD for the residents in P1, according to the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), was 1.71 HPRD. The 81.8% of caregivers in the total skill mix provided 81.8% of the total HPRD of 3.59, thus 2.94 HPRD, which was much higher than the prescribed 0.86 HPRD, as shown in Table 5.4. Therefore, the skill mix was not ideal, with too few nurse categories and many caregivers employed.

Table 5.4: The prescribed skill mix versus P1's actual skill mix

Staff Categories	Regulations Regarding Older Persons			P1		
	Number Of Nurses And Caregivers Required Per Acuity Of The Residents In P1. (n=35)	Prescribed Skill Mix	HPRD Per Category Of Nurses And Caregivers	Actual Nurses And Caregivers Per The Acuity Of The Residents	Actual Skill mix	Actual HPRD
RNs	3	16.75%	0.43	4	18.1%	0.65
ENs	3	16.75%	0.43	0	0%	0
ENAs	5	33.25%	0.86	0	0%	0
Total nurses	**11**	**66.75%**	**1.71**	**4**	**18.1%**	**0.65**
Caregivers	5	33.25%	0.86	18	81.8%	2.94
Total	**16**	**100%**	**2.57**	**22**	**100%**	**3.59**
EN: Enrolled nurse; ENA: Enrolled nurse assistant; HPRD: Hours per resident day; RN: Registered nurse						

The findings indicated that P1's skill mix showed disparities. Caregivers appeared to be overused. The RNs' and caregivers' job descriptions contained the competencies, knowledge, and skills they had to possess. Additionally, P1 seemingly preferred the RNs to have five to ten years of work experience. Despite providing training being listed as a key performance indicator for the RNs, no in-service training was documented in P1. The disparities in the skill mix were apparent as the proportion of nurses (in this instance, only RNs and no ENs and ENAs) was 18.1% versus 81.8% of caregivers in the total skill mix. The disproportionally low number of nurses versus high caregiver numbers might suggest that caregivers were overused in P1.

Theme 5: **Residents' acuity was seemingly neglected in staff allocation**

This theme concerns the findings related to staff allocation practices in P1. Subthemes from the data include the care required by the residents based on their acuity levels, the required staffing levels, and the skill mix to provide adequate care to the number of residents according to their needs. A subtheme also included the findings regarding the extent to which the staff skills aligned with residents' needs by considering the residents' acuity levels and the allocation strategies used in the LTCF.

The care required by residents: Care requirements were based on the number of residents in P1 requiring care and their acuity levels. The monthly bed lists indicated that P1's **total number of residents** was 35. Regarding **acuity levels**, all 35 residents fell into Category 3, signifying their frailty and the need for 24-hour care due to physical or mental conditions that rendered them incapable of self-care, as defined by the Older Persons Act 13 of 2006 (Republic of South Africa, 2006:6). As discussed in Theme 4, the **required staffing levels** for the 35 Category 3 residents were sixteen staff units, and the **required skill mix** was eleven nurses comprising three RNs, three ENs, five ENAs, and five caregivers (Table 5.4).

Aligning nurses' and caregivers' skills with resident needs: Ensuring the appropriate alignment of nurses' and caregivers' skills with resident needs was a responsibility articulated in the RNs' job descriptions. These job descriptions explicitly tasked RNs with allocating staff per operational requirements, **considering residents' acuity** and the evolving needs of the residents for each shift. Moreover, the RNs' job descriptions stated that staff allocation should be adapted to accommodate changes in resident conditions. However, P1 did not follow **allocation strategies** as P1 lacked documented records of staff allocation practices. The rationale behind this decision to forgo the documenting of staff allocation was explored through participant interviews and is comprehensively discussed in Chapter 6.

The findings revealed that no documents reflected that RNs or caregivers were allocated to residents based on acuity. P1 had 35 residents, and all were frail (Category 3). Despite the RNs' job descriptions stating they were responsible for aligning the nurses' and caregivers' skills with resident needs, no formal staff allocation was recorded in P1.

Theme 6: A perceived indifference to residents' acuity with staff allocations

This theme concerns the misalignment between the nurses' and caregivers' competencies and allocation and a perceived indifference to residents' acuity with staff allocations. The subthemes that emerged from the data included disregarding the nurses' scope of practice and overburdening the caregivers.

Disregarding the nurses' scope of practice: Disparities were noticeable between the staff's competencies and the allocation of their responsibilities. The RNs' job descriptions include mandatory registration with SANC and following their **scope of practice**. According to the job descriptions, RNs were entrusted with tasks that included conducting comprehensive nursing assessments, formulating care plans, implementing and evaluating resident care, and training caregiving staff. In addition, the RNs had to adhere to professional clinical and nursing care standards, which were set out in regulations, policies, and procedures. There was also the expectation that the RNs would allocate staff per shift. Their staff allocation strategy should consider P1's residents and operational needs. However, there appeared to be no congruence between these job description statements and the actual staff performance. For example, there were no policies, procedures, or staff training. Also, staff allocations were not recorded. The job descriptions did not include **non-nursing tasks**. No adverse events were recorded in P1. Nevertheless, participant interviews revealed contradictory information, elaborated upon in Chapter 6.

Overburdening caregivers: The caregivers' **job scope** indicated that caregivers were responsible for implementing residents' care plans. In addition, they were required to provide non-medical resident care. However, the duty rosters revealed that there were no RNs or any other category of nurse on duty for three hours daily (between 07:00 and 08:00 and 17:00 and 19:00). Consequently, the caregivers were left to their own devices during these timeframes. Should a resident require immediate attention when no nurses were available, it might have been that the caregivers were obliged to assume **nursing responsibilities**. Completing nursing tasks also reduced their time to perform their supportive duties, as explained above, rendering the residents without the basic care afforded at that time.

The findings related to this theme showed a misalignment between the nurses' and caregivers' competencies and assignments. There were various inconsistencies between the RNs' job descriptions and the practices followed in P1. There were no policies and procedure manuals despite the RNs' job descriptions requiring them to work according to policies and procedures. The RNs had to provide training and document staff allocation, which were notably absent.

The interview data confirmed that the RNs worked within their scope of practice and completed the non-nursing tasks discussed in Chapter 6. In contrast to the RNs who worked within their scope of practice, the caregivers were required to work three hours daily without an RN present. During that time, they had to assume essential nursing responsibilities, such as general oversight of the facility. Assigning higher duties to the caregivers may lead to overburdening them and neglect of adequate care to the residents. There was also a perceived indifference to residents' acuity with staff allocations.

5.4.2 State-subsidised LTCF (S2)

The themes and subthemes are discussed in the order of Table 5.2 for the state-subsidised LTCF (S2).

Theme 1: Human resource practices influence staff management

This theme contains the human resource practices that may facilitate staff management, such as the LTCF's delegation processes and contextual factors within the LTCF that influence nurse and caregiver staffing in S2. These factors encompass the benefits provided to nurses and caregivers, staff turnover, the availability of relief staff for both scheduled and unscheduled absenteeism, absenteeism rates among nurses and caregivers, and disciplinary actions taken by management. Additionally, the findings revealed the shift scheduling process in S2, covering shift characteristics and the work hours of nurses and caregivers.

Contextual factors influence staffing in the LTCF: S2's management apparently did not consider their employees' **welfare** nor supply additional **benefits** apart from staff salaries. Nurse vacancies were also available, seemingly without attempts to fill them. Vacancies existed for one EN and two ENAs in Quarters 2 and 3, 2022.

The **staff turnover** in S2 appeared low. In Quarters 2 and 3, no nurses or caregivers resigned or retired; an ENA was newly appointed in Quarter 3.

There seemed to be **relief staff** available for caregivers on scheduled vacation leave. In two instances where caregivers were on vacation, temporary caregivers (non-employees from outside the organisation) filled these shifts as relievers, once for four weeks and once for two weeks. Despite relief staff being provided for caregivers on scheduled vacation leave, relief staff was apparently not provided for the first month of a caregiver's maternity leave. However, relief staff were provided for the caregiver's maternity leave from the second month onwards. No relief staff were allocated for any category of nurses. On one occasion, when a caregiver on night duty went on leave, an ENA was reassigned from the day to the night shift to cover the vacant position. No substitutes were provided when other ENAs or ENs took annual leave.

The quarterly report submitted to the Western Cape Department of Social Development indicated that one of the ENs working full-time from July to December 2022 was classified as a relief worker despite the position being officially vacant. Furthermore, no replacement was assigned when one of the RNs went on a two-week vacation. The RN in charge (in an administrative post and not providing direct resident care) did not cover for other RNs when they were on leave, leaving only one RN available for the facility during those two weeks. Consequently, this remaining RN had to work from Mondays to Fridays from 07:00 to 16:00. Thus, there were no RNs on duty during the weekends nor on any night shifts. The RN in charge resigned after the documents

were collected but before conducting the interviews. Therefore, it was impossible to explore why the RN in charge did not relieve the other RNs when they went on scheduled leave.

Regarding **absenteeism**, the duty roster showed six days when nurses or caregivers were sick for one day only, with another who was ill for two days. Furthermore, two to four staff members (nurses or caregivers) were on scheduled vacation leave monthly.

Disciplinary measures were taken and recorded in Quarter 2. Warnings were issued to two caregivers, two ENAs, two ENs, and an RN. The alleged transgressions included medication signed off but not administered to residents and showing a lack of respect for multidisciplinary team members. One disciplinary hearing followed in Quarter 3. However, the reasons for the hearing or the outcomes were not available. As discussed in the next theme, S2 did have a formal grievance procedure, and the nurses and caregivers could choose whether to join a union. The nurses and caregivers did not use the available grievance procedure nor requested representation during disciplinary hearings.

Shift scheduling implemented to provide 24-hour care: The findings showed the **shift characteristics** as blocked shifts, which meant fixed routines for two weeks before repeating the same shifts. For example, a staff member would work on Monday and Tuesday, have rest days on Wednesday and Thursday, and work on Friday, Saturday, and Sunday, followed by rest days on Monday and Tuesday, and so forth.

This schedule resulted in shift workers working seven days within two weeks. The duty rosters indicated that staff members worked two to five consecutive months of night duty before transitioning to annual leave or resuming day duty shifts. Regarding the nurses' and caregivers' **work hours**, the standard shift duration was 12 hours, with day shifts from 07:00 to 19:00 and night shifts from 19:00 to 07:00. An exception was made for the RN in charge, who worked from 08:00 to 17:00 on Mondays to Thursdays and from 08:00 to 14:00 on Fridays.

The findings related to Theme 1 showed how the human resource practices and contextual factors might present barriers to or facilitators in human resource management. In S2, the absence of documents reflecting employee benefits might indicate that staff welfare may not be a priority in S2. There were vacant EN and ENA positions, and no documents referred to attempts made to fill the vacancies. It was to S2's advantage that there was a low staff turnover and low absenteeism among the nurses since relief staff were unavailable for the different nurse categories. The absence of relief staff for the different nurse categories resulted in no RNs being on duty on weekends to replace the one RN who went on leave during that period. In addition, there were no RNs on any of the night shifts. Various disciplinary measures were taken against the nurses

and caregivers, including verbal and written warnings. Chapter 6 contains the participants' perspectives on the reasons for the frequent disciplinary measures instituted in S2.

Theme 2: Nurses and caregivers were left to their own devices.

This theme pertains to the availability of guidelines to direct the nurses and caregivers. It includes the findings related to job descriptions, job-specific procedures, and human resource policies. The discussion of the findings also comprises the communication dynamics between management and the staff in S2, including Board and staff meetings.

Limited guidelines for nurses and caregivers were provided in S2. The **job descriptions** primarily consisted of lists of tasks assigned to specific time slots. Responsibilities for RNs included answering calls, distributing supplies to the team, managing emergencies, scheduling residents' medical appointments, devising care plans, collecting urine samples, conducting blood sugar tests, and allocating staff based on duty rosters. The RNs were also responsible for supervising the ENs, who administered medication.

It appeared that the ENs had more comprehensive job descriptions than the RNs. Apart from similar tasks to those of the RNs, the ENs were additionally responsible for monitoring equipment. Their resident-related responsibilities included admitting new residents and arranging hospital transfers and transportation. Various resident tasks were specified, including catheter care, helping with feeding, overseeing residents' meals, medication procurement and administration, and report writing. The ENs were also required to attend staff meetings and provide in-service training sessions to the staff.

The ENAs' job descriptions comprised a list of resident tasks. These tasks included, among others, monitoring vital signs, testing blood sugars and haemoglobin, and providing wound, pressure, and catheter care. Regarding residents' nutrition, the ENAs served meals, monitored fluid intake and output, and performed tube feedings. Like the ENs, the ENAs were required to monitor and report faulty equipment, attend in-service training sessions, and sort and organise residents' cupboards.

The caregivers' job descriptions were similar to those of the ENAs. The only tasks excluded from the caregivers' job descriptions were tube feeding and monitoring residents' vital signs, meaning they were not required to attend to tube feedings or monitor the residents' vital signs.

S2 had a comprehensive **human resource policy** manual. Various topics were covered, from recruitment, work hours, compensation, leave regulations, resignations, and absenteeism. Various safety topics were included, such as using personal vehicles for work. The manual also contained the disciplinary and grievance procedures and guidelines for union membership. The manual specified that the Board of Directors were

responsible for recruiting and selecting new staff members. These positions had to be advertised in S2 and externally when vacancies were available. In addition, the Board of Directors were tasked with interviewing candidates and providing new employees with job descriptions. The responsibility for assessing the staff's training needs, arranging training, and monitoring attendance was allocated to S2's management.

There appeared to be no **job-specific policy or procedure** manuals in S2.

Limited communication between nurses, caregivers, and management: Annual general meeting minutes were unavailable at S2. However, management provided the minutes of the 2022 **Board of Directors meeting**. Apart from the chairperson, the meeting was attended by seven directors, one of whom was the facility manager and one representative. Most discussions seemed to involve building upgrades and maintenance tasks. Regarding staff-related matters, the Department of Social Development's inspection highlighted outdated nursing policies and procedures. In response, the facility manager presented a quotation for a new manual.

Furthermore, the facility manager conducted eight staff interviews concerning the performance of an RN, although the reasons for these interviews were not documented. Nevertheless, it was noted that disciplinary action would be taken against the RN. There was no mention or discussion regarding the process for filling the vacant EN and ENA positions.

A notable communication breakdown occurred between the nurses, caregivers, and management at S2, where **staff meetings** did not happen. The underlying reasons for the seemingly poor communication were explored during the interviews. A detailed discussion is provided in Chapter 6.

The findings suggested that the nurses and caregivers were left to their own devices in S2. Their job descriptions were mainly task lists. Limited communication opportunities between management, nurses, and caregivers were available due to the absence of staff meetings. The absence of job-specific policies or procedures may further suggest a lack of guidance for the staff.

Theme 3: Staffing levels favour a lower-cost model of nursing categories

This theme includes a discussion of S2's efforts to obtain its staffing levels. S2 had low nurse staffing levels and appeared to compensate with increased caregiver staffing levels.

Low nurse staffing levels in total staffing: S2's duty rosters reflected that the **actual nurse staffing level** comprised thirteen nurses. All the nurse categories were included, i.e., RNs, ENs, and ENAs. However, the RN in charge held an administrative post and did not directly engage in resident care (this RN resigned before

conducting the interviews). Therefore, the nursing staff comprised two RNs, seven ENs, and three ENAs. During the 12-hour day shifts, approximately five nurses (including all nurse categories) were on duty per shift; thus, ten nurses (including all nurse categories) were on total day duty shifts. One EN worked 12 hours during a night shift, resulting in two ENs on total night duty shifts.

Considering an average of 101 residents between July and December 2022, the **nurse-to-resident ratios** on 12-hour day shifts varied. RNs maintained a ratio of one RN to 101 residents, and ENs ranged from one EN to 33 residents to one EN to 50 residents (depending on whether two or three ENs were on duty). ENAs ranged from one ENA for 50 residents to one ENA for 101 (depending on whether one or two ENAs were on duty). Since the ENs led the 12-hour night shifts, the average EN-to-resident ratio at night was one EN to 101 residents. However, when nurses were on leave, they seldom received a replacement. Therefore, the nurse-to-resident ratio seemingly exceeded the average nurse-to-resident ratio at times.

High caregiver staffing levels in total staffing: The **actual caregiver staffing levels** comprised 25 full-time caregivers. All the caregivers worked 12-hour shifts. On average, eight to nine caregivers were on duty per shift. Thus, 16 to 17 caregivers covered all the shifts during the day. Night shifts typically had four caregivers working per shift, resulting in eight caregivers on total night duty shifts. During 12-hour day shifts, the average **caregiver-to-resident ratio** ranged from one caregiver for 11 to 13 residents. For 12-hour night shifts, the average caregiver-to-resident ratio was one caregiver to 25 residents.

A mismatch between total nurse and caregiver levels: In S2, the **total nurse and caregiver levels** exceeded the minimum prescribed staffing levels for 28 Category 2 residents (those needing assistance with their activities of daily living) and 46 Category 3 residents (those who were frail), as displayed in Table 5.5. It must be noted that S2 also had 27 independent Category 1 residents (no assistance needed). Thus, the resident total was 101.

According to the Regulations Regarding Older Persons, nurse and caregiver staffing is not prescribed for Category 1 residents (Republic of South Africa, 2010a:64). However, the interview data confirmed that the staff also cared for the residents in Category 1, including medication administration, indicating a possible inaccurate assessment and categorisation of these residents. When comparing the total nurse and caregiver levels with **prescribed standards**, the following was found:

Based on the calculation method in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), S2 had to provide a minimum of 24 staff units for the 28 Category 2 and 46 Category 3 residents (Table 5.5). This calculation is based on the formula:

Total residents X 13 hours of care per week / 40 hours work week = 24 staff units

In contrast with Category 3 residents, who must receive 18 hours of care per week, a combination of Category 2 and 3 residents requires 13 hours per week (Republic of South Africa, 2010a:64). The actual staffing level in S2 was 37 staff units.

The minimum prescribed HPRD for the combination of Category 2 and 3 residents was 1.86 HPRD (Republic of South Africa, 2010a:64), calculated as:

(Total staff units X 40 hours workweek / 7 days) / total of residents.

S2 exceeded the minimum prescribed HPRD of 1.86 for the combination of 28 Category 2 and 46 Category 3 residents since S2 provided 2.85 HPRD, as shown in Table 5.5. However, S2 had 27 Category 1 residents for whom the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) does not stipulate a specific number of nurses and caregivers. Consequently, S2's management had to use their discretion to add extra nurses and caregivers to the required number of nurses and caregivers prescribed for the Category 2 and 3 residents, which might explain the higher total staffing levels.

Table 5.5: The prescribed staffing level versus S2's actual staffing level

Total Residents Per Category in S2		**Regulations Regarding Older Persons**			**S2**	
Category Of Resident	**Number Of Residents In S2**	**Minimum Prescribed Hours Of Care Per Week** *(For a combination of Category 2 and 3 residents)*	**Minimum Prescribed Staffing Level** *(Including all categories of nurses and caregivers for S2)* (0.6 and higher was rounded to one)	**Minimum Prescribed HPRD**	**Actual Staff Level** *(Total staffing level including all RNs, ENs, ENAs and caregivers)*	**Actual HPRD**
Category 1	27	0	No staff prescribed			
Category 2	28	13	24,05			
Category 3	46					
Total Category 2 and 3 residents	**74**					
		Total	**24**	**1.86**	**37**	**2.85**
HPRD: Hours per resident day						

The findings suggested that S2 obtained adequate staffing levels by increasing the caregiver staffing levels to compensate for low nurse staffing levels. The actual nurse staffing level comprised twelve nurses, including two RNs, seven ENs, and three ENAs, while the caregivers' staffing level was 25. While the caregiver staffing level was above the required staffing level standard, the nurse staffing level was below the required minimum. These findings suggest a mismatch between the nurse (including all nurse categories) and the caregiver levels. However, apart from the frail residents and residents needing assistance, S2's nurses and

caregivers provided care to 27 Category 1 (independent residents). Therefore, the total staffing levels might not accurately reflect the total number of nurses and caregivers required to provide comprehensive resident care.

Theme 4: Disparities in the skill with an overuse of lesser qualified caregivers

This theme includes the findings regarding nurses' and caregivers' knowledge and skills, considering their work experience, competencies, and training. It also addresses nurse-to-caregiver ratios by comparing the actual skill mix with the prescribed standards. The findings revealed disparities in the skill mix, particularly the overuse of caregivers.

The available knowledge and skills as delineated in job descriptions: None of S2's documents referenced the **work experience** of any nurse category or caregivers. The job descriptions did not include requirements for the knowledge, skills, or **competencies** expected of nurses and caregivers. Even though S2 promoted on its website that its staff are proficient in offering specialised Dementia care to residents, there was no evidence available to support the notion that the nurses and caregivers received any **training**.

Low nurse-to-caregiver ratios: The **mix of skills** in S2 included RNs, ENs, ENAs, and caregivers, as displayed in Table 5.6. The breakdown of this composition revealed the **proportion of nurses versus caregivers** as follows: In the total staff mix (N=37), RNs (n=2) comprised 5.4%, ENs (n=7): 18.9%, and ENAs (n=3): 8.1%. Conversely, caregivers (n=25) constituted most of the staff mix, comprising 67.6% of the workforce.

When assessing S2's skill mix in **comparison to the prescribed standards** outlined in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), the disparities were evident:

- The proportion of 5.4% RNs in the staff mix fell short of the prescribed 12.5%.
- The proportion of 18.9% ENs in the staff mix exceeded the required 12.5%.
- The proportion of 8.1% ENAs in the staff mix was much lower than the mandated 37.5%.
- In contrast, the proportion of 67.6% of caregivers in the staff mix nearly doubled the recommended 37.5%.

Regarding the total HPRD (discussed in the previous section and displayed in Table 5.5), S2 exceeded the minimum prescribed HPRD of 1.86 for the 28 Category 2 and 46 Category 3 residents since S2 provided 2.85 HPRD. Since P1 had 5,4% RNs in the total skill mix (Table 5.6), they offered 5,4% of the total HPRD of 2.85, thus 0.15 HPRD. Based on the same calculation used for the RNs, the 18.9% of ENs in the total skill mix provided 0.54 HPRD, and the 8.1% ENAs provided 0.23 HPRD. Compared to the total prescribed nursing HPRD of 1.16 (constituting HPRD provided by RNs, ENs, and ENAs), S2 provided 0.82 nursing HPRD. The caregivers

in the total skill mix provided 67.6% of the total HPRD of 2.85, thus 1.93 HPRD, compared to the prescribed HPRD for caregivers of 0.70 HPRD, as shown in Table 5.6.

Table 5.6: The prescribed skill mix versus S2's actual skill mix

Nurse Categories And Caregiver Staff	Regulations Regarding Older Persons			S2		
	Number Of Nurses And Caregivers Required Per Acuity Of The Residents In S2 (n=74)	Prescribed Skill Mix	HPRD Per Category Of Nurses And Caregivers	Actual Nurses And Caregivers Per The Acuity Of The Residents	Actual Skill Mix	Actual HPRD
RNs	3	12.5%	0.23	2	5.4%	0.15
ENs	3	12.5%	0.23	7	18.9 %	0.54
ENAs	9	37.5%	0.70	3	8.1%	0.23
Total nurses	**15**	**62.5%**	**1.16**	**12**	**32.4%**	**0.82**
Caregivers	9	37.5%	0.70	25	67.6%	1.93
Total	**24**	**100%**	**1.86**	**37**	**100%**	**2.85**
EN: Enrolled nurse; ENA: Enrolled nurse assistant; HPRD: Hours per resident day; RN: Registered nurse						

The findings related to this theme revealed disparities in the skill mix, suggesting an overuse of caregivers. No references were made in the included documents to the work experience, knowledge, skills, or competencies expected of any nurse (including all the nurses' categories) or caregivers. Furthermore, S2 did not document any training provided to nurses and caregivers. The disparities in the skill mix were evident as the proportion of nurses in the total skill mix was 32.4% (RNs: 5.4%, ENs: 18.9%, and ENAs: 8.1%) versus 67.6% of caregivers. The low proportion of most of the categories of nurses and the high proportion of caregivers in the total skill mix suggested the overuse of caregivers in S2.

Theme 5: Residents' acuity was seemingly neglected in staff allocation

This theme pertains to the disregard for residents' acuity in staff allocation. Subthemes include residents' care demands based on the resident totals, acuity levels, required staffing levels, and skill mix aligned with residents' needs. The findings encompass how staff skills were aligned with residents' needs, considering acuity levels and the allocation strategies used in the LTCF.

The care required by residents: The demand for care at S2 was closely tied to the total number of residents and their acuity levels, as documented in the quarterly reports. These reports indicated a **total** of 100 **residents** in Quarter 2 and 102 in Quarter 3, with an average of 101 residents between July and December 2022. The **acuity levels** of these residents were categorised as follows: Category 1 (independent) residents numbered 29 in Quarter 2, decreasing to 26 in Quarter 3. Category 2 (needing assistance) residents numbered 25 in Quarter 2, increasing to 30 in Quarter 3. Lastly, Category 3 (frail) residents remained constant at 46 in both quarters. Consequently, the average acuity levels of residents from July to December 2022 were

as follows: Category 1 residents numbered 27, Category 2 residents numbered 28, and there were 46 Category 3 residents.

As discussed in Theme 4, the **required staffing levels** for S2 comprising 28 Category 2 and 46 Category 3 residents were 24 staff units, and the **required skill mix** was fifteen nurses comprising three RNs, three ENs, nine ENAs, and nine caregivers (Table 5.6).

Aligning nurses' and caregivers' skills with resident needs: There was no **acuity consideration** in S2 when nurses and caregivers were allocated. Regarding aligning staff skills with resident needs, the job descriptions for RNs stipulated that they were responsible for allocating staff based on the duty rosters. The duty rosters specified the sections of the building where staff members were assigned, denoted as the sick bay, A, B, C, D, or simply 'corridors' next to staff names. The **allocation strategy** used in S2 included allocating the staff members to the same area, such as the sick bay, for approximately three months. On the staff allocation pages, staff members' names and surnames were recorded alongside columns for duties and responsibilities, tea/lunch breaks, and spaces for staff signatures. Tea and lunch breaks were categorised as first or second tea/lunch, with some staff members occasionally failing to sign next to their names. The allocation process exhibited minimal variation, with the same information recorded daily. Allocation was not done for the RNs or the ENs on night duty. Although allocation pages were generated daily for nurses and caregivers on day and night shifts, specific residents were not mentioned. Instead, the focus remained on indicating the areas within the facility where staff should work. This allocation practice lacked matching staff competencies in response to changing resident needs.

The findings revealed that staff allocation did not consider the residents' acuity levels. The previous RN in charge (an administrative position; thus, this RN did not provide direct resident care) completed the duty rosters and indicated in what section of the building the nurses and caregivers work. In addition, the RNs' job descriptions stated that they had to allocate staff based on the duty rosters. Therefore, allocation pages were completed, and the nurses and caregivers were assigned to different areas in the building, as reflected in the duty rosters, without any reference to residents. Moreover, the RNs and ENs on night duty were not included in the allocation pages. The data from the interviews confirmed that the allocation pages helped indicate the nurses' and caregivers' tea and lunch times, considering the nurses and caregivers knew from the duty rosters which areas they were assigned to.

Theme 6: A perceived indifference to residents' acuity with staff allocations

This theme relates to the misalignment of staff competencies and allocation and a perceived indifference to residents' acuity with staff allocations. Subthemes include disregarding nurses' scope of practice and overburdening caregivers with nursing responsibilities.

Disregarding nurses' scope of practice: The staff allocation pages showed S2 disregarded the nurses' **scope of practice** when assigning responsibilities. RNs' duties and responsibilities aligned with their scope of practice, as they were often assigned to 'supervision,' with the allocation column indicating 'all areas' or specifying sections (e.g., B, C, D). In some cases, RNs were also tasked with 'medication'.

The ENs, on the other hand, were expected to report to RNs when RNs were on duty, but in the absence of RNs, ENs were entrusted with overseeing S2. According to the staff allocation pages, ENs' responsibilities encompassed 'medication,' 'supervision,' 'vitals', and 'wound care.' However, there was no reference to specific residents in their duties. ENs were allocated to 'all areas' in the building during night shifts. This practice placed ENs in the position of administering medication to residents without supervision by an RN, which fell outside their scope of practice, as defined by the SANC (South African Nursing Council, 1984).

The job descriptions for ENAs indicated their responsibilities as 'minor wounds,' 'vitals,' and 'basic care.' The allocation book also included 'laundry' as a **non-nursing task** for an ENA. ENAs were required to report to RNs and ENs on duty. Once again, there was no mention of specific residents, but rather, sections of the building were noted. Additionally, ENs and ENAs were tasked with checking and reporting faulty equipment, as outlined in their job descriptions.

The quarterly reports submitted to the Department of Social Development revealed several **adverse events**. Adverse events included one resident falling and sustaining injuries, five falls without injuries, six residents with chafing wounds, one with blisters, one with an open septic wound, and three with discoloured skin.

Overburdening caregivers: Despite the caregiver-to-resident ratio ranging from 1:11 to 1:13 during 12-hour day shifts and 1:25 during 12-hour night shifts, caregivers bore the burden of direct resident care responsibilities. Although caregivers were not allocated to specific residents, they were assigned to provide 'basic care' or 'basic nursing care' in specific building sections. On certain days, the allocated tasks were aligned with their **job scope** and included a full wash, shower, shaving, nail care, feeding, mouthcare, and turning, with additional duties like laundry, sluice, and nail care occasionally added to their responsibilities. This meant that caregivers provided direct care to residents in the assigned building section, regardless of their acuity levels. ENAs were the only other nurse category designated to provide basic care, while RNs and ENs were primarily allocated for supervision, medication, vitals, and wound care. Interviews with participants

revealed that caregivers were also assigned **nursing responsibilities**, such as performing wound care, monitoring vital signs, and conducting haemoglobin and hemoglucotests (discussed in Chapter 6).

The findings revealed a misalignment between nurses' and caregivers' competencies and staff allocation and a perceived indifference to residents' acuity with staff allocations. Although the RNs' duties and responsibilities were aligned with their scope of practice, the ENs were required to assume responsibilities beyond their scope of practice due to insufficient RN staffing levels. In the absence of RNs, such as over weekends and on night duty, the ENs had to fulfil all the duties customarily assumed by RNs. Moreover, the interview data confirmed that the RNs and ENs were required to complete non-nursing tasks, as discussed in Chapter 6. In addition, the burden on the caregivers was high. Not only were the caregivers assigned nursing responsibilities, but the caregiver-to-resident ratios of one caregiver to between 11 and 13 residents during a day shift and one caregiver to 25 residents during a night shift were high. This may explain the findings that multiple residents experienced adverse events. Also, supervision was limited as the ratio of RNs to residents was one RN to 101 residents during the weekdays, with no RNs during the weekends or the nights. The following section includes a discussion of the integrated findings from the private for-profit and state-subsidised LTCF.

5.5 DISCUSSION

The document review provided an overview of *how* the LTCFs implemented the staffing model, a case study strategy advised by Yin (2014:32). The data was obtained from documents within the boundaries set for the holistic multiple-case study, namely on staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. The documents were collected and reviewed from two LTCFs, one private for-profit LTCF (P1) and one state-subsidised LTCF (S2). The findings of the document review indicated various similarities between how the private for-profit and state-subsidised LTCFs implemented a staffing model, which may enable literal replication (Yin, 2014:67). Six themes emerged from the data analysis (shown in Table 5.2): (1) Human resource practices influence staff management, (2) nurses and caregivers were left to their own devices, (3) staffing levels favour a lower-cost model of nursing categories (4) disparities existed in skill composition with overuse of lesser qualified caregivers, (5) residents' acuity was neglected in staff allocations, and (6) a perceived indifference to residents' acuity with staff allocations.

Theme 1: Human resource practices influence staff management

The findings revealed that contextual factors such as employee benefits, staff turnover, providing relief staff, measures to reduce absenteeism, and those aspects leading to disciplinary measures might influence nurse and caregiver staffing in the LTCF.

Contextual factors influence staffing in the LTCF: Mueller's framework suggests the importance of considering contextual factors when planning staffing for LTCFs (Mueller, 2000:262–267). When reviewing the documents regarding **employee benefits and staff welfare** as contextual factors affecting staffing, the findings revealed that the private for-profit LTCF prioritised staff welfare by offering fringe benefits and recognising long-term service. This emphasis on employee wellbeing is probably linked to the LTCF's operation within a resource-rich context. The state-subsidised LTCF's documents did not reveal any consideration for employees' welfare or that any benefits were provided apart from staff salaries. Shin's quantitative study (2018:705–713) in 45 South Korean LTCFs found that RNs are reluctant to work in nursing homes due to insufficient benefits and poor working conditions. Kim and Han (2018:518–524), in their retrospective study using longitudinal secondary data analysis in South Korea, recommended that creating supportive work environments and offering competitive wages and benefits could increase nurse staffing levels, resulting in improved patient outcomes.

The private for-profit and state-subsidised LTCF showed similarities regarding **staff turnover**. In the case of the private for-profit LTCF, staff turnover was nearly non-existent, with no vacant positions and several staff members having between ten and 30 years of service. The staff turnover in the state-subsidised LTCF was minimal, but vacant nursing positions were available. A cross-sectional study in Ethiopia found that factors such as recognition, professional development, and the nature of the work itself enhanced motivation, job satisfaction, and staff retention among healthcare workers in low- and middle-income countries (Ayalew, Kibwana, Shawula, Misganaw & Abosse *et al*., 2019). Whereas recognition, professional development, and the nature of the work itself may enhance staff retention, Kim and Han (2018:518–524) found in their secondary analysis of data from South Korean nursing homes that a high nursing staff turnover was associated with adverse resident outcomes, such as an increase in pressure ulcers.

To address staff absences, the private for-profit LTCF arranged for temporary **relief staff** (caregivers) to cover for the regular staff members temporarily. In contrast, the state-subsidised LTCF had vacant nursing positions, and there was no apparent effort to fill these vacancies. Additionally, relief staff were rarely provided to substitute for the employed nurses, even during scheduled leave periods. The World Health Organisation agreed that a global shortage of RNs exists, which is most evident in Africa and Southeast Asia (World Health Organisation, 2022b). However, the labour cost associated with using relief staff may be a decisive factor in obtaining relief staff. As discussed in Chapter 1, the labour cost associated with staff appointments applies to private for-profit and state-subsidised LTCFs. However, the revenue of a private for-profit LTCF may be as high as R40 000 per month per resident, while a state-subsidised LTCF's income may be as low as R2 110 per month per resident (Republic of South Africa, 2024; The Association for the Aged, 2024). The higher labour cost associated with relief staff for nurses compared to the lower labour cost

associated with relief staff for caregivers may be why the state-subsidised LTCF was less inclined to provide relief staff for the nurse categories. Nevertheless, when relief workers are unavailable, the reduced staffing levels place an increased workload on the present staff, compromising their health and triggering more absenteeism within the institution (Ticharwa, Cope & Murray, 2018:109–116). While providing relief staff may lessen the pressure on the nurses left on duty, a systematic review of the impact of nurse staffing on the quality of care in nursing homes found that the use of agency staff was associated with poorer quality of care (Backhaus *et al*., 2014:383–393).

The state-subsidised LTCF maintained a low **absenteeism** rate, possibly due to the limited availability of relief staff, especially for all categories of nurses. In contrast, absenteeism among the seventeen caregivers in the private for-profit LTCF ranged from eight to 16 days per month. As indicated by Ticharwa, Cope, and Murray (2018:109–116), absenteeism can reflect the staff's physical and mental wellbeing. Therefore, absenteeism can be a standard used to measure the health system's performance. Furthermore, Mueller (2000:262–267) postulates that staff absence in an LTCF directly influences the daily staffing levels and skill mix. A literature review report by Al-Qahtani, Stirling and Forgrave (2020) underscored the pivotal role of working conditions for nurses in their profession. Staff shortages, difficulties in teamwork, high workloads, long and irregular hours, shift work, and strained relationships with colleagues and supervisors contributed to nurses' dissatisfaction (Al-Qahtani, Stirling & Forgrave, 2020). Furthermore, Ticharwa, Cope and Murray (2018:109–116) suggested that there might be several reasons for staff absence. These reasons may range from physical or mental health issues to family responsibilities. The authors' retrospective study on nurse absenteeism in Australia found that shortages of nurses and carers can adversely affect the quality and safety of resident care. This may be attributed to the remaining staff's inability to cope with the additional responsibilities brought about by colleagues' absence (Ticharwa, Cope & Murray, 2018:109–116). A quantitative descriptive study conducted in a Limpopo provincial hospital yielded similar results. It emphasised that nurses' judgement was impaired when their colleagues were absent, resulting in substandard care provided by the nurses left on duty, such as the prevalence of medical errors (Mbombi, Mothiba, Malema & Malatji, 2018).

The documents of the private for-profit LTCF did not indicate **disciplinary measures**. In contrast, the state-subsidised LTCF's documents showed that disciplinary measures had been taken against seven staff members in six months. Despite all the disciplinary measures, there was no reference to staff wellbeing. Disciplinary measures are not unexpected, considering the absence of job descriptions, job-specific policies and procedures, in-service training, and staff meetings. Additionally, there was minimal RN supervision of the ENs, ENAs, and caregivers due to low RN staffing levels. Verhoef, Weenink, Winters, Robben and Westert *et al*. (2015) conducted a qualitative study in the Netherlands, including sixteen healthcare professionals exposed to disciplinary measures. The authors found that disciplinary measures, although meant as

corrective measures, impact organisations and the individual healthcare professionals being disciplined. For the organisation, such measures may be costly and time-consuming and could interfere with providing care. For healthcare professionals, disciplinary measures could have severe consequences regarding their emotional wellbeing, which may lead to poor relationships in the workplace (Verhoef *et al*., 2015). The authors of a document analysis regarding nurses' unprofessional conduct and subsequent enforced disciplinary steps advised that managers should apply more effort to examining the root causes of the offences (e.g., organisational factors, such as a lack of policies and procedures) and to support nurses who were disciplined to prevent future transgressions and worse patient outcomes (Papinaho, Häggman-Laitila & Kangasniemi, 2022:131–144).

Shift scheduling implemented to provide 24-hour care: The scheduling of shifts for nurses and caregivers shed light on how staff were utilised within the LTCFs. The **shift characteristics** indicated limited consideration for peak times when care demand was higher, for example, during activities like bathing and meal service. In the case of the private for-profit facility, the number of staff on a shift varied, possibly reflecting the influence of caregiver absenteeism. Conversely, the state-subsidised LTCF adopted block shifts with minimal fluctuation in staffing levels per day. Furthermore, the nurses and caregivers' **work hours** reflected shift durations in the LTCFs ranging from 9 to 13 hours. A cross-sectional study conducted in the United Kingdom regarding the association between shift lengths and job satisfaction among hospital nurses revealed that shifts lasting 12 hours or more were linked to an increased incidence of care left undone and decreased patient safety (Ball, Day, Murrells, Dall'Ora & Rafferty *et al*., 2017).

A cross-sectional study that included twelve European countries found that work shifts lasting longer than eight hours were associated with higher rates of care not delivered (Griffiths, Dall'Ora, Simon, Ball & Lindqvist *et al*., 2014:975–981). Despite more care being left undone during shifts that lasted longer than eight hours, research has shown that nurses still prefer working longer shifts. The longer shifts seemingly enable them to be off duty for more days. According to nurses, longer work shifts also promote their work-life balance even though the longer work shifts cause fatigue (Ejebu, Dall'Ora & Griffiths, 2021).

Theme 2: Nurses and caregivers were left to their own devices

This study's findings showed similarities between the private for-profit and state-subsidised LTCFs, where both facilities' documentation revealed a notable lack of guidance for the team.

Limited guidelines for nurses and caregivers: To determine the specific duties and responsibilities expected from each staff member, it is necessary to refer to **job descriptions**, as emphasised by Mueller (2000:262-267). In this regard, it was observed that the private for-profit LTCF had comprehensive job descriptions for

all categories of nurses and caregivers, including specific performance indicators aligned with particular performance expectations. In contrast to the private for-profit LTCF, the state-subsidised LTCF's job descriptions mainly consisted of lists of tasks that had to be completed by certain times. The private for-profit LTCF's job descriptions contained contradictory information. For example, their job descriptions referred to delegation practices, while staff allocation did not occur in the LTCF. Reference was also made to information in policies, while the private for-profit LTCF had no policies. The state-subsidised LTCF's job descriptions contained tasks inconsistent with the nurses' scope of practice. For example, ENs were expected to administer medication without the supervision of an RN. However, SANC regulations determine that ENs must work under an RN's direct or indirect supervision according to their scope of practice. The RN's scope of practice defines supervision as follows: Direct supervision requires RNs to be physically present when ENs complete tasks. In contrast to direct supervision, indirect supervision involves the RN being elsewhere in the health facility but still available to guide the ENs (Republic of South Africa, 2022; South African Nursing Council, 1984). RN absence over the weekends renders adherence to this regulation impossible, exposing ENs to deficiency occurrence and disciplinaries, and thus transferral of the responsibility away from management and onto the already compromised individual staff. Both the LTCFs' job descriptions referred to the need to adhere to institutional **policies**.

Kim and Han (2018:518–524) recommend that LTCFs develop policies and procedures. The policies should include clear organisational standards, best nursing practices and levels of delegation. According to Kelly, Edwards and Shapiro (2021:217-222), institutional policies offer staff guidelines based on the latest scientific evidence. In doing so, it enables the staff to standardise nursing practice. While the state-subsidised LTCF had general human resource policies but lacked job-specific policies or procedures, the private for-profit LTCF lacked human and job-specific ones. The primary purpose of policies is to offer guidance to the staff, thus enabling them to make informed decisions and take appropriate actions in various circumstances while minimising organisational risks. The absence of these policies may leave nurses and caregivers without the necessary guidance. It may also unnecessarily increase the guilt felt by individual staff when they make mistakes, with consequences for ethical dilemmas and burnout. Furthermore, it placed nursing managers in a difficult position, as they have to consider the institutional policies in conjunction with government acts and regulations when allocating staff, as emphasised by Mueller (2000:262–267).

Limited communication between nurses, caregivers, and management: The findings showed little communication in the LTCFs between management and staff. The private for-profit LTCF held an **annual general meeting** that included the LTCF's owner, nurse manager, and caregivers. The state-subsidised LTCF held a **board meeting** attended by the chairman and seven directors, one of whom was the facility manager. One representative was co-opted to the meeting. However, the study's findings indicated that no **staff**

meetings were conducted in these LTCFs. Persson, Blomqvist and Lindström (2021) found that meetings with colleagues and managers are essential for promoting employee health. Meetings with predetermined agendas provide a platform for discussing resident matters. Meetings also offer opportunities for the staff to feel they belong, are supported, and get the chance to share ideas and emotions. Such meetings may promote the general welfare of the staff, which might lead to improved work performance. Furthermore, Mueller (2000:262-267) highlights that effective staff communication mechanisms can facilitate continuity of care.

Theme 3: Staffing levels favour a lower-cost model of nursing categories

The findings suggested that the higher overall staffing levels were achieved by employing fewer nurses but using more caregivers.

Low nurse staffing levels in total staffing: Despite the LTCFs exceeding the minimum staffing levels according to the Regulations concerning Older Persons (Republic of South Africa, 2010a:64), the findings showed that the staffing levels mainly included caregivers and very few nurses. The Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) prescribed 11 nurses for the private for-profit LTCF based on the residents' acuity levels, including three RNs, three ENs, and five ENAs. However, they had four nurses who were all RNs with no other nurse categories employed. Similarly, the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) prescribed 15 nurses for the state-subsidised LTCF based on the residents' acuity levels, including three RNs, three ENs, and nine ENAs. Nevertheless, they had twelve nurses, including two RNs, seven ENs, and three ENAs. The **nurse-to-resident ratios** per work shift showed low nurse staff levels. The low nurse-to-resident ratios underscored the facilities' reliance on caregivers to meet or exceed the staffing requirements. For example, the private for-profit LTCF had an average RN-to-resident ratio of one RN for 35 residents, while the state-subsidised LTCF had one RN for 101 residents. Additionally, the state-subsidised LTCF employed ENs and ENAs, with the ratio of ENs and ENAs to residents varying between one for 33 and 101 residents based on staff availability.

Literature suggests that the number of nursing staff influences the quality of care in the LTCFs. For example, a higher RN HPRD led to fewer falls and aggression among residents and lower use of feeding tubes among residents (Shin & Hyun, 2015:555–564). However, a systematic review of longitudinal studies did not find conclusive evidence of a direct positive relationship between quality of care and staffing levels (Backhaus *et al*., 2014:383–393). Higher staffing levels have shown improvement concerning specific care indicators, such as decreased pressure ulcers among residents. However, the authors caution that their findings could not show a linear relationship between higher staffing levels and better resident outcomes. The authors shared that their findings were inconsistent with other cross-sectional studies, which found a direct positive

relationship between quality of care and staffing levels. The authors postulated that these inconsistencies could be possible because their systematic review only included longitudinal studies. In contrast, cross-sectional studies often yield more positive results due to the shorter timeframe in which the studies are conducted (Backhaus *et al*., 2014:383–393).

High caregiver staffing levels in total staffing: Regarding the **actual caregiver staffing levels**, both the private for-profit and state-subsidised LTCFs' caregiver staffing levels were high. Meanwhile, the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) prescribed five caregivers for the private for-profit LTCF based on the residents' acuity levels, but they had eighteen caregivers. Similarly, where the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) prescribed nine caregivers for the state-subsidised LTCF based on the residents' acuity levels, they had 25 caregivers. The private for-profit LTCF had a more favourable **caregiver-to-resident ratio**, with one caregiver for six residents during the day shift and one caregiver for twelve residents during the night shift. In contrast, the state-subsidised LTCF had one caregiver for 11 to 12 residents during the day shifts and one caregiver for 25 residents during the night shifts.

A mismatch between total nurse and caregiver levels: The private for-profit and state-subsidised LTCFs' total staffing levels (including the sum of all nurse categories and caregivers) exceeded the minimum standards despite assumed resource discrepancies between a resource-rich and resource-constrained LTCF context. **Compared with the prescribed standards**, the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64) stipulated minimum staff units of sixteen for the private for-profit and 27 for the state-subsidised LTCF, but the facilities employed 22 and 37 staff units, respectively. Additionally, for the private for-profit LTCF, where 2.57 HPRD were mandated for 35 Category 3 residents, they achieved 3.59 HPRD. Conversely, the state-subsidised LTCF, which was required to provide 1.86 HPRD for 28 Category 2 and 46 Category 3 residents, delivered 2.85 HPRD.

These figures aligned with or surpassed the average HPRD from a study in eleven Canadian care homes (2.55 HPRD) and the national HPRD of United States nursing homes in 2016 (2.87 HPRD) (Boscart *et al*., 2018:750). However, although exceeding the minimum staffing level requirements in South Africa and the HPRD in the two studies above, the total HPRD was less than the 4.55 HPRD recommended by an expert panel and the Centres for Medicare & Medicaid Services in the United States (Harrington *et al*., 2000:5–16) and in 2014, a quarter of United States nursing homes provided an HPRD of below 3.53, described as "dangerously low staffing" (Harrington, Dellefield, Halifax, Fleming & Bakerjian, 2020:1–14). This study's findings, showing that the private for-profit and the state-subsidised LTCFs exceeded the minimum required staffing levels (the sum of all categories of nurses and caregivers) in South Africa, contradicted the typical trends observed in privately

owned United States facilities. A systematic review of 55 publications assessing the practices of private for-profit healthcare facilities, including United States nursing homes, emphasised that the private sector often resorts to lower staffing levels to cut costs and improve profit margins (Borsa, Bejarano, Ellen, & Bruch, 2023).

Theme 4: Disparities in the skill mix with an overuse of lesser qualified caregivers

This study's findings showed similarities between the private for-profit and state-subsidised LTCFs, where both facilities' documentation revealed disparities in the skill mix with the overuse of lesser qualified caregivers.

The available knowledge and skills as delineated in job descriptions: Whereas job descriptions in the private for-profit LTCF for the RNs indicated that they were advised to have five to ten years of **work experience** in geriatric care and caregivers should have experience in a care environment, no prerequisites related to specific knowledge for dealing with older residents existed for any of the categories of nurses or caregivers in the state-subsidised LTCF. Regarding skills or **competencies**, the RNs in the private for-profit LTCF's job descriptions stated that qualifications in Dementia care, frail care, sub-acute care, palliative care, and rehabilitation were considered advantageous. The private for-profit LTCF also specified key caregiver performance indicators, e.g., aligning resident care with care plans and company policies. In contrast, no competencies were stipulated for any nurse categories in the state-subsidised LTCF.

The interview data confirmed that neither the nurses nor caregivers received in-service **training** in the private for-profit or the state-subsidised LTCF. The educational background in the form of qualifications and experience of staff plays a pivotal role in resident care, especially as the complexity of care needs among residents escalates (Mueller, 2000:262–267; Boscart *et al*., 2018:750; Koopmans, Damen & Wagner, 2018:988). When a higher level of skill mix becomes necessary, having staff with more advanced educational qualifications, such as staff with baccalaureate degrees instead of diploma-qualified nurses, should be a priority (Dellefield *et al*., 2015:95–108). Nevertheless, nursing homes frequently face difficulties recruiting adequately qualified staff (Campagna, Conti, Clari, Basso & Sciannameo *et al.,* 2022:1334–1341). An integrative review done by Dellefield *et al*. (2015:95–108), including 67 studies published between 2008 and 2014, revealed that RNs in nursing homes may lack essential clinical skills since they seem to be less qualified, i.e., more have diplomas than degrees. Due to nursing homes being perceived as less attractive workplaces than hospitals, more RNs with baccalaureate degrees find employment in hospitals. Additionally, in the United States, there is no mandatory requirement for RNs working in nursing homes to have specific gerontological education (Dellefield *et al*., 2015:95–108). Similarly, no additional qualifications in South Africa are specified for nursing staff in LTCFs apart from registration with the SANC. Also, nursing education institutes do not offer formal gerontology courses that may lead to registration at the SANC (South African

Nursing Council, 2016). Moreover, there is a global response to the perceived difficulties posed by the ageing population and economic constraints, which involves delegating care to lower-paid, less-trained staff (Band-Winterstein, Doron, Zisberg, Shulyaev & Zisberg, 2018:575–583) because NAs often replaced RNs to save costs (Shin & Hyun, 2015:555–564).

Low nurse-to-caregiver ratios: The findings of this study showed disparities in the **actual skill mix** in that LTCFs predominantly rely on caregivers' skills and place less emphasis on the capabilities of nurses. While the private for-profit LTCF included only RNs and caregivers in the skill mix, the state-subsidised LTCF included all the nurse categories (RNs, ENs, and ENAs) and caregivers in the skill mix. However, the **proportion of nurses versus caregivers** in the total skill mix was low despite the differences between the nurses' and caregivers' knowledge, skills, competencies, and training. Kim and Han (2018:518–524) found that the skill mix in South Korean LTCFs decreased from 2010 to 2013, with the proportion of RNs in the total nursing staff reduced from 48.4% to 43.6%. Lerner (2013:123–128) found that a higher RN skill mix in LTCFs in Maryland, United States, was associated with lower infection rates and weight loss in residents, decreased restraint use, and improved quality of care. In addition, higher proportions of RNs to CNAs were associated with LTCFs receiving deficiency citations that were less severe than when having lower proportions of RNs to CNAs in the skill mix. Shin (2018:705–713) found that in a skill mix where more RNs and fewer CNAs or care workers were employed, residents were less aggressive, showed fewer signs of depression and weight loss, and were less on bed rest.

In a cross-sectional study of 19 LTCFs in South Korea by Shin and Hyun (2015:555–564), the authors found that, compared to CNAs, RNs contribute uniquely to resident outcomes in fall prevention, decreased aggressive behaviours, less use of tubes for feeding, and better mobility. Similarly, Shin's (2013:133–143) cross-sectional correlation study in the United States found that a higher proportion of RNs to LPNs and CNAs in the skill mix was associated with higher functional competence, such as residents' ability to function and complete tasks. A cross-sectional study conducted by Shin and Shin (2019:296–301) in South Korea found that a higher proportion of RNs than CNAs in the total nurse and caregiver staff decreased deterioration in residents' outcomes by 0.58%. Yang *et al*. (2021:1081–1087) found that nursing homes in the United States with more RNs than the national average had the lowest emergency department visit and rehospitalisation rates. In contrast, the nursing homes that relied more on LPNs than RNs and CNAs for care delivery had the highest emergency department visits and rehospitalisation rates.

Compared to the prescribed standards in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), the private for-profit LTCF's skill mix comprised 82% caregivers, more than two and a half times the recommended 31% based on residents' acuity levels. In the state-subsidised LTCF, the skill mix included

68% caregivers, nearly double the recommended 37%, given the residents' acuity levels. The private for-profit LTCF's total nurse HPRD was 0.65, while the state-subsidised LTCF's HPRD was 0.82. This was lower than the minimum prescribed nurse HPRD of 1.71 HPRD and 1.16 HPRD, respectively. Literature indicates private for-profit LTCFs often lower their skill mix to save costs (Borsa *et al*., 2023).

Campagna *et al*. (2022:1334–1341) suggested in the findings of their multicentre study, including 43 Italian nursing homes, that LTCFs tend to use less-qualified staff in LTCFs more often. The unlicensed staff provided direct resident care, while RNs were more involved with tasks that they could not delegate to unlicensed staff. For example, the RNs' responsibilities included medication management and care planning. Similarly, the nurse's scope of practice in South Africa determines that RNs must administer medication; hence, this task cannot be delegated to caregivers (Republic of South Africa, 2022). However, Campagna *et al*. (2022:1334–1341) could not find benefits to using more unlicensed staff and fewer RNs. Contrary to this, a cross-sectional study in Norway found that when LTCFs used more unlicensed staff than professional staff, it decreased the quality of residents' physical and social activities (Kjøs & Having, 2016:330–339). Campagna *et al*. (2022:1334–1341) did find significant benefits when more RNs were used in the LTCFs. Residents' visits to emergency departments and hospitalisations decreased with a consequent increase in quality of life. In addition to residents' improved quality of life, using more RNs improved the LTCF's overall cost-effectiveness.

The systematic review by Backhaus *et al*. (2014:383–393) revealed that as the number of less qualified staff increased, the supervisory role of RNs became more crucial for enhancing the quality of care. Nevertheless, a qualitative phenomenological study involving 50 participants from eight nursing homes in Israel found that actual roles often blur despite the need for differentiation between the tasks nurses and caregivers perform (Band-Winterstein *et al*., 2018:575–583).

Theme 5: Residents' acuity was seemingly neglected in staff allocation

Similarities between the private for-profit and state-subsidised LTCF findings existed as both facilities neglected consideration of their residents' acuity levels in staff allocation.

The care required by residents: The **resident total** was 35 in the private for-profit and 101 in the state-subsidised LTCF. The **acuity levels** in the private for-profit LTCF were higher than in the state-subsidised LTCF, as the private for-profit LTCF only had Category 3 residents. In contrast, the state-subsidised LTCF's residents' acuity levels included Category 1, 2, and 3 residents. According to the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), the **required staffing level** for the private for-profit LTCF was 16 (three RNs, three ENs, five ENAs, and five caregivers). In comparison, the level of staffing needed for the state-subsidised LTCF was 24 (three RNs, three ENs, nine ENAs, and nine caregivers). Instead, the private for-profit

LTCF's staffing level comprised 22, four RNs and eighteen caregivers, while the state-subsidised LTCF's staffing level contained 37, including two RNs, seven ENs, three ENAs, and 25 caregivers. According to the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64), the **required skill mix** for the private for-profit LTCF was 16.75% RNs, 16.75% ENs, 33.25% ENAs, and 33.25% caregivers. Instead, the private for-profit LTCF's skill mix included 18.1% RNs and 81.8% caregivers. The state-subsidised LTCF's required skill mix was 12.5% RNs, 12.5% ENs, 37.5% ENAs, and 37.5% caregivers. However, the state-subsidised LTCF had a skill mix of 5.4% RNs, 18.9% ENs, 8.1% ENAs, and 67.6% caregivers. Mueller (2000:262–267) recommended that to determine the required staff time for care delivery, it is necessary to consider residents' functional assessments, such as their need for assistance with their activities of daily living. Furthermore, nursing managers should factor in staff skill mix, experience, and education when assigning staff to residents based on their acuity levels (Mueller, 2000:262–267).

Aligning nurses' and caregivers' skills with resident needs: Despite the acuity-based nature of the South African staffing model, the findings of this document review indicate that staff allocation in the included LTCFs did not **consider residents' acuity**. The **allocation strategies** varied from nurses and caregivers not assigned to individual residents or placed without regard for residents. Instead, the staff were geographically dispersed, regardless of the acuity levels of the residents. Moreover, RNs were allocated only to provide supervision and administer medication. With caregivers constituting 81.8% (private for-profit LTCF) and 67.6% (state-subsidised LTCF) of the total skill mix in this study, the findings point towards assigning the bulk of the direct resident care to the caregivers, as reflected in the low nurse staffing levels and high staffing levels of caregivers in the LTCFs.

Despite Mueller's (2000:262–267) guidelines for aligning staff allocation with resident acuity, a quantitative cross-sectional study conducted in the Netherlands by Tuinman *et al*. (2016:148–154) revealed that residents receive uniform care irrespective of their unique needs and acuity levels. Literature that addresses the correlation between staff allocation and resident acuity could not be found. Harrington *et al*. (2012:88–98) proposed that most countries' lack of acuity-adjusted staffing standards hinders staff alignment with the increasing complexity of residents' health requirements. Nonetheless, the South African staffing model requires adherence to acuity-based principles to adjust staffing levels and skill mix in an LTCF to residents' acuity levels (Republic of South Africa, 2010a:64).

Theme 6: A perceived indifference to residents' acuity with staff allocations

The findings suggested that the competencies of nurses and caregivers were not considered when staff was assigned to tasks. Furthermore, the findings indicated that the nurses' scope of practice may have been

disregarded when they were allocated. The findings further suggested that the caregivers may have been overburdened.

Disregarding nurses' scope of practice: The private for-profit and the state-subsidised LTCFs' documents indicated similar patterns of not delineating the nurses' **scope of practice** when assigning responsibilities and overburdening the caregivers. A suggestion put forth by Mueller (2000:262–267) is for nurse managers to familiarise themselves with the established staffing standards regulating nursing care in LTCFs and to apply them accordingly. In the South African LTCF context, it is imperative to align the allocation of nurses (RNs, ENs, and ENAs) with the scope of practice designated for each nursing category as outlined by the SANC (Republic of South Africa, 2022; South African Nursing Council, 1984).

An integrative literature review encompassing 45 articles related to team nursing and delegation in organisational settings revealed that RNs must oversee resident care and are not authorised to delegate tasks such as care planning or the administration of prescribed medications to lower-level nurse categories (Beckett *et al*., 2021:251–260). Nevertheless, the findings from this document review pointed to a disregard for the delineated scope of practice when assigning responsibilities.

In the case of the state-subsidised LTCF, ENs were mandated by their job descriptions to assume responsibility for the LTCF in the absence of an RN, including during night shifts. Also, the job descriptions stated that the ENs were responsible for medication administration. Per their job descriptions, this requirement placed ENs in a position where they were expected to perform tasks beyond their scope of practice, as defined by the SANC (South African Nursing Council, 1984), such as administering medication to residents without RN supervision. Furthermore, the interview data confirmed that the RNs in the private for-profit and state-subsidised LTCFs and the ENs in the state-subsidised LTCF were required to complete **non-nursing tasks**, as discussed in Chapter 6.

Regarding **adverse events**, the findings of the documents reviewed from the private for-profit LTCF did not reveal adverse events. In contrast, the state-subsidised LTCF reported that multiple residents experienced adverse events. Most adverse events were falls with or without injuries, which ranged from chafing wounds to open septic wounds. In a retrospective study done in Sweden, the authors found that falls contributed to severe adverse events. According to the authors, poor staff competencies and documentation contributed to adverse events. Furthermore, poor communication and teamwork also negatively influenced adverse events (Andersson, Frank, Willman, Sandman & Hansebo, 2018), aspects which were also very evidenced in this study.

Overburdening caregivers: The Older Persons Act 13 of 2006 considers a caregiver to be any person who provides care in a formal work environment such as an LTCF (Republic of South Africa, 2006). Although formal training is proposed in the Older Persons Amendment Bill, Bill B11 of 2022, it has yet to become a legal requirement (Republic of South Africa, 2022). Consequently, the LTCFs are responsible for furnishing caregivers with job descriptions and training to ensure they work according to their **job scope**.

As Mueller (2000:262–267) recommended, caregiver job descriptions must be considered to ensure that caregivers can fulfil their assigned duties and comply with legal requirements while executing their tasks (Mueller, 2000:262–267). In the private for-profit LTCF, the job descriptions for caregivers stated that caregivers were required to *provide* supervision without specifying who or what they were supposed to supervise. Furthermore, the private for-profit and state-subsidised LTCFs offered no in-service training. In addition, it appeared that caregivers had substantial responsibilities. Some tasks that the caregivers did were the **nurses' responsibility**. For example, in the private for-profit LTCF, the caregivers were in command of the LTCF for three hours daily while no nurses were on duty. This practice contrasted with the WCG health norms and standards. According to the WCG health norms and standards, nurses must lead each work shift to perform professional tasks. A further requirement regarding the WCG health norms and standards is that a caregiver must work with a nurse. Caregivers must be employed for tasks such as helping residents bathe and feed (Republic of South Africa, 2015). Several studies suggested that caregivers have to assist residents with their daily tasks (Lee *et al*., 2022:15–25; Shin, 2013:133–143; Yang *et al*., 2021:1081–1087). Therefore, one can deduce that the caregivers in these two LTCFs had to assume nursing responsibilities during the absence of any category of nurses for three hours daily.

The findings of this document review showed an inadequate matching of the nurses' scope of practice and the caregivers' skills with assignments.

5.6 SUMMARY

This document review's strengths lie in the number of documents reviewed. Seventeen documents from the state-subsidised and 28 documents from the private for-profit LTCF were included. The documents reflected how the state-subsidised and private for-profit LTCF implemented staffing models. Key concepts examined included the LTCFs' staffing levels, skill mix and staff allocation. The residents' acuity in the LTCFs was described, and the nurses' scope of practice and caregivers' job descriptions were reviewed. The review highlighted numerous comparisons between the LTCFs regarding how they implemented staffing models. The findings suggested that the LTCFs' practices influenced their human resource management. The findings also suggested that the job descriptions of both LTCFs' staff were inadequate or not adhered to. In addition, the staff did not have access to staff meetings and thus had limited communication opportunities with

management. A further similarity between the LTCFs was that the staff allocation practices did not sufficiently consider the residents' acuity. Even though both LTCFs exceeded the minimum staffing levels, the staffing levels were achieved by using more caregivers and insufficient nurses.

The document review provided insights into how the private for-profit and state-subsidised LTCFs implemented their staffing models. The next chapter includes a discussion of the findings from participant interviews, revealing why the two LTCFs implemented a staffing model as they did.

CHAPTER 6
INTERVIEWS: FINDINGS AND DISCUSSION

6.1 INTRODUCTION

This chapter contains a description and discussion of the findings from participant interviews to reach Objective 2 of this study (Phase 1, Substudy 2): To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons (the holistic multiple-case study). Accordingly, the document review was conducted, and the findings are presented in Chapter 5. To obtain this objective further, interviews were conducted with nurses and caregivers to explore their perspectives on implementing the staffing model. The findings of the interviews are presented in this chapter. By gathering insights from diverse sources, including documents and interviews with different categories of nurses and caregivers for this holistic multiple-case study, the researcher understood how and why LTCFs implemented staffing models and the associated barriers and facilitators to the process.

This study applied the meta-theory of critical realism. As discussed in Chapter 1, Section 1.2, critical realism acknowledges three domains or levels of truth. According to Bhaskar (2008:47), the most important domain is the *real* domain, where causal mechanisms may be hidden. Therefore, critical realism was deemed suitable for exploring nurse and caregiver staffing in the LTCFs. Interviews were selected as a data collection method, allowing for exploring complex causal mechanisms and unobservable social realities within the *real* domain (Bhaskar, 2008:47; Fletcher, 2017:181–194). Complex causal mechanisms and unobservable social realities encompassed factors like the interplay between the prior experiences of nurses and caregivers with staffing models, LTCFs' human resource practices, and staff experiences on the phenomenon studied. Therefore, complex causal mechanisms and unobservable social realities may influence the implementation of the staffing model. However, these causal mechanisms could not be directly observed. The deeper meaning of the participants' perspectives could be better explored by conducting interviews. The central focus of the findings revolved around addressing the research question: What framework could be developed to inform staffing models for LTCFs for older persons in resource-constrained contexts? The final sample comprised 19 participants, nine from a private for-profit LTCF and ten from a state-subsidised LTCF.

6.2 PREPARATION FOR DATA ANALYSIS

Data was prepared for analysis immediately after the interviews. The data analysis from the document reviews and participant interviews occurred concurrently. Audio recordings were downloaded onto a computer, and copies were stored on a USB device for archival purposes, following Creswell and Creswell's (2018:266) recommendation. The researcher made verbatim transcriptions from the audio recordings on a Microsoft Word document. Codes were assigned to the participants to ensure the confidentiality of LTCFs

and participants, and by labelling the private for-profit LTCF as 'P1' and the state-subsidised LTCF as 'S2.' The audio recordings and the transcriptions were uploaded to the ATLAS.ti qualitative data analysis programme. Regular meetings with the supervisors were conducted via Microsoft Teams. Additionally, the study supervisors were granted access to the project on ATLAS.ti to oversee the data analysis process. Inductive thematic analysis was performed according to the steps advised by Braun and Clarke (2006:77–101).

6.3 BIOGRAPHICAL DATA

The population, sampling, and participant selection and recruitment for the interviews are discussed in Chapter 3, Section 3.5.2. The final sample from the **private for-profit facility** (P1) comprised nine participants: one facility manager, who was also the RN in charge of P1, three additional RNs, and five caregivers. No ENs or ENAs could be interviewed since P1 did not employ these nurse categories. All the participants were female, as no male nurses or caregivers were employed at P1. No reasons were provided for not appointing any male nurses or caregivers. Seven interviews were conducted in English and two in Afrikaans, based on the participants' preferences. The final sample from the **state-subsidised facility** (S2) comprised ten participants: one RN, two ENs, three ENAs, and four caregivers. S2 did not have a nursing manager since the nursing manager resigned three months before the interviews. Also, only two RNs were employed, and one was on leave during the interviews. Nine of the participants were female, and one was male. Eight interviews were conducted in English and two in Afrikaans, as preferred by the participants. Since the researcher is fluent in Afrikaans, she translated the participants' Afrikaans responses, which served as verbatim quotes, into English. The researcher also translated the responses back from English to Afrikaans to verify the accuracy of the translations and the truth value, which the study supervisors and editor verified. The translated responses are displayed beneath the Afrikaans quotations.

6.4 INTERVIEW FINDINGS

The coding process involved listening to the recorded conversations and reviewing the interview transcripts in multiple iterations. The researcher's primary focus was on discerning the underlying messages conveyed by the participants while remaining fully mindful of the research objective. This analytical process revealed distinct themes from the interview data. These emerging themes were initially identified and grouped accordingly. Subsequently, the researcher observed commonalities and overlaps between these themes in a second coding round. For instance:

- Codes with different but related labels, such as 'limited communication,' 'poor communication,' and 'threats', were consolidated under a new code, 'communication barriers.'

- Subthemes like ‘leadership behaviour’ and ‘valuing staff’ were combined to create a more comprehensive subtheme: Contextual factors influence nurse and caregiver staffing in the LTCF.
- Furthermore, themes such as ‘Organisational and management support’ and ‘work conditions' were merged into a single theme, ‘Human resource practices influence staff management’.

Through this iterative process of re-coding, continuous exploration, and the formation of new thematic structures, the primary themes were refined, ultimately reducing the number to five themes. The five themes had thirteen subthemes based on participants’ views of the barriers and facilitators to implementing the staffing model in the LTCFs. The themes and subthemes are presented in Table 6.1. The findings are discussed per the respective LTCF, i.e., the private for-profit LTCF (Section 6.3.1) and the state-subsidised LTCF (Section 6.3.2), according to the same themes. After presenting the interview review findings for each facility, a discussion of the integrated findings from the private for-profit and state-subsidised LTCFs follows in Section 6.4.

Table 6.1: Thematic presentation of themes derived from the interviews

Themes	Subthemes	Examples of codes
Human resource practices influence staff management	Contextual factors influence nurse and caregiver staffing in the LTCF	Employee benefits and welfare Teamwork and staff turnover Impractical work practices Disciplinary measures
	Managing nurse and caregiver fluctuations	Relief staff Students
	Providing resources	Support staff Physical resources Financial constraints
	Limited communication between nurses, caregivers, and management	Staff meetings Communication barriers
Staffing levels favour a lower-cost model of nursing categories	Low nurse staffing levels in the total staffing	Actual nurse staff levels Nurse-to-resident ratios
	Higher caregiver staffing levels in the total staffing	Actual caregiver levels Caregiver-to-resident ratios
Disparities in the skill mix with an overuse of lesser qualified caregivers	The available knowledge and skills of the nurses and caregivers	Work experience Competencies Training
	Low nurse-to-caregiver ratios	Actual skill mix Proportion of nurses versus caregivers
Residents’ acuity was neglected in staff allocation	The care required by residents and their expectations	Resident totals Acuity levels Resident demands
	Aligning nurses’ and caregivers’ skills with residents’ needs	Acuity consideration Allocation strategies
A perceived indifference to residents’ acuity with staff allocations	Utilisation of nurses’ skills	Scope of practice Non-nursing tasks Workload
	Overburdening the caregivers	Job scope Nursing responsibilities Workload
	Influence on residents	Delayed and omitted care Adverse events

6.4.1 Private for-profit LTCF (P1)

Table 6.1 includes the barriers and facilitators to implementing the staffing model in P1, as experienced by the participants. A discussion of the barriers and facilitators follows each theme and subtheme.

Theme 1: Human resource practices influence staff management

This theme revolved around the influence of human resource practices on nurse and caregiver management within the LTCF. The data revealed four subthemes, each shedding light on different aspects of the influence of human resource practices on staffing: contextual factors influencing LTCF nurse and caregiver staffing, managing nurse and caregiver fluctuations, providing resources to equip nurses and caregivers for their tasks, and limited communication between the nurses and caregivers, and management.

Contextual factors influence nurse and caregiver staffing in the LTCF: In P1, the work atmosphere appeared conducive to retaining the nurses and caregivers. The management seemed to supply generous **employee benefits**, such as uniforms and meals. The management also contributed to the caregivers' transport costs and provident fund, resulting in the nurses and caregivers having long service records at this private facility:

> *The uniform is supplied by the Home. Like…lunch is supplied, breakfast: supplied…The Home subsidises the transport. Predominantly all of them, they come from [name of the area], so. There is a contract with the owner of the transport to transfer them to here and take them home and then the Home pays 50% of that, and they [the staff] pay 50% for the transport… [Also] I understand that they have been on provident fund for plus minus five years.* (RN 18).

In addition to receiving employee benefits, there appeared to be good **teamwork** between the nurses, caregivers, nurse manager, and doctors, further facilitating a supportive work atmosphere:

> *The doctors and, the matron and the sisters [RNs] working as a fantastic team.* (RN 15).

A further contextual factor influencing nurse and caregiver staffing in P1 was the ability to maintain a stable workforce with minimal **staff turnover**. The facility employed only one full-time nurse (RN) who also serves as the facility manager, a role she has held for 35 years at P1. Furthermore, a pool of five other RNs holding 'locum' positions and their employment contracts were renegotiated annually. These locum RNs had worked at P1 for one to five years. Additionally, P1 employed 17 caregivers full-time, with the last appointment made five years ago. P1 served as a practical training facility for students in caregiver training programmes, and when staff positions became available, recruitment and appointments were typically made from this pool of students. The most recent appointment from this student pool of caregivers occurred five years ago.

Daar is nie 'n turnover nie, die langste ene is 35 jaar hier. Die jongste is vyf-ses jaar hier. Hulle het al almal hulle lang diens toekenning. Hulle is gemiddeld 25-30 jaar al hier. (RN 17).

<u>Translation:</u> *There is no turnover, the longest one is 35 years here. The youngest is here for five or six years. They all have their long service awards. They have been here for an average of 25 to 30 years.* (RN 17).

The completion of duties by the nurses and caregivers in P1 is seemingly hindered by **impractical work allocations**. As discussed in Chapter 3, Section 3.5, P1 is situated within a retirement village with various self-care apartments where independent older individuals reside. Although these independent persons generally do not need care, a written agreement between P1 and the independent individuals in the apartments requires that the nurses and caregivers provide support services. These support services seemingly included monitoring residents' blood pressure and aiding during medical emergencies. However, when nurses and caregivers had to leave the facility to attend to independent persons in the village as per the agreement, it lowered the nurses' and caregivers' ratio to residents in P1 as the frail care facility of this retirement village.

And even sometimes outside the flats [individual self-care dwellings], we must assist there. It's like an emergency bell; everyone has it around their neck. They press a button if anything happens to them, or he's maybe stuck in the toilet or whatsoever, and you must go assist there. And even sometimes, we must do their blood pressure, maybe the glucose test. We assist there also. Somebody comes, emergency, they come to call us... (Caregiver 14).

The retention of nurses and caregivers in P1 was apparently facilitated through a prompt, yet subtle approach to **disciplinary measures.** Such measures were rarely required, and transgressions were seen as minor and often stemmed from ignorance. Consequently, such issues were addressed promptly and led to improved control:

Ons hou dissiplinêre verhore as dit nodig is veral, maar dit is meer [oor] gereelde afwesigheid voor 'n naweek en na 'n naweek en daai tipe van ding. En dan hier en daar, dit is meer onkunde…dit moet nou deur 'n proses…dit gaan nie tot die uiteinde nie, maar hierso is 'n waarskuwing. 'Nie weer nie. Jy praat nie so nie, jy maak nie so nie'. So voor die ding ontvlam, het jy hom onder beheer. (RN 17).

<u>Translation:</u> *We hold disciplinary hearings if necessary, especially, but it's more about frequent absences before a weekend and after a weekend, and that type of thing. And then, here and there, it's more ignorance...it now has to go through a process...it doesn't go to the end, but here's a*

warning: 'Not again. You don't talk like that, you don't act like that'. So, before the thing ignites, you have it under control. (RN 17).

Managing nurse and caregiver fluctuations: In P1, the availability of **relief staff** or additional personnel to handle short-term staffing fluctuations due to absences because of vacation leave or illnesses apparently facilitated staff planning. Participants indicated that three relief caregivers were available for the seventeen full-time caregivers:

We, ourselves, we can get a reliever. There are three ladies that relieve us if anybody is sick or if the person can't come in, then there is always somebody who can stand in for us. (Caregiver 13).

In contrast to the situation with the caregivers, P1 did not utilise external relief staff for the RNs. Instead, P1 employed one permanent and five locum RNs. These six RNs collectively cover the four shifts (two day and two night shifts of 12 hours each), equivalent to four full-time RNs, ensuring coverage for all day and night shifts. These shifts were scheduled between the RNs through an informal communication system:

There's always a sister [RN]. I will phone, and sister [name of RN in charge] will say: Don't worry, Sister [another RN's name] or [another RN's name] will stand in. So, for instance, I land up in hospital, she arranges it, but otherwise, she will sometimes say, can you arrange with one of the other sisters? We're on a group [social media group], our sisters… if there's anything, we can communicate. (RN 15).

Furthermore, staff fluctuations were also facilitated using caregiver **students**, as P1 was a practical training facility for caregiver students. However, perceptions emerged of students being considered as additional, unpaid staff to alleviate the workload, thus not supernumerary to complete their training, but part of the working staff:

What we really enjoy, we always got like three or four, uhm, care workers that's in training that works here for free. (RN 15).

Providing resources: Within P1, there appeared to be access to additional resources in the form of **support staff** beyond what the LTCF typically offered. The independent residents in the apartments situated in the retirement village may ask the RN in P1 to arrange for external private caregivers. Since the independent residents pay the private caregivers for the whole day's work, the independent residents often volunteer the services of these private caregivers to P1 during quieter times of the day when the independent residents do not require the services of their private caregivers. This practice seemed to offer additional work hours without extra charges incurred by P1.

She [private caregiver] looks after a patient outside [in the individual self-care dwellings]. Sister [RN] put her there because that patient is not…fit to do anything for himself anymore. So, she's [the private caregiver] on her own there. She's not part of us. She's part of the clinic but not part of the team inside. We do get that. And sometimes that person comes and helps a bit. (Caregiver 14).

Residents in the frail care section could request extra services if a resident or family members were willing to pay for them. For example, the services of an external wound care specialist could alleviate the staff's workload without incurring additional costs for P1.

If it's a very bad wound, some of the relatives ask if I can get a wound care sister [RN] in. (RN 15).

Participants did not mention any shortages of **physical resources**, but by probing deeper, participants shared about **financial constraints** that hindered their work. During an 11-hour day shift at P1, the usual practice was to have five caregivers on duty divided into two pairs. In this case, one participant (a caregiver) thus had to work without a team member. On request for an additional caregiver to assist this participant, the explanation provided was the lack of finances:

Well, I asked. I asked sister [name of RN in charge], and she told me that they don't have money, they don't have capital for that. So, we must just try to cope…it's a long time now, for years now. (Caregiver 13).

In addition, when the locum RNs asked for an increase in their hourly rate, P1's management apparently negotiated to reduce the locum RNs' work hours rather than increase the hourly rate:

When it comes to the rates… we discussed this …We're [the management] going to reduce the number…so they reduced the hours... (RN 16).

No domestic workers or kitchen staff were deployed during night shifts, as the standard practice was for domestic workers and kitchen staff to conclude their shifts between 18:00 and 19:00. The absence of domestic workers during night shifts seems to be a way to curb labour costs:

So maybe because also, they're trying to save as far as they're having another category that's going to come and do tea's and thinghie [other duties of domestic workers], so maybe that was also…to save some…managerial resources. (RN 16).

Limited communication between nurses, caregivers, and management: Established formal communication structures, such as **staff meetings** with documented minutes or attendance registers, were not standard practice in P1. Although it was standard procedure in the past to hold formal staffing meetings, this practice

was apparently discontinued since it was perceived as having little value in informing staff of issues in the LTCF as the meetings were seemingly more regarded as informal gatherings:

> *Ons het vroeer gehad. Uhm, hulle sit daar vir 'n uur, tog te lekker, baie lekker vergadering. Dan stap hulle uit en dan is alles oor en verby, en more weet ek weer niks wat het suster [bespreek], maar die heel tyd "yap yap yap yap" hulle.* (RN 17).
>
> *Translation: We used to have. Uhm, they sat there for an hour, very nice, very nice meeting. Then they walk out and then everything is over and done and tomorrow I don't know what did sister [discuss], but all the time they "yap yap yap yap.* (RN 17).

Despite the lack of formal communication structures, the lack of staff meetings was not perceived as a **barrier to internal communication**. The communication process between the staff and the facility manager, who also served as the RN in charge, was seen as a two-way process based on mutual respect. For example, the locum RNs discussed a pay rise with the facility manager, and the RNs perceived the facility manager as willing to listen and open to suggestions:

> *We do have that healthy relationship: that treating her with respect as the person in charge but at the same time, …because she also treats us with respect, so there's a two-way process…She's going to be listening to us even if she's not going to [laughing]…she's very, very open… Because there's some suggestions that we made. And then she said, okay, and she listens.* (RN 16).

These findings shed light on the multifaceted relationship between human resource practices and nurse and caregiver staffing in P1. The data revealed that human resource practices can either impede or support the implementation of the staffing model in the LTCF.

Theme 2: Staffing levels favour a lower-cost model of nursing categories

The documents reviewed in Chapter 5 showed that P1 had a staffing level of 22 staff units (where one unit equals one nurse or caregiver). This is despite only 16 staff units being required according to the minimum standards for the number of frail residents in P1. Furthermore, P1 employed one RN, and five RNs held 'locum' positions (only one RN per shift). These six RNs collectively filled the four shifts, equivalent to four full-time positions, with no ENs or ENAs employed in this facility.

Low nurse staffing levels in the total staffing: The **actual nurse staffing levels** consisted of four RNs, with one assigned per shift. P1 accommodated 35 residents, with a **nurse-to-resident ratio** of one nurse for 35 residents per shift. However, the document review findings showed that RNs' day shifts were from 08:00 to

17:00. The night shifts commenced at 19:00 and ended at 07:00. Consequently, the shorter day shifts led to no nurses on duty for three hours daily. P1's RNs, of whom three lived within ten to fifteen minutes of travelling time from the facility, compensated for the three hours without nurse coverage by being on-call for emergencies:

> *Ons is op hierdie stadium gelukkig dat ons drie susters [RNs] het wat in [residential area where facility is located] woon. Jy moet binne tien minute vir 'n noodoproep hier kan wees. Tien minute-kwartier. So dit cover daai, so as daar 'n uur of twee verloop wat dit net carers is, dan is die suster op roep, sy is beskikbaar, binne tien minute kan sy hier wees. As hulle dan van diens af gaan [the RNs], tot die nagsuster op is, daai twee uur dek ek maar [on-call].* (RN 17).
>
> <u>Translation:</u> *We are lucky at this stage that we have three sisters [RNs] who live in [residential area where facility is located]. You must be able to be here for an emergency within ten minutes. Ten minutes to quarter of an hour. So, it covers that, so if an hour or two passes that it's just carers, then the sister [RN] is on-call, she is available, she can be here in ten minutes. If they [the RNs], then go off duty, until the night nurse is up [on duty], I cover those two hours [on-call].* (RN 17).

Since the RNs' shifts ended at 17:00 on day duty, the RNs had to hand over to caregivers, not nurses. Similarly, when the RNs came on duty for night shifts, they received handover reports from caregivers. At the end of the RNs' night shifts, they again handed over to caregivers, not nurses. When probing deeper to uncover the unobservable realities and possible influence of this practice on the residents, the RNs seemed comfortable complying with this practice. However, the RNs would voluntarily extend their work hours when a resident's condition warranted a direct handover to an RN instead of handing over to a caregiver:

> *But if there is anything, like sometimes you see that a person is on oxygen or one of that, you wait, maybe there's a change of condition, then I won't leave till the sister [RN] is here.* (RN 18).

The standard practice in an LTCF is to have a facility manager in addition to the nurse in charge or nursing manager. However, in P1, the position of facility manager and nurse in charge was shared by one person. Consequently, this RN in charge was also the only nurse on day duty from Mondays to Thursdays and was tasked with resident care and performing administrative tasks as facility manager. This practice of sharing two positions in P1 may result in optimally using a person who can provide services across categories, thus saving costs, but may also reduce the nurse-to-resident ratio:

> *… suster [name of RN in charge] moet eintlik 'n suster hê wat saam met haar kan werk…maar sy werk alleen … en sy is die matrone…sy hoort nie al daai tipe goed te doen nie …* (Caregiver 19).

Translation:... sister [name of RN in charge] should actually have a sister [RN] who can work with her…but she works alone… and she's the matron… she's not supposed to be doing all that type of stuff… (Caregiver 19).

Higher caregiver staffing levels in the total staffing: The **actual caregiver staffing levels** consisted of seventeen caregivers and one full-time relief caregiver, thus eighteen caregivers. The shift comprised five caregivers daily and three during the night shifts. With 35 residents in P1, the **caregiver-to-resident ratio** was one caregiver per seven residents during the day and one caregiver per approximately 11 to 12 residents during the night. Still, the higher presence of caregivers was seemingly considered inadequate due to the effort of providing care to physically heavy residents, especially without a team member to assist. The perceived shortage of caregivers was viewed as a risk to residents and caregivers due to possible injuries.

I'm telling you, eish, they need more. At times, I feel for them. Because also now, like there might be people that are like a bit overweight and that have to be turned…and at times now because they are short staffed, and they're supposed to have to pair [two caregivers working together] per resident. Because it's not only about the resident and that you're going to be mishandling [the resident] if you are all by yourself. Also, you will be hurting yourself where you are going to do this [work alone] because you're trying to turn a person that is quite heavy. (RN 16).

Night duty caregivers seemingly faced higher pressure during peak periods, such as between five and six in the morning. The standard practice in P1 was to get the residents ready for the day by showering and dressing most of them before handing them over to the day staff:

OK, the work is less at night, but in the morning from 5:00 o'clock when you have to get everyone ready, it's a bit difficult because you have to rush everything in time. Because we start at, say, half past four, sometimes quarter to five or depends. And you have to be finished at about 6:00 o'clock … (Caregiver 11).

A caregiver participant suggested that adding one more caregiver during the day could lead to better outcomes:

Die drie [caregivers on night duty] … is min, dis hopeloos te min. Op dagdiens is ons ook te min. As ons ses moet wees miskien op 'n dagskof hier, kan ons baie dinge doen. (Caregiver 19).

Translation: The three [caregivers on night duty] … is few, it's hopelessly too few. We are also too few on day duty. If we can be six maybe on a day shift here [instead of five], we can do many things. (Caregiver 19).

However, one RN did not share the perception of the caregivers that the caregiver level was inadequate but instead felt the level would be sufficient if everyone performed adequately:

> *Dit is genoeg, as elkeen sy kant bring.* (RN 17).
>
> *Translation: It is enough if everyone does his part.* (RN 17).

The findings indicated that the nurse staffing level was limited to one RN per 9-hour day shift and one RN per 12-hour night shift. The RNs seemed to manage the daily three-hour gap when no nurses were on duty, by being on-call for emergencies. In addition, three RNs lived within ten to fifteen minutes of travelling time from the facility. Additionally, the data confirmed that participants perceived a shortage of caregivers during both day and night shifts. The absence of ENs and ENAs is discussed in the next theme.

Theme 3: Disparities in the skill mix with an overuse of lesser-qualified caregivers

This theme encompasses the findings related to the imbalances in the composition of nurse categories and the seemingly excessive reliance on caregivers in the total nurse and caregiver staff mix. A shortage of nurses was observed in the overall staff composition in P1, with the overutilisation of caregivers compared to nurses. Subthemes arising from the data included considerations of available knowledge and skills and the low nurse-to-caregiver ratios.

The available knowledge and skills of the nurses and caregivers: The only full-time nurse among the P1 staff who also served as the facility manager and the RN in charge worked from 08:00 to 17:00, Mondays to Thursdays, assisted by five RNs contracted as 'locums' to cover all the other shifts. The **work experience** of this full-time nurse at P1 included more than 30 years of duty in this specific private facility, with the locum RNs working there for one to five years. The caregivers also had extensive service records of five to 32 years at this facility. When asked about the reasons behind such lengthy service records at P1, the following explanations were provided:

> *Ek weet nie hoekom bly hulle so lank in nie maar ek is baie dankbaar daarvoor.* (RN 17).
>
> *Translation: I don't know why they stay in for so long, but I am very grateful for that.* (RN 17).

The interview findings corroborated that the caregivers possessed substantial years of work experience in P1:

> *This year, it will be 32 years.* (Caregiver 13).

Due to the caregivers' extensive work experience at P1, they developed job skills and **competencies.** They seemed to be trusted with higher responsibilities that exceeded their job scope. For instance, RNs delegated higher levels of responsibility to caregivers, such as administering medication to residents. While interviewing an RN participant, a caregiver came into the office to remind the RN that it was time for medication administration, and the RN handed the medication trolley's keys to the caregiver:

> *As ek regtig besig is, of nie kan nie, maar sy is 32 jaar hierso en ek kan haar vertrou [handing the medication trolley's keys to the caregiver during the interview]. Ek weet sy kan lees en sien en dink.* (RN 17).
>
> *Translation: If I'm really busy or unable, but she has been here for 32 years, and I can trust her [handing the medication trolley's keys to the caregiver during the interview]. I know she can read and see and think.* (RN 17).

Caregivers who accepted greater responsibilities, such as medication administration, conveyed displeasure about the delegated tasks. Although conveying displeasure, caregivers appeared confident in administering medication safely. However, the consequences of working outside their job scope did not appear to be a concern to the caregivers:

> *Ons doen dit maar ... en ons sal mos nou nie iemand verkeerde pille loop staan en ingee nie.* (Caregiver 19).
>
> *Translation: We just do it... and we won't be walking around giving someone the wrong pills.* (Caregiver 19).

The delegation of higher responsibilities to caregivers, exceeding their designated job scope, will be discussed further in Theme 5: A perceived indifference to residents' acuity with staff allocations. Despite the caregivers' extensive service histories, participants appeared to receive minimal support regarding in-service **training** in P1 to improve their skills and knowledge. Providing in-service training to the caregivers in P1 was discontinued more than two years ago due to the facility's COVID-19 protocol and was not resumed after that. The current practice involves on-the-spot training, thus only addresses an incorrect action when it occurs:

> *It's just on-the-spot training at that time when you see [something that needs addressing], and then, yeah, you have to [tell the caregiver]: this is not done this way, it's done this way and this way.* (RN 18).

Caregivers indicated a need for training in P1. However, management appeared not to consider these requests:

> *We did ask sister [name of RN in charge] for more training and stuff, but we don't know when that's gonna happen.* (Caregiver 13).

Low nurse-to-caregiver ratios: The nurse categories in South Africa encompass RNs, ENs, ENAs, and caregivers. According to the South African staffing model, for Category 3 (frail) residents, 50% of the RNs may be substituted with ENs, and 50% of the ENAs can be replaced with caregivers, as discussed in Chapter 2. In P1, the **actual skill mix** consisted of only two categories, RNs and caregivers, with ENs and ENAs excluded from the mix of skills:

> *There's no assistant [ENAs], no enrolled nurses. It's only the few sisters [RNs] working here and then the care workers.* (RN 15).

As a smaller LTCF, P1's management seemingly decided that an RN *or* EN per shift was sufficient to provide the necessary care to residents. Therefore, the services of RNs were used, and the services of ENs and ENAs were forfeited based on their limited scope of practice, which required the ENs and ENAs to work under an RN's supervision. In addition, P1's management struggled to find applications for EN positions. Upon further probing, the reason for not obtaining the services of ENs was P1's location at the edge of the Cape Metropole. ENs as a nurse category are also being phased out in South Africa, and without further training, the available pool of ENs is diminished. The P1 participants' perceptions were that with good organisational skills, excluding the ENs and ENAs was not an issue:

> *Die staff nurses [ENs] het ons gehad, en dit is…hulle werksbeskrywing, hulle het sekere funksies wat hulle nie mag verrig nie volgens die Departement Welsyn, en weereens ons kry nie aansoeke nie, en…hulle moet onder indirekte toesig van 'n suster [RN] werk…Nou dit maak nie vir my vreeslik sin uit nie want die staff nurse loop op en af hier rond, as suster [RN] werk…daar is nie werklik werk vir albei nie, 'n ou moet net jou goed reg organiseer. Dan is dit nie 'n probleem nie.* (RN 17).
>
> <u>Translation</u>*: The staff nurses [ENs] we had, and this is... their job description, they have certain functions that they are not allowed to perform according to the Department of Welfare, and again we don't get applications, and…they must work under indirect supervision of a sister [RN]... Now it doesn't make a lot of sense to me because the staff nurses walk up and down here if a sister work... there is not really work for both, one just has to organise your stuff right. Then it's not a problem.* (RN 17).

As a private for-profit LTCF, the decision to use only RNs was also influenced by the expectations of the independent residents in the retirement village. When independent residents purchase apartments in the retirement village, the contract includes 24-hour access to support from professional nurses and caregivers. However, it is questionable that the residents have 24-hour access to professional nurses as the LTCF is without nurses for three hours a day. Although participants shared that using only RNs was possibly more costly, it was still perceived as less expensive than employing more categories of nurses:

> *En dis wat [facility's name] vir die woonstel eienaars gee, omdat dit 'n privaat organsisasie is, is dit die riglyne hier. Hier is altyd 'n geregistreerde verpleegster op diens … dit maak dit heel waarskynlik duurder.* (RN 17).
>
> *Translation: And that's what [facility's name] give to the apartment owners, because it's a private organisation, those are the guidelines here. There is always a registered nurse on duty here... this most likely makes it more expensive.* (RN 17).

Apart from the licensing requirements, expectations of independent residents, and shortage of ENs, caregivers perceived that ENAs in the skill mix were not essential. These perceptions might convey ignorance, as it was evident that the caregivers now completed the tasks usually performed by ENAs, such as monitoring vital signs. Not only did the absence of ENAs result in caregivers working beyond their job scope, but it might also imply that such caregivers might be exploited:

> *Ons mis nie vir hulle [ENAs] nie. Die assistente [ENAs] wat hier was het saam ons gewerk. Net soos carers … hulle salarisse was nie eers meer nie.* (Caregiver 19).
>
> *Translation: We don't miss them [ENAs]. The assistants [ENAs] that were here worked with us. Just like carers... their salaries weren't even more.* (Caregiver 19).

The **proportion of nurses versus caregivers** in the total skill mix was four nurses, one full-time RN and five RNs on other shifts. This number of nurses was the equivalent of four full-time RNs. The proportion of caregivers in the total skill mix comprised 18 caregivers. The caregivers included 17 full-time caregivers and one relief caregiver, thus the full-time equivalent of 18 caregivers. As explained in Chapter 5, Section 5.4.1, the nurses comprised 18.1%, while caregivers constituted 81.8% of the total skill mix. Compared to the staffing model's prescribed skill mix for 35 Category 3 residents of 66.75% nurses and 33.25% caregivers (Chapter 5, Table 5.4), the disparity in the skill mix became evident. The proportion of nurses to caregivers was low due to the decision to exclude ENs and ENAs from the total skill mix. Consequently, caregivers were entrusted with responsibilities beyond their work scope.

Theme 4: Residents' acuity was neglected in staff allocation

Staff allocation encompasses assigning different categories of nurses and caregivers based on residents' acuity levels. The allocation of the different categories of nurses and caregivers ensures an optimal organisation of human resources related to distribution, potential adaptations, and alignment with residents' needs. Subthemes from the data included examining the care demands and the residents' expectations and aligning the nurses' and caregivers' skills with the residents' needs.

The care required by residents and their expectations: In P1, the **resident total** was 35, and the residents' **acuity levels** indicated that all were frail, thus falling in Category 3. Participants provided narratives that confirmed that the residents were frail:

> *Bedridden people … five. Because I'm counting the one in as well, although we're taking her out, putting [the resident] in the chair for a while, but we put her back into bed again. But they are mostly in bed, and we do everything for them.* (Caregiver 11).

The interviews did not reveal **demands from the residents**. Instead, most caregivers expressed compassion for the residents, particularly for those residents without family members close by:

> *Their family is not here every day like we are. So, we are their immediate family in that case now. And then we have to give them love, we have to talk to them, we have to see to their needs, and yes, yes, and that's why I like it here* (Caregiver 14).

The data suggested that the residents appeared frail and relied on caregivers for assistance with their daily activities, including feeding and bathing.

Aligning nurses' and caregivers' skills with residents' needs: According to their job descriptions, the RNs in P1 had to assess the level of care required by residents by **considering the residents' acuity** and then aligning the nurses' and caregivers' skills with residents' needs. All 35 residents in P1 were categorised as Category 3. Accordingly, they were all frail and dependent on care due to physical or mental conditions, which rendered them incapable of self-care. However, resident acuity was seemingly not considered in the staff planning process. P1 lacked documented records of nurse and caregiver resident **allocation**. Caregivers were given the authority to decide independently which residents they would attend to each day and organise their days accordingly. No records were kept of the allocation process, as RNs' perspectives showed it was pointless as the caregivers did not read allocation lists:

Hulle reel onder mekaar. … ons [the caregivers] is vandag in kamer vyf, en kamer vier doen ons. Die ander twee doen die ander kamers wat minder verswak is, wat nog rondloop, wat jy nog kan instruksies gee, dis nie die heel verswaktes wat kommunikasie min is en al daai goeters nie. More ruil hulle weer om. So, ek weet nie hoe hulle dit werk nie maar dis hoe hulle dit doen…om 'n 'n boek te skrywe: jy maak so en so, is tydrowend, hulle [the caregivers] lees dit nie. (RN 17).

Translation: They [the caregivers] arrange among themselves. … we [the caregivers] are in room five today, and room four, we do. The other two do the other rooms that are less frail, that still walk around, that you can still give instructions; it's not the very frail ones that have little communication and all that stuff. Tomorrow, they [the caregivers] exchange again. So, I don't know how they do it, but that's how they do it... to write a book: you do this and that, is time-consuming, they [the caregivers] don't read it. (RN 17).

Since the participants shared their views of needing more staff during peak times, the management of peak times was further explored by asking about adjustments made during such peak times. As there were only caregivers and one RN per shift, there appeared to be no variation in staff allocation regarding peak times or where residents' acuity might require more care:

They've been allocated like this, irrespective of whether the ward is full or if the centre is full. (RN 16).

The findings suggested that the residents' acuity levels were not considered in the staff allocation process at P1. Care demands should have ideally been correlated with the number of residents and their respective acuity levels. Furthermore, the decision-making authority was shifted from the RNs to the caregivers, extending the caregivers' job scope without caregivers possibly having the means to manage such a responsibility and the accompanying legitimacy the extended responsibility holds. Despite adding a burden to the caregivers, the caregivers seemed oblivious to this added responsibility and it not being legally sound. Moreover, the RNs seemed oblivious to the far-reaching consequences of not allocating the staff according to the acuity of the residents, the caregivers' job scope, and the importance of keeping records of the allocation process.

Theme 5: A perceived indifference to residents' acuity with staff allocations

There appears to be a misalignment between the available staff skills and how they were assigned tasks and resident care and a perceived indifference to residents' acuity when allocating the nurses and caregivers. Several subthemes emerged from the data, including the utilisation of nurses' skills, overburdening the caregivers, and the influence on staff and residents resulting from the mismatch between staff competencies and their allocation.

Utilisation of the nurses' skills: The nurses' skills only refer to the RNs' skills in the absence of other nurse categories. The RNs provided examples of their daily tasks and responsibilities to illustrate the skills they used in the LTCF. Seemingly, the RN's tasks involve supervision, medication management, and limited direct resident care. All these tasks fell within the RNs' defined **scope of practice,** as outlined in Chapter 1.

> *I start with the insulin therapies and see that all the units are drawn up and given to the patients [by the caregivers]. And as I go up, I observe wherever, because we work with old people and also Alzheimer's, Dementia, so you have to keep track of what's going on in the unit. Then after giving out their medication, you check all your, that everything is ready for the next medication time, that's from 11:30, and pack all the medication [the acute medicines that were not blister-packed], wash everything down, clean around the medication room… if anything happens with the patient, then I take blood pressure, temperature, saturation, oh, just the normal vital signs.* (RN 15).

As mentioned in Theme 1, domestic workers and kitchen staff were not on duty during night shifts. In other LTCFs, domestic workers and kitchen staff would typically conclude their shifts between 18:00 and 19:00, with kitchen staff preparing a tea trolley with snacks for the residents. Consequently, the caregivers on night duty would distribute tea and snacks to residents before bedtime. However, in P1, it was apparantly expected of the RNs during night shifts to complete the **non-nursing task** of serving tea and snacks to residents. Caregivers seemingly continue providing direct resident care while the RNs complete the tea-serving duties.

> *We do teas and coffees as registered nurses. So, we start our routine at seven o'clock [referring to seven o'clock at night]. So, as you're starting your routine, the carers will be doing the changing and whatever, and as professional nurses, you'll be preparing their, uhm, refreshments, so to speak. So, they get their snack.* (RN 16).

Participants expressed that this practice where the RNs serve the tea, although an established one, felt somewhat improper, thus not agreeing with the sentiments of the management about the matter:

> *When I come in, the first thing I do is prepare tea. Because there's nobody making tea at night. In fact, it's not as if I invented that because there's no point in making tea [as a trained registered nurse]. Then I said, OK, I must make tea. It is a routine I took over.* (RN 18).

Upon further probing to understand the underlying issues and outcomes of the RNs preparing and serving tea and refreshments during night shifts while the caregivers provide resident care, participants explained that this was a customary practice which enabled RNs to familiarise themselves with residents after their off-duty hours, serve as hosts, observe residents' wellbeing, and monitor fluid intake to prevent dehydration.

Nonetheless, RN participants shared that they found this non-nursing task degrading. The perspectives of the RNs were seemingly related to South Africa's historical context, particularly the era of 'Apartheid.' During apartheid, black women were often perceived as domestic workers. Most of the white elderly residents in P1 came from the apartheid era. Consequently, the RNs appeared concerned that delegating tea-making duties to black RNs could lead to the residents mistaking the black RNs for domestic workers. Thus, while not entirely resistant to fulfilling the assigned task, participants believed that a different approach should have been taken:

> *It is demeaning, of course, yes, it is, and, and uhm, also as we say, for the residents just to also know. Like now, I have to tell them I'm not doing teas and coffees; by the way, it's not what I'm supposed to be doing. I'm supposed to give you medication. Because they will want to know, where's the sister [RN] to give me medication… because it's everyone [all RNs] who's on night shift. It's not, I'm doing it because I'm a black sister [RN]. Every sister that's on night duty is doing it. There are only two black sisters, myself and sister [the other RN's name]. To me, it was like, if it was for me, I would have…separated this, you know, because of the association, and before that, they will never take us [the RNs] seriously. I used to, do you know what? I was so, sort of rebellious when I started, ai [oh], it was like: the tea? (laughing) I never, this is, but I don't mind, anyway, it isn't much work actually [referring to the tasks on night duty].* (RN 16).

The RNs' **workload** appeared relatively light, especially during night duty. The RNs' perspectives were that they were mainly there for medication administration, apart from serving the evening tea:

> *There's not much work. Because I, as a professional nurse, my job is to just to give medication, which can be lesser at night. There are only eleven people that get treatment at night. It's still mos [it still is], it's not an IV [intravenous] treatment, it's not injections, it's just the blister packs…you only wait for the bells. And then you respond to that.* (RN 18).

Overburdening the caregivers: The caregivers' **job scope** entailed assisting the residents with their activities of daily living, which included washing, feeding, general hygiene, and toileting:

> *I get them ready [for breakfast]. I wash them when it's the shower day…we have to feed them… we do the teeth, brush their teeth… do their eyes…, see if they are ready for the day…for visitors that's coming. After lunch, then I'll put them into bed… I will take them to the toilet… I'll make her bed.* (Caregiver 13).

In addition to assisting residents with their daily activities within their job scope, caregivers were entrusted with various **nursing responsibilities** beyond their job scope, such as wound care, despite having an RN present on each shift (except for three hours daily). Although the caregivers seemed aware that these responsibilities were beyond their job scope and the tasks seemed to cause frustration for the caregivers, they still accepted these responsibilities:

> *Kyk, eintlik is dit mos die suster [RN's] se werk om dit te doen. Ons doen dit. Ons doen al die wonde. Ons doen hulle werk. Ons se sommer ons doen hulle werk. Want ons doen hulle werk.* (Caregiver 19).
>
> *Translation: Look, actually, it's the sister's [RN's] job to do that. We do it. We do all the wounds. We do their work. We simply say we do their job. Because we do their work.* (Caregiver 19).

A nurse participant explained the rationale for delegating wound care to caregivers. Regardless of P1 being a health facility and the possible consequences of delegating tasks to caregivers beyond their job scope, the participant reasoned that if a resident needed wound care at home, it would, in any case, not typically be done by an RN:

> *Whatever doctor's ordering and with every time that they're doing it because sister [name of RN in charge] like if the care workers do it. Because remember, this is not a hospital; really, this is like their home. So, who's going to do their wounds at home?* (RN 15).

Furthermore, caregivers were tasked with responsibilities like managing tube feedings, including replacing the tube if accidentally dislodged by a resident. Although it appears that there was evidence of some training done, replacing feeding tubes was beyond the caregivers' work scope. It also appeared that the RNs were unaware of the breadth of the caregivers' job scope. However, the caregivers seemed to be oblivious to the risks involved as they felt they were sufficiently trained to perform this task:

> *The lady came to replace the tube feeding [referring to the RN providing external services]. And then we will be there just to freshen up so that if anything happens and the patient pulls it out, we can still put it back because they teach us to do it even though we are carers. Yes, it's also [our responsibility].* (Caregiver 12).

Multiple participants shared that caregivers were also responsible for monitoring residents' vital signs, such as measuring blood pressure, conducting glucose tests, checking haemoglobin levels, and urine testing:

> *I'll do blood pressure, I'll do the HGT [hemoglucotests], that's the uh, for the insulin, and I'll do the HB [haemoglobin test] ... and the urine and so …* (Caregiver 13).

In addition, most participants alluded that the caregivers assist in administering medication and insulin to residents:

> *Yes...I give her insulin. She's [the resident] is a diabetic, so give her insulin so that she can, at 8:00 o'clock, she can have her breakfast. See, everything must be on the dot. She [the RN] stands there she'll [the RN] put the amount of insulin in [the syringe], and then I will do it [the injection], and sometimes she will do it.* (Caregiver 13).

Despite the caregivers accepting nursing responsibilities such as medication administration, they seemed frustrated with these tasks but felt unable to address the issue with the RNs:

> *Ons help nog steeds met die pille. Ons help baie met die pille. Ons raak somtyds ook so vies, maar okay, ons gaan maar aan …. Maar ek wil nie, amper uitpraat nie, maar okay…* (Caregiver 19).
>
> *Translation: We still help with the pills. We help a lot with the pills. Sometimes, we also get so annoyed, but okay, we just keep going... But I don't want to, almost speak out, but okay ….* (Caregiver 19).

The caregivers seemingly felt they had no option but to complete tasks when delegated by an RN, such as monitoring blood pressure or doing hemoglucotests and haemoglobin. It appeared that these functions were accepted based on the premise that the RN was in charge and that orders by a supervisor could not be refused:

> *Blood pressure, yes, your HGT [hemoglucotests], yes, yes, blood sugar test. Yes, yes, HB [haemoglobin]. If the sister [RN] asks us to do it, we assist her, or we do it by yourself [the caregiver]. You see, if she says you must do it, you must do it. Because she's the sister in charge.* (Caregiver 14).

In contrast to the relatively light workload experienced by the RNs, most caregivers shared that they experienced a heavy **workload,** which caused stress:

> *It feels like you can't sleep that night [after day duty] because [worrying that] you didn't do the thing that you were supposed to do. But…yes, sometimes we know we are too busy.* (Caregiver 11).

The caregivers' workload was seemingly increased by the minimal assistance from the RNs, especially on night duty:

> *Uhm, because, to be honest. The sisters [RNs] doesn't really help you at night, especially at nights.* (Caregiver 11).

Influence on residents: The misalignment between staff competencies and their allocation influenced the residents. A participant expressed how residents should experience life in the LTCF and how residents should not be treated:

> *Hulle moet hulle ontbyt in die bed kan kry! Hulle is dan hier om af te tree. Hulle is hier om te kom rus…ons moet nou eintlik vir hulle bederf man… dis eintlik 'n plek waar hulle moet bederf word. Nou word hulle vroeg more uit die bed uit geruk, you know? Uitgehaal, hulle moet daar in 'n stoel gaan sit; dis van vroegoggend af! Ons begin halfvyf al om mense te was.* (Caregiver 19).
>
> *Translation: They should be able to have their breakfast in bed! They are then here to retire. They are here to rest…we actually have to spoil them man…it's actually a place where they have to be spoiled. Now they get jerked out of bed early in the morning, you know? Taken out, they must sit there in a chair; it's from early morning! We start to wash people already at half past four.* (Caregiver 19).

The outcome of the caregivers' high workload was observed in examples of **delayed care**, such as deferring communication activities that were necessary for the residents' social interaction:

> *Sometimes, I feel I couldn't even talk to this person [resident]. Then I'll just tell, OK, I'll see you tomorrow. I'm here. [The resident then asks:] [Participant's name] are you here tomorrow? Yes, yes, yes. I'll see you tomorrow. Then we make a date or what time, what time I'm going to see them.* (Caregiver 13).

It appeared that caregivers also **omitted** care due to being too busy. For example, activities such as nail care, which was within the caregiver's job scope and part of assisting residents with their activities of daily living, were often omitted:

> *I arrive at home when I say oh, but I didn't do that. I wanted to do that still with that one [resident]. Like for instance, for Mr [resident's name], I wanted to do his nails, or I wanted to do that. And I didn't attend to it.* (Caregiver 11).

It is standard practice to have a monthly formal residents' activity programme in the LTCFs to promote residents' physical movement and social interaction between residents. Caregivers are essential in escorting residents to activities and presenting some of the activities. When the caregivers experienced time pressures, residents' activities were omitted, with poor resident outcomes:

There were also activities that were being done before COVID. So now you find that a person who are supposed to have exercises doesn't necessarily get them… because of a lack of those activities, then they will regress, as far as I'm concerned. And then they will die. (RN 16).

It was observed that **adverse events** did not always seem to be attributable to staffing issues but were influenced by contextual factors, such as load-shedding in South Africa (the national energy supplier interrupts the power supply in regions to reduce electricity consumption):

We had a lot of falls because most of the people that were here were very unstable … so you put them in bed, but they're able to sleep in a bed without cot sides. But then they get up at night especially, and it happens especially during load-shedding [when no lights are available]. (Caregiver 12).

The data revealed that RNs operated within their defined scope of practice with what seemed like a lighter workload. However, caregivers were assigned various nursing responsibilities beyond their job scope, resulting in an overburdened workforce. The following section contains the findings from interviews with the participants in the state-subsidised LTCF, S2.

6.4.2 State-subsidised LTCF (S2)

Participants' experiences of the barriers and facilitators to implementing the staffing model in S2 are discussed under the same themes and subthemes as for P1 (Table 6.1).

Theme 1: Human resource practices influence staff management

The human resource practices in this theme include the findings of the contextual factors influencing nurse and caregiver staffing in S2, how S2 managed nurse and caregiver fluctuations, provided resources to support nurses and caregivers in their roles, and the communication dynamics between S2's nurses, caregivers, and management.

Contextual factors influence nurse and caregiver staffing in the LTCF: In S2, various contextual factors contributed to a seemingly hostile work environment, where the management appeared not to prioritise nurses' and caregivers' wellbeing. Communication between the management, nurses, and caregivers was limited or characterised by threats made towards the staff. No attempts were seemingly made to fill vacant positions, and the nurses and caregivers were frequently disciplined.

None of the participants alluded to any positive aspects regarding **employee benefits** or welfare; instead, most expressed feelings of discouragement and being undervalued. For example, National Nurses Day and

long service records were not celebrated in a manner that made the caregivers feel valued since the event was treated as if it were an afterthought:

> *You can't say in this place you feel valued. Seriously. If [facility manager's name] comes and thank you, say three times a year, then it's a lot. The only time when [the manager] will come and say: Oh, you work hard, and I see what you guys are doing, is when it comes, like now, negotiations [salary negotiations]. Even for nurses' day. They don't come and call us in and … uh, uh! It's over the air … It's the intercom, yes. You don't feel valued. Last year was my 15-year service here. You need to do it with the residents. They've got their Christmas lunch. And now, while they're busy with Christmas lunch, now they call [you to congratulate you in front of the residents]. No. You want to do it separately from the residents … you don't feel valued.* (Caregiver 7).

Participants in S2 seemed to value **teamwork** and felt supported by their colleagues. Good teamwork apparently assisted with coping with the workload:

> *A teammate, here, in this work, you must have teammates.* (Caregiver 5).

S2 demonstrated stability in its workforce despite a seemingly hostile work environment. There appeared to be minimal **staff turnover,** with no resignations or retirements during the eight months leading up to the interviews. One new ENA was employed during this period. However, the document review findings still revealed vacancies for one EN and two ENA positions, with no evidence of attempts made to fill the vacancies:

> *[The facility manager's name] gaan vir jou sê, [the manager] kan niks doen nie, [the manager] gaan net mense aanstel wanneer dit emergencies is. En 'n emergency, ek weet nie wat is 'n emergency in [facility manager's name] se oë nie. Regtig, ek kan nie sê nie.* (Caregiver 2).
>
> <u>Translation</u>*: [The facility manager's name]'s going to tell you, [the manager] can't do anything, [the manager] is only going to hire people when it's emergencies. And an emergency, I don't know what an emergency is in [facility manager's name]'s eyes. Really, I can't say.* (Caregiver 2).

Impractical work practices were contextual factors which caused frustration to the nurses and caregivers, adding to the strain they seemed to experience. For instance, resident files were stored in the RN's office, necessitating staff to repeatedly walk between residents' bedrooms and the office for recordkeeping:

> *The files are lying in the office. You're working with a resident. You can't every time when you do a dressing or … you can't go back to the office and write the observation in. What would happen, say I*

do the blood pressure? Now I must go to the office, and now I must go and write … How can you do that? How can you do that? (ENA 4).

Moreover, stock items were kept locked in the RN's office, further contributing to the time spent walking to retrieve items before distribution:

I need two razors, oh I need this, and that makes you also stop to do your thing. You must go to the cupboard [in the RN's office], look for the key first, get it, come back, give it [the stock], and then, as soon as you lock it and put the key in the drawer [again in the RN's office], then the next one [the next staff member needing an item] is there. Yeah, that's a little frustrating. (EN 10).

Disciplinary measures within S2 appeared to be a recurring feature. Document review findings revealed that seven staff members, including an RN, two ENs, two ENAs, and two caregivers, had received disciplinary warnings within the six months preceding the interviews. None of the seven staff members had been suspended. The reasons for these warnings ranged from signing off medications (but failing to administer them to residents), to incidents of disrespect toward multidisciplinary team members. Participants believed that the previous nursing service manager (who resigned three months before conducting the interviews) was strongly inclined toward disciplining staff. Additionally, the participants considered the disciplinary warnings unnecessary and very stressful.

Maar toe [the manager] kom [the previous nursing service manager], toe is dit nou net dissiplinêre op dissiplenêre. Klein goetertjies, onnodige goetertjies. En ek meen, dit maak vir jou ongelukkig. Jy kom werk toe; dan vra jy vir jouself wat gaan vandag weer gebeur. Jy moet so tiptoe…jy kom in met daai gesindheid: Ai hene, wat wag nou weer op my. Dit was nie lekker om so werk toe te kom nie… jy werk so onder die stress. Want as jy maar hoor, soos ons in die office inkom, die ene, die ene word gedissiplineer, daai ene word gedissiplinêr … en dis nie nice nie. (Caregiver 2).

<u>Translation</u>: But when [the manager] came [the previous nursing service manager], there were only disciplinary on top of disciplinary: little things, unnecessary things. And I mean, it makes you unhappy. You come to work, then you ask yourself what will happen again today. You must tiptoe … you come in with that attitude: Oh, my word, what's waiting for me again? It was not nice to come to work like that... you work under such stress. Because if you just hear, as we enter the office, the ones, that ones are disciplined, those ones are disciplined... and that's not nice. (Caregiver 2).

Additionally, the facility manager often delegated the responsibility of issuing disciplinary warnings to the RN in charge of the shift, even when the RN in charge was unaware of the incident. Informing the nurse of the

imminent suspension, even when the RN in charge was unaware of the incident, left the RN participant feeling uneasy:

> *What upsets me is when they [the facility manager] wanna [wants to] do a disciplinary hearing. Then they will call me; you must give this to the nurse. It's not my task to explain it to them. Then I get the feeling the nurses think I'm the one complaining. And I'm the one that wants them not to work. Getting fired from work. But, I told [the manager], like, last week we had this situation. I had to call a nurse to tell her she's been suspended. And I told [the facility manager], no, I'm not going to do it. Because that's not my task.* (RN 9).

Managing nurse and caregiver fluctuations: S2 faced difficulties securing **relief staff** or additional personnel for short-term staffing fluctuations caused by allocated vacation leave or unexpected illnesses. The outcome was that when one RN had scheduled vacation leave, no relief staff was available for the remaining RN (S2 only employed two RNs).

Consequently, the participant was the sole RN for two weeks, responsible for approximately 101 residents during her duty hours from Mondays to Fridays, 07:00 to 16:00. In addition to her shifts, she was on-call for emergencies daily after her shifts and over weekends, thus 24-hours a day availability for two weeks while her colleague was on leave. The reason appeared to be financial constraints:

> *I didn't ask [for a replacement]. Because I know the question will be money. The answer is always money.* (RN 9).

The standard practice in S2 was to ask nurses and caregivers to cover shifts by requesting them to work additional hours on their days off. Nevertheless, this method involving internal staff also fell short of being ideal, as the nurses and caregivers were not always willing to forfeit their rest days:

> *But sometimes then there's no relievers. Or the people just don't want to come and relieve. Because who wants to come and relieve on a, on a weekend when it's your off weekend?* (Caregiver 7).

S2 also serves as a practical training facility for caregiver **students**. The participants harboured mixed feelings about these students. While the students alleviated the workload, they also imposed additional supervisory roles on all categories of nurses and caregivers, thus also increasing their burden:

> *They can't shower a resident alone because if that resident burns, I'm going to be blamed for that because, where were the permanent people [permanent staff]? And now you go and shower the resident. It will take me not as much time as it would when I take a carer [student] with because now*

I must still show her and, when the residents finished showering, I will get my resident dry from top till bottom. But now I must show, and some of them are so slow, and then I take the towel out of their hand. Because I know in my back head there's still a lot of stuff waiting for me to do. (ENA 4).

Providing resources: Regarding resources, S2 seemed to have limited access to supplementary **support staff** beyond what the LTCF typically offered. Per S2's policy, residents were not allowed to hire external private caregivers to provide one-to-one care to residents, even if the residents or family members were willing to pay for these external private caregivers. Nevertheless, the responsibility for resident activities was assigned to a specific staff member (formerly a caregiver), which did afford the nurses and caregivers any extra time for other tasks:

Watching TV … I think [assistant's name] is reading them the newspaper. Daily activities that they do there. Sometimes, they play bingo or stuff. (ENA 3).

It appears there was a lack of **physical resources** to deliver high-quality resident care. The caregivers seemed frustrated due to a shortage of items such as camera monitors not working, a lack of cot beds, combi chairs, restraint belts, and crockery:

You [referring to the management] promised people service. And we [the caregivers] are the ones that need to see that people get that service, but … they're not putting the resources in place for us to be able to provide the service. There is the monitor [for the cameras], but there's always problems with that … there's not enough cot beds …. We don't have enough combi chairs to put everybody in. There are not enough restraint belts. This morning, we had to hand out bread. Now, there weren't enough plates. And I asked them before. Why can't they find a way or work out a system or something to control that? (Caregiver 8).

When requesting additional resources such as relief staff for allocated vacation leave or unexpected illnesses or physical resources such as restraint belts, the facility manager apparently cited **financial constraints** as the reason for the lack of resources. Additionally, other items seemed to receive priority, such as purchasing a diesel generator to provide electricity in times of load-shedding:

All we hear is the money must go for that … like, two weeks ago, we talked [about the lack of resources] to [referring to the facility manager]. [The manager] said yeah, we must understand we've got the generator now. The generator is costing more than 20,000 rand a month …. (Caregiver 7).

A caregiver participant shared disappointment and frustration related to financial constraints. Financial constraints seem to influence the chances of deferring resident care, making it impossible:

Like we've already been told, no, one must wait for the financial year or whatever, so we can buy this stuff. It's not like we're gonna put the people away until the money comes in. That's the thing with it. Sometimes, it's just like they don't realise that we have real living human beings here. They've been in need of attention now, and we need to take care of them now, not tomorrow when the money comes in. (Caregiver 8).

Limited communication between nurses, caregivers, and management: Conducting regular **staff meetings** appeared not to be standard practice in S2. Further probing related to the absence of staff meetings revealed that the management would only arrange a meeting when they deemed it appropriate. Hence, there appeared to be no established formal communication mechanisms to facilitate staff interaction. Furthermore, there seemed to be significant **communication barriers** between the participants and the management, to the extent that even informal meetings were absent:

Elke keer as ons 'n probleem het en ons roep [the manager] vir 'n meeting want ons sien [the manager] nie baie nie, so nou sê ons vir suster [the RN], kan [facility manager's name] 'n vergadering reël, ons demand nie [the manager] moet nou vir ons kom sien nie want ons weet [the manager] is besig. So as [the manager] 'n kansie het, kom sien vir ons. [the manager] kom nooit uit om na ons te luister nie. [The manager] is altyd besig. Net wanneer [the manager] iets het om te bespreek… [then the manager will schedule a meeting]. (ENA 6).

<u>Translation:</u> *Every time we have a problem, and we call [the manager] for a meeting because we don't see [the manager] much, so now we tell sister [the RN], can [facility manager's name] arrange a meeting, we don't demand that [the manager] come to see us now because we know [the manager] is busy. So, if [the manager] has a chance, come see us. [The manager] never comes out to listen to us. [The manager] is always busy. Only when [the manager] has something to discuss… [then the manager will schedule a meeting].* (ENA 6).

When informal meetings were eventually scheduled, the facility manager apparently explained the consequences of financial hardships for staff if having to provide relief staff. The communication appeared to contain threats towards the staff:

That's what [facility manager's name] told us again, I think it was last month, or in the beginning of the month, [the manager's name] not gonna get a replacement for you; otherwise, you're not gonna get bonus at the end of the year …. We have to work like that. We have to accept it. If we don't accept it, take your things. You can go because you're not chain bound …. (ENA 6).

These findings showed the complex relationship between human resource practices and staffing within S2 and how human resource practices and contextual factors hindered the implementation of the staffing model. It appeared that S2's participants felt undervalued and unheard. They seemingly experienced disciplinary measures as overly harsh and stressful. Moreover, the lack of communication between the facility manager and the staff appeared to contain underlying threats towards the staff. Relief staff were apparently seldom provided, and there seemed to be limited support staff. The participants also seemed concerned about the lack of physical and financial resources.

Theme 2: Staffing levels favour a lower-cost model of nursing categories

Despite the document review findings indicating that S2 exceeded the minimum prescribed staffing level of 24 staff units by having 37 staff units, most participants perceived the staffing levels as insufficient. It must be noted that S2 also accommodated 27 Category 1 (independent) residents. The standard practice is not to provide staff for Category 1 residents as they were deemed independent. However, the findings indicated that the categorisation of the residents might be questionable since it appeared that the residents needed more care than indicated by their acuity levels. While the document review indicated that 46 residents were frail, 28 needed assistance with their daily activities, and 27 were independent, the participants shared that they administered medication to 98 residents, and approximately 70 used adult diapers.

Low nurse staffing levels in the total staffing: The **actual nurse staff levels** included twelve nurses, comprising two RNs, seven ENs, and three ENAs. Five nurses were assigned per day duty shift and one nurse (an EN) per night shift. Considering that S2 had an average of 101 residents, the shortage of RNs was evident. Typically, the two RNs would work from 07:00 to 19:00, opposite each other. Thus, there would be an RN on each day shift. However, there were no RNs available for night duty. Similarly, if one RN went on leave, the remaining RN's shifts were changed from 07:00 to 19:00 to Mondays to Fridays from 07:00 to 16:00, resulting in no RNs over weekends:

> *As die suster [the one RN] met vakansie gaan, dan werk die een suster [the remaining RN] viere [referring to shifts from Monday to Friday, 07:00 to 16:00]. En oor naweke is daar mos nou niemand nie [no RN].* (EN 1).
>
> *Translation: If the sister [the one RN] goes on holiday, then the one sister [the remaining RN] works fours [referring to shifts from Monday to Friday, 07:00 to 16:00]. And over weekends, there is nobody [no RN].* (EN 1).

Three ENAs were employed at S2, but two vacancies were still available for ENAs. Due to financial constraints, there was no indication of attempts to fill the positions. Per the ENA's job description, they were responsible

for basic wound care, vital signs monitoring, and direct resident care. Two ENAs worked day shifts from 07:00 to 19:00 opposite each other, and the third ENA worked shifts from Monday to Friday, 07:00 to 16:00. There were no ENAs on night duty. An ENA participant perceived the ENA level as inadequate due to the accompanying workload:

> *The ENA is doing all the work…all the observations. That patient that is coming now from hospital, they're going to call me [as the ENA], and then with bedsores opened, [for the ENA to provide the wound care] … because I'm the only one there, then I must leave and go and assist there. So yeah, the ENA is everywhere.* (ENA 3).

Since S2 accommodated 101 residents on average, the **nurse-to-resident ratio** per shift was one RN per 101 residents. The ENs ranged from one EN for every 33 residents to one EN for every 50 (depending on whether two or three ENs were on duty). The ENAs were between one ENA for every 50 residents and one ENA for every 101 residents (depending on whether one or two ENAs were on duty). However, these ratios sometimes exceeded the averages due to the lack of replacement staff when nurses were on leave. Since the ENs led the 12-hour night shifts, the average EN-to-resident ratio on night duty was one EN for 101 residents. The nurse staffing levels were low, especially the RN levels. Low RN levels created a chain reaction where the ENs had to assume more of the RNs' responsibilities, such as working as the only nurse on night duty in the absence of RNs. With the ENs assuming more responsibilities, the ENAs apparently had to assume a higher workload, such as wound care and monitoring residents' vital signs, which the ENs and ENAs should have shared.

Higher caregiver staffing levels in the total staffing: The **actual caregiver staff levels** comprised 25 full-time employed caregivers. On average, eight to nine caregivers were assigned per day duty shift and four caregivers per night shift, as indicated in the findings of the document review. It appeared that the caregiver staffing levels were perceived as low since the acuity of the residents was high, and impractical work practices followed were time-consuming:

> *Because there's people that you need to lift from the bed to the chair. There are people that need to be turned regularly on a two-hourly basis. Then it's your bells in between. So, if someone rings the bell… and the nappies…you must walk to sister's [RN's] office. You must get the nappy. You must walk back. You must change the person. And if there's sluice linen included, then it's gonna take more time to go sluice.* (Caregiver 7).

The caregiver staffing levels were also perceived as inadequate since the residents' care demands might fluctuate daily while the caregiver staffing levels remained the same:

There are too little carers. Because every day … it's not the same. You get a very quiet day today. Then one carer or two carers would be enough. But tomorrow it's going hectic. There's, that resident gets sick, that one fall, that one this, you must be all over [everywhere]. Then it, I feel like two carers is too little …. (ENA 4).

With an average of 101 residents in S2, the **caregiver-to-resident ratio** was one caregiver per 11 to 13 residents during the day and one caregiver per 25 residents at night. Allocating the available number of caregivers to residents appeared difficult due to the geographical layout of the building. S2 is a multi-story building with long passages, containing both single rooms and multi-bed wards:

We need more carers because you must, I mean, like on weekends, I'm in charge, and then I must divide them in groups. Because we must be three in A, B, and C gange [corridors]. And there must be two upstairs and one there, so sometimes there's not enough [caregivers to allocate to the different areas]. (EN 10).

The availability of an adequate number of caregivers seemed to be a means to improve resident care. The caregivers assisted with residents' activities of daily living, and since the caregivers in S2 were perceived as reliable, the caregivers alleviated the workload of the nurses:

You can rely on them … they know how to do their washes, so you don't have to go back and check on them. That's why I feel while my [an ENA] scope of practice is that, their scope of practice is something else. And I feel, for the scope of practice of a carer, we need more carers. I don't have to go back and check on those small little things that must be done. Say, for instance, the hair combed, or, does the one [the resident] got his teeth in? Are the specs on? You know all that stuff…. (ENA 4).

Adequate staffing levels emerged as a facilitator in ensuring the wellbeing of residents, nurses, and caregivers, thus influencing the quality of care. The findings shed light on the participants' shared perception of inadequate nurses' and caregivers' staffing levels within S2. The participants highlighted the need for more caregivers and additional nurses, especially RNs, mainly due to varying resident care requirements.

Theme 3: Disparities in the skill mix with an overuse of lesser-qualified caregivers

Theme 3 contains the findings about the imbalances in the nurse categories and using more caregivers in S2 to reach acceptable staffing levels. With a low proportion of nurses in the total nurse and caregiver staff mix, especially RNs versus caregivers, an overreliance on caregivers followed despite caregivers not possessing the necessary competencies and allowing them to practice within the scope of practice of ENAs. The findings suggested task shifting occurred due to the low proportion of nurses in the total staff mix.

The available knowledge and skills of the nurses and caregivers: Except for the newly appointed ENA, the nurses and caregivers had extensive **work experience** in this state-subsidised LTCF. Some had service records ranging between two and 26 years:

> *Yes, 26 years [employed at S2].* (Caregiver 5).

Despite years of work experience, some nurses feel they lack the necessary competencies to practice safely and competently:

> *I registered myself at an agency. And when I got there for the orientation, I saw what the ENAs in the hospitals do. I actually felt very dumb compared to them.* (ENA 6).

Family members also questioned the nurses' and caregivers' knowledge, especially regarding the management of residents with Alzheimer's and Dementia in S2. It appeared that the nurses and caregivers did not receive any specific training in managing residents with Alzheimer's and Dementia:

> *Sy [referring to a resident's daughter] het haar ma uitgehaal hier by [the name of S2], en haar ma ingesit in die [name of another suburb] iewers wat specialise in Alzheimer's? So hulle het meer kennis om te deal met iemand, Alzheimer mense, Dementia mense en so. Want sy sê, sy voel nie ons het die kennis of so nie … Ons word nie gestuur vir training vir hoe om 'n Dementia persoon te handle nie of hoe om 'n Alzheimer's persoon te handle nie ….* (ENA 6).
>
> <u>Translation:</u> *She [referring to a resident's daughter] took her mother out here at [the name of S2], and put her mother in the [name of another suburb], somewhere that specialised in Alzheimer's. So, they have more knowledge to deal with someone, Alzheimer people, Dementia people and so on. Because she says, she doesn't feel we have the knowledge or anything like that... We are not sent for training on how to handle a Dementia person or how to handle an Alzheimer's person...* (ENA 6).

It seems that the standard practice in S2 was not to provide formal in-service **training** to the nurses and caregivers despite the upskilling needed:

> *There is no in-service training, and I am here for four months now … I think the people lack [training] because they're working here [in S2] forever, and I don't want to talk, but I think that is most needed here. Upskilling yes. Umm, I think they need it.* (ENA 3).

Low nurse-to-caregiver ratios: In S2, the **actual skill mix** included two RNs, seven ENs, three ENAs, and 25 caregivers. The **proportion of nurses to caregivers** in the overall skill mix was twelve nurses to 25 caregivers. As detailed in Chapter 5, Section 5.4.2, nurses accounted for 32.4% of the total staff mix, consisting of RNs

(5.4%), ENs (18.9%), and ENAs (8.1%). Conversely, caregivers comprised most of the staff mix, representing 67.6% of the workforce. This disparity in the staff composition became apparent when compared to the requirements of the staffing model, which prescribed a mix of 62.5% nurses and 37.5% caregivers for the 28 Category 2 and 46 Category 3 residents (Chapter 5, Table 5.6). The proportion of RNs to other categories of nurses and caregivers in the overall staff mix was low:

> *Registered nurses, yeah, one for the one shift and one for the other shift.* (ENA 3).

During night duty, the proportion of nurses to caregivers was one nurse (EN) to four caregivers:

> *Four carers and one staff nurse [EN]. Five people, yeah.* (EN 10).

Despite employing RNs, ENs, and ENAs, the proportion of nurses to caregivers remained low. This may have contributed to the perception that higher level nurses, such as RNs and ENs, were primarily appointed for specific tasks, such as medication management and staff supervision. The low proportion of RNs in the skill mix resulted in the interchangeable use of RNs and ENs. Consequently, responsibilities beyond their scope of practice were entrusted to the ENs:

> *When the sister [RN] is there, the sister will see to that all the areas is covered with staff and, uhm, yeah, the basic managing of the staff. The staff nurse would do medication and sometimes must even take charge. And yeah, help the sister, or if the sister is not in, they will be taking on the role of the sister.* (Caregiver 8).

The low proportion of all categories of nurses to caregivers (12 nurses compared to 25 caregivers) in the staff mix seemingly led to the perception that the roles of RNs and ENs were restricted to specific functions, such as medication management and staff supervision, and that caregivers were responsible for providing most of the direct resident care:

> *But she [the EN] is mainly on the medication and that. Yeah…and we are there for the caring of the patient.* (Caregiver 6).

It appeared that, due to insufficient RNs, it was deemed necessary to shift tasks from the RNs to the ENs, allowing the ENs to practice according to the RNs' scope of practice. Although using the RNs and ENs interchangeably in South Africa is not allowed, S2 stated in the ENs job descriptions that they were required to work interchangeably with the RN. As a result of the ENs performing tasks that the RNs should have performed, the ENAs had to complete tasks usually completed by the ENs, leaving the caregivers to practice within the scope of the ENAs and with the burden of direct resident care.

Theme 4: Residents' acuity was neglected in staff allocation

This theme includes the participants' viewpoints on allocating nurses and caregivers to residents based on the resident's acuity levels. Subthemes from the data encompassed assessing residents' care demands, understanding residents' expectations, and ensuring staff qualifications aligned with the residents' needs.

The care required by residents and their expectations: In S2, the findings from the reviewed documents revealed an average **resident total** of 101, with **acuity levels** categorised as follows: 27 independent residents (Category 1), 28 residents requiring assistance with daily living activities (Category 2), and 46 frail residents (Category 3). Despite only 46 residents being categorised as frail, participants pointed out that more than this number of residents required a higher level of care:

> *… 98 is on medication …on nappies: almost 70 people ...* (RN 9).

Based on the high acuity of the residents, it seemed that higher levels of care assistance than merely assisting residents with their activities of daily living were needed, as the residents had colostomy bags, suprapubic catheters, and received oxygen therapy:

> *We got residents that have colostomy bags. We got the lady here at the moment; she actually needs oxygen 24/7… we got the suprapubics', the catheters ….* (ENA 4).

Furthermore, due to their cognitive decline, residents with Alzheimer's and Dementia added to the burden of care:

> *There are people with Dementia, Alzheimer's. Uhm, one resident specifically…she will scream in the morning. She wants to go out, she wants to sit in the chair, and then once she's in the chair, she will scream for her food. Once the food comes, she will scream for the pills … when that is done, she will scream for the lunch, and she wants to go back to bed, and it goes on and on ….* (ENA 6).

The interview data highlighted **residents' demands**, particularly when service was not promptly delivered, which exacerbated the stress level for nurses and caregivers. In addition, residents became verbally abusive:

> *Then she [the resident] skels [scolds] … but I waited too long for you!! And where were you? And I say, "Joh mam [oh madam]? I'm so sorry". They don't know there's someone else [that] needs my help. They think I must help them immediately. That is the problem. Because it's really hectic…it doesn't matter you explain to them. They don't understand. They say they pay their way here. So? Who am I? If she [the resident] must go report me, she must report.* (Caregiver 5).

Residents categorised as independent were allowed to have fridges in their bedrooms and were supposed to receive limited staff support. Despite being independent, the caregiver participants conceded to doing small favours for the independent residents when they had time, such as rinsing a teacup after they made a resident's bed (although these residents were independent). However, when independent residents requested services perceived by the staff as low priority, the staff became frustrated:

> *Maar daar is ook van hulle wat dink ek MOET dit doen. Soos sy [the resident], sy gaan daai klokkie aanhoudend lui as jy nie daar uitkom nie, [dan] sy gaan kantoor toe bel. Dan gaan sy vir ons [the staff] rapporteer, net om te se sy lui nou al daai klokkie tien minute, en niemand het nog uitgekom nie. Dan gaan jy eventually na haar toe: [participant's name], haal gou die kos daar vir my uit die yskas uit"! Dis sulke goedjies...* (Caregiver 2).
>
> *Translation: but there are also some of them who think I MUST do it. Like she [the resident], she's going to keep ringing that bell [then] if you don't get there, she's going to call the office. Then she goes and reports us [the staff], only to say that she has been ringing that bell for ten minutes, and no one has come yet. Then you eventually go to her: [participant's name], quickly take the food out of the fridge for me. It's such things...* (Caregiver 2).

Aligning nurses' and caregivers' skills with residents' needs: In S2, the RNs, or ENs, in the absence of RNs, were responsible for **considering residents' acuity** and aligning the available nurses' and caregivers' skills with the residents' needs. However, the interview data suggested that residents' needs exceeded the acuity assessments. Consequently, the calculation of the number of all categories of nurses and caregivers and the skill mix could be questioned, as there was poor alignment of nurses' and caregivers' skills with resident needs. It became apparent that resident acuity was not a primary consideration in staff **allocation strategies**. Caregivers were geographically dispersed to a specific area for as long as a three month period. The allocation process in S2 included indicating the work area on the duty rosters, and this information was transcribed daily into an allocation book. Students were also allocated in the same way, although they were supernumerary and not part of the ratio of nurses or caregivers to residents:

> *We have a duty roster, and on the duty roster in the beginning of the month, we allocate the staff like in the A passage, and in the sick bay, in the men's sick bay and in the D and E ward and the B and C ward. And then every morning I write that up, and the staff nurses [ENs] are also allocated, they stay like three months in an area so that they don't get over tired of the area. And then, if there's students, I will put a student in each passage.* (RN 9).

The rationale for using an allocation book appeared to be more helpful in indicating staff tea times and lunch breaks than for acuity levels of residents:

> *As ek naweke werk moet ek dit ook uitmaak [referring to the allocation book] sodat die nurses [referring to nurses and caregivers] nie gaan almal kan tee toe hardloop nie. Hulle kom kyk in die boek dan sien hulle, oh, wag gou, ek is eerste tee, dan sign hulle langsaan, okay ek is tweede tee, hulle sign langsaan.* (EN 1).
>
> *Translation: If I work at weekends, I also have to make it out [referring to the allocation book] so that the nurses [referring to nurses and caregivers] can't all run off to tea [at the same time]. They come and look in the book, then they see, oh wait, I'm first tea, then they sign next to it, okay I'm second tea, they sign next to it.* (EN 1).

The findings revealed the lack of consideration for resident acuity levels in the staff allocation process at S2. Ideally, care demands should have been correlated with the number of residents and their respective acuity levels. This allocation strategy resulted in allocating nurses and caregivers according to the building layout without accounting for resident acuity levels.

Theme 5: A perceived indifference to residents' acuity with staff allocations

This theme includes the findings on the disparity between available nurses' and caregivers' skills and how the participants were assigned to various tasks and resident care, with a perceived indifference towards residents' acuity when allocating nurses and caregivers. In S2, the RNs and ENs were apparently not assigned to provide direct resident care. The RNs performed duties within their scope of practice, while the ENs performed tasks beyond their scope of practice. Both the RNs and ENs were responsible for various non-nursing tasks. On the other hand, the ENAs assisted with direct resident care, although some functions also fell beyond their scope of practice, and they completed housekeeping tasks. The caregivers were responsible for the bulk of the resident care. Moreover, the caregivers were allocated according to the geographical outlay of the building and not per the acuity of the residents. All the categories of nurses and caregivers shared that their workloads were high, which resulted in delayed or omitted care, such as omitting health education to residents and their families.

Utilisation of the nurses' skills: The RNs' skills were utilised for supervision, medication management, and limited direct resident care – duties well-defined within the RNs' **scope of practice** (outlined in Chapter 1). Given that 98 residents received pre-packed medications, medication management emerged as a core and time-consuming responsibility for RNs:

When we receive it [the medication], we usually do it on a Saturday … I would let the staff nurse [EN] go on with the medication [administration to the residents], and I will go sit [with the medicines for the week]. Then I check it. If there's medication short, I will write it down, I will order it … from the pharmacy or the day hospitals on a Monday. Sometimes there's two or three tablets left from the previous week or sometimes when we receive medication from the hospital in packages, then we keep it so that we can add it on to the blister [pack medicines]... It takes about the whole day. (RN 9).

Wound care was typically delegated to ENs, except when RNs deemed wounds required a higher level of expertise:

The staff nurses do it, yes. If it's too big, then I do it myself that I can keep an eye on it. (RN 9).

However, it was obvious that the ENs were tasked with responsibilities beyond the scope of their practice. According to the ENs' scope of practice, they are permitted to work under the direct or indirect supervision of RNs. Despite the EN's legal scope of practice, the ENs' job descriptions in S2 required them to work as RNs in the RNs' absence. Consequently, the ENs were responsible for facility and resident oversight and medication administration with no direct or indirect supervision by RNs. Viewing medication administration without RN supervision as within an EN's scope of practice indicated a longstanding and accepted misappropriation of job descriptions:

Maar my medikasie het ek in die hospitaal ook gedoen. Dit is onse scope [of practice]. Sr [the RN] werk sewe viere [seven o' clock am to four o'clock pm], dis die naweke af. Nou as ek naweke werk, is ek allenig, op die ander skofte werk daai staff nurse [EN] ook allenig. (EN 1).

<u>Translation</u>*: But my medication I also did in the hospital. It is our scope [of practice]. Sr [the RN] works seven to four [seven o' clock am to four pm], the weekends off. Now weekends, if I work, I'm alone, on other shifts those staff nurse [EN] also work alone.* (EN 1).

Participants suggested that they would perform tasks considered beyond their scope of practice if requested by an RN:

I'm not supposed to do the HGTs [hemoglucotests], but normally … before the sister [RN] administrate the insulin, I normally do it. When she doesn't get to it [doing the hemoglucotests], then she asks me. (ENA 3).

An RN participant expressed frustration with the **non-nursing tasks** assigned to her, being the only RN on duty with 101 residents:

We have to book them [the residents] for the day hospital... you have to phone the hospitals to make an appointment for X-rays … We do the filing; we do the printing. They put a copy machine in our tearoom so that we can make copies of all the pages that we need. This morning, when I came on duty, after the handover and everything, I took my stuff and just went to the copy machine. So that I can get it [forms] ready for the weekend. (RN 9).

While stock management was within the RNs' scope, the labour-intensive task of physical stock distribution also fell on the RNs, or ENs if no RN was available:

Nappy rounds …a nappy round means I put out nappies for the morning for the carers. They [each resident] get four nappies per day … one for the morning, one for the afternoon, and two for the night. … Before I go home, I put out the nappies for the night staff. Only the sister [RN] put out nappies and the staff nurses [ENs] … But that's not all we do. We hand out the toiletries, everything. We have to write it down, like if, your mother [a resident] needs now toiletries. Then you [the family member] will come tell me, then I will issue soap, powder, toothpaste … and I have to write it down in a register. (RN 9).

Some residents, while not frail, expected the nurses to perform housekeeping duties despite these housekeeping duties not being included in their job descriptions:

Ek vergeet van die [translation: I forget about the] laundry because it's not part of my job [but the ENAs still have to pack it away for the residents], and then it's some of the residents that are in their rooms: they have their own dishes and stuff, and you must wash it now. (ENA 3).

It appeared that the **workload** for the nurses was high, especially for the ENs when in charge of S2 on weekends without an RN present:

Normally in charge, you have to oversee everything. So, everybody will come and ask you [participant's name], I need this. [Participant's name], I need gauze. [Participant's name], I need this. [Participant's name], I need dressings for this. Or [participant's name], you must please come and do this dressing. [Participant's name], please come and look at this patient. So, it's more stressful because you have to be everywhere. And in between, you're still doing your medication and doing your insulin and all the stuff that's going with it. (EN 10).

Similarly, the ENs experienced a high workload as they were the only nurse on night duty with caregivers:

En daai staff nurse [EN] moet nou drie mense se werk doen. Sy moet haar werk doen: medikasie, sy moet die assistant [ENA] se werk doen: observasies, wonde, en dan die suster [RN] se werk doen: sy moet kyk as die mense siek is … vir hulle uitsort dokters toe, hospitale toe stuur… (EN 1).

Translation: … and that staff nurse [EN] must do three people's work. She must do her job: medication, she must do the assistant's job [ENA]: observations, wounds, and then do the sister's job [RN]; she has to see if the people are sick, have to sort them out to go to the doctors, sent to hospitals …. (EN 1).

The daily time pressures seemingly led to resident reports not being written:

The time is not there. I must squeeze in my time because I must help here, and I must help there, lift someone out, answer the bells … it's getting so hectic that you can't even write [resident reports]. (ENA 4).

There was a perceived lack of support from management, with these high workloads, culminating in frustration for the nurses:

Dis moeilik. En ek was so frustrated dat ek vir suster [RN] gese het agterna, ek gaan die mense was, en die wat gelig moet word, dan gaan ek tot by [facility manager's name] se kantoor, en ek gaan vir [the manager] sê die moet vir my kom help dat [the manager] kan voel hoe voel dit. (ENA 6).

Translation: It's difficult. And I was so frustrated that I told sister [RN] afterwards, I'm going to wash the people, and those who need to be lifted, I'm going to [facility manager's name's] office, and I'm going to tell [the manager] must come and help me so that [the manager] can feel how it feels. (ENA 6).

Overburdening the caregivers: Participants shared a typical morning routine in S2. The participants highlighted that the caregivers' **job scope** primarily entailed assisting residents with their daily activities:

I will start by washing them, dressing them, brushing teeth and or denture care and put them in a wheelchair, those that are not so mobile anymore. After breakfast … take them to the toilet for toilet rounds, and for instance, this one guy he likes to walk around. So, we take him for a walk just inside the building, and, just to strengthen the legs. (Caregiver 8).

It appears that **nursing responsibilities** were assigned to caregivers in addition to assisting residents with their daily activities. Regardless of a task being beyond the caregivers' work scope, the caregivers felt that it was expected of them and that they did not have a choice:

Maar colostomy bags is nie die carers se werk om dit te doen nie … Dit is nie onse scope of practice nie … Ons leer dit maar net. Maar dan is daar van die staff nurses [ENs] wat se jy MOET dit doen. Dit word verwag van jou. (Caregiver 2).

Translation: But colostomy bags are not the carer' job to... It is not our scope of practice... we only learn it. But then there are some of the staff nurses [ENs] who say you MUST do it. It is expected of you. (Caregiver 2).

It appeared that caregivers seemed overwhelmed by their high **workload**:

For instance, [a resident's name]: she asked me for the pan, I give the pan to her. Then [another resident's name] calls; she wants to go to the toilet. Then I put (the second resident's name) on the toilet. I said mam, I'm coming back. I just going to take a pan there. So, then (a third resident's name) also calls, and then I must run. I must take her also to the toilet. And then, eventually, I must go to [the first resident's name] because I put her on the pan... maar ek kan mos nou nie vir my in drie deel nie! [but I cannot divide myself into three parts!]. (Caregiver 5).

Influence on residents: The mismatch between nurses' and caregivers' competencies and their assignments had consequences for the residents, for example, **delayed and omitted care**:

You can't clean the residents' ears every day. With the time shortages. That is impossible. Even with a nail cutting. Now you think, yoh [oh], I could have done the ears, but I didn't have the time. You understand? Or I could have done the nails, but I never had the chance to do it because I was busy. I was all alone. So yeah. (Caregiver 7).

The absence of dedicated staff for residents requiring end-of-life support might increase the risk of delayed or omitted care:

Daar is nie 'n spesifieke een [staff member] geallocate vir daai persoon [the dying resident] nie. So, die nurse [referring to caregivers], die twee nurses [caregivers] wat nou werk in die gang is responsible vir daai inwoner ook, ja. (ENA 6).

Translation: There is not a specific one [staff member] allocated for that person [the dying resident]. So, the nurses [referring to caregivers], the two nurses [caregivers] who now work in the corridor are responsible for that resident too, yes. (ENA 6).

It appears that time constraints hindered the provision of health education to the residents:

Somtye. Nie altyd nie. Baie weinig. Somtye sal ons vir hulle [provide them with health education], maar daar is nie tyd nie. Somtye sal ons vir hulle health education gee. (ENA 6).

Translation: Sometimes. Not always. Very seldom. Sometimes, we will [provide them with health education], but there is no time. Sometimes, we will give them health education. (ENA 6).

The document review findings revealed the reporting of various **adverse events** in S2, including residents presenting with falls, chafing wounds, blisters, septic wounds, and discoloured skin. Participants seemingly found that adverse events were not related to poor nursing but rather to insufficient staff in S2:

I come on duty; then there's something, say a bedsore starting to - I'm just taking an example. Oh, it's poor nursing! No, it's not poor nursing when you're one [nurse], say, for five people [residents]. It's not poor nursing, bedridden people. It is too little staff …. (ENA 4).

The findings revealed a misalignment between the staff competencies, with the RNs completing non-nursing tasks, such as clerical duties. In turn, it appeared that the ENs were expected to complete the RNs' work in the absence of RNs. The ENs completing tasks typically done by an RN seemingly shifted the ENs' functions to the ENAs. As a result, the caregivers were assigned the bulk of the direct care responsibilities, regardless of the level of needed care, thus adding to their workload. The following section contains a discussion of the findings from the participant interviews in both the private for-profit and state-subsidised LTCF.

6.5 DISCUSSION

The objective of conducting the interviews with the participants was to explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons (Objective 2). The in-depth interviews facilitated valuable insight into how and why LTCFs implemented the staffing model concerning the skill mix, staffing levels, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions. A deeper understanding was gained of the barriers and facilitators to implementing the staffing model in LTCFs, as experienced by the participants. Five themes emerged from the data, with thirteen subthemes. The themes and subthemes are displayed in Table 6.1. Each subtheme is discussed as it relates to each theme and Objective 2.

Theme 1: Human resource practices influence staff management

The study findings suggested that various human resource practices and contextual factors influenced the staffing in the two LTCFs. Contextual factors such as providing employee benefits, teamwork, staff turnover, and disciplinary measures likely influenced nurse and caregiver staffing in the private for-profit and state-subsidised LTCF. Furthermore, nurse and caregiver staffing seemed influenced by the private for-profit and

state-subsidised LTCF management's ability or willingness to provide relief staff to manage nurse and caregiver fluctuations and provide sufficient resources to complete tasks. Additionally, the lack of established means of communication in the LTCFs might have been a barrier to implementing adequate staffing in an LTCF.

As discussed in Chapter 1, a private for-profit LTCF may have more access to resources since commercialising services for older people generates income or profit. On the other hand, state-subsidised LTCFs derived income from older persons' social grants and government subsidies (Republic of South Africa, 2024). Therefore, it seemed likely that the state-subsidised LTCF provided services to older people in a resource-constrained context. The private for-profit LTCF's employer seemingly provided the **employees with benefits** through a transport subsidy, meals, and employer contributions to provident funds. In contrast to the private for-profit LTCF, the state-subsidised LTCF's employees apparently did not receive similar benefits. Gandhi, Yu, and Grabowski (2021:384–391), when examining staff turnover in United States nursing homes, suggested that policymakers should consider mandating employee benefits, especially for low-income staff. The authors suggested that providing a benefit such as health insurance may assist staff retention (Gandhi, Yu & Grabowski, 2021:384–391).

Regarding **teamwork** in the LTCFs, the findings suggested similarities between the private for-profit and state-subsidised LTCFs, where most participants felt supported by their colleagues and multidisciplinary teams and described the teamwork in the LTCFs as effective and vital to alleviating the workload. The participants' perceptions aligned with a secondary analysis done in the United States, where the authors used qualitative interview data reflecting nurses' perceptions of teamwork, staffing, and workload, and then they quantified the data. The authors found that 89% of participants viewed teamwork as an organisational strength when staffing levels were low and workloads high (Yanchus, Ohler, Crowe, Teclaw & Osatuke, 2017:313–325). In contrast to good teamwork, poor teamwork leads to job dissatisfaction and a higher staff turnover (Al-Qahtani, Stirling & Forgrave, 2020).

The findings indicated a minimal **staff turnover** in both the private for-profit and the state-subsidised LTCF despite their different resource-rich and resource-constrained contexts. The minimal staff turnover may be attributed to South Africa's high unemployment rate of 34.4% in 2021 (World Bank, 2022). However, the findings indicating a low staff turnover were encouraging as the literature suggests that a low staff turnover is associated with a higher quality of care in LTCFs (Gandhi, Yu & Grabowski, 2021:384–391; Zheng, Williams, Shulman & White, 2022:2508–2516). In contrast to a low staff turnover, a high staff turnover can disrupt the consistent availability of staff with the necessary skills to provide care to residents in the LTCFs. Moreover, the workload for the remaining staff increases and productivity is lost. In addition, hiring replacement staff

and appointing and training new staff adds to the financial burdens of organisations. Therefore, staff retention policies should be developed, and management should provide supportive work environments and employee benefits (Buchan, Catton & Shaffer, 2022). In addition, training programmes as per the Regulations Regarding Older Persons (Republic of South Africa, 2010a) to build staff capacity, fair management practices, and zero tolerance to bullying may assist in retaining nurses and caregivers in LTCFs.

Participants in the private for-profit and state-subsidised LTCF shared that **impractical work practices** impeded care delivery, such as providing care to residents outside of the frail care (private for-profit LTCF) and time spent on retrieving and distributing stock and obtaining resident files, which were stored in the RNs' office instead of closer to the residents' bedrooms (state-subsidised LTCF). The state-subsidised LTCF participants' viewpoints were aligned with the findings of a time-motion study conducted in the Netherlands, where the authors found that the LTCF's layout, such as long corridors and how supplies were organised, may increase the time that staff spend in transit (Tuinman *et al*., 2016:148–154). A cross-sectional observational study in Canada showed that RNs spend between 3.5% and 28.9% on non-value activities such as replenishing supplies, searching for supplies and equipment, distributing linen, and seeking other staff. Similarly, licensed practical nurses (LPNs) spent 18.5% of their time on non-value-added activities like walking around the unit, looking for other staff, and retrieving linen (McCloskey *et al*., 2015:1475–1483). Similar to the findings of McCloskey *et al.* (2015:1475–1483), a study in Switzerland used a time and motion analysis which found that RNs spend more than 90 minutes per 12.6-hour shift on non-essential tasks such as housekeeping which did not require high levels of expertise. Furthermore, RNs spend only about 32% of their time on patients and do not work to their full scope of practice (Michel, Garcia Manjon, Pasquier & Ortoleva Bucher, 2021:4459–4470).

The findings revealed that both LTCFs applied **disciplinary measures** against nurses and caregivers. However, disciplinary measures against the nurses and caregivers were seldom necessary in the private for-profit LTCF, as the transgressions were viewed as minor and often stemmed from ignorance. Conversely, disciplinary measures were enforced regularly against the nurses and caregivers in the state-subsidised LTCF. Furthermore, the participants in the state-subsidised LTCF experienced disciplinary measures as a barrier to their wellbeing. They expressed feelings of stress, despair, and being undervalued, as there was a major focus on transgressions and little recognition of the value added by these employees. A cross-sectional study in Japan found that managers' support, leadership style and behaviour can negatively influence staff's mental health (Kunie, Kawakami, Shimazu, Yonekura & Miyamoto, 2017:115–124). Although employees' performance can be improved by enforcing disciplinary procedures, when management fails to provide input on employees' task performance, the employees' job satisfaction level decreases, which leads to poorer performance (Hasan & Didin, 2020:207). Similarly to this study's findings on the influence of disciplinary

measures on participants, Verhoef *et al.* (2015) revealed in their qualitative study in the Netherlands that healthcare professionals exposed to disciplinary measures experienced feelings of misery, stress, powerlessness, and depression. Furthermore, healthcare professionals exposed to disciplinary measures became over-vigilant to prevent further complaints, which could influence relationships with colleagues and patients (Verhoef *et al.*, 2015).

The availability of **relief staff** or additional personnel to handle short-term **staffing fluctuations** due to factors like vacation leave or illnesses seemingly influenced staff planning. The private for-profit and state-subsidised LTCF managed the staff fluctuations differently. While the private for-profit LTCF provided additional staff to relieve their caregivers and used RNs as locums to cover absences, the state-subsidised LTCF struggled to secure relief staff or extra personnel for short-term staffing fluctuations caused by vacation leave or illnesses. A study in the United Kingdom highlighted the outcome of the absence of relief staff. The authors found that when hospitals had low staffing levels and relied on relief staff when needed, patient deaths increased by 13.4% if relief staff were unavailable (Griffiths *et al*., 2018:1474–1487).

The state-subsidised LTCF adopted enlisting their nurses and caregivers to cover shifts by requesting them to work additional hours on their days off. If the LTCF's nurses and caregivers could not work the extra hours, the remaining nurses and caregivers would have to handle the additional responsibilities. The authors of a retrospective study on nurse absenteeism data in Australia cautioned that reduced staffing levels place an increased workload on the staff present, leading to imbalances in their health and perpetuating a cycle of absenteeism within the institution (Ticharwa, Cope & Murray, 2018:109–116). A quantitative descriptive study conducted in a Limpopo provincial hospital yielded similar results. The authors emphasised that substandard care provided by nurses left on duty when their colleagues are absent may result in medical errors, thereby jeopardising the nurses' judgement (Mbombi *et al*., 2018).

Both the private for-profit and state-subsidised LTCF participants reported that their LTCFs were practical training facilities for caregiver **students**. However, the participants harboured mixed feelings about the use of such students. From the participants' perspectives, using students might have benefited the facilitation of a staffing model when students were viewed as supernumerary (although unpaid) staff to alleviate the workload. However, using students might have posed a barrier to implementing a staffing model, as the students imposed extra supervisory roles on nurses and caregivers, thus potentially increasing the nurses' and caregivers' workload. Furthermore, due to insufficient time, the nurses and caregivers might find that the additional supervisory roles cause resentment and stress (Husebø, Storm, Våga, Rosenberg, & Akerjordet, 2018). Student caregivers expressed similar concerns, as per a scoping review on how student caregivers learn in nursing homes. They reported a lack of time, insufficient staff, and high workloads as

barriers to their work-based learning. Moreover, student caregivers needed social support while busy with work-based learning, for example, debriefing sessions after attending to a resident who died (Muller-Schoof, Verbiest, Stoop, Snoeren & Luijkx, 2021:25).

When comparing the study findings, both the private for-profit and the state-subsidised LTCF experienced limited **resources,** although to a different extent. The private for-profit LTCF had more access to resources, whereas the state-subsidised LTCF provided services to older people in a resource-constrained context. The nurses and caregivers in the private for-profit LTCF had access to additional **support staff** resources beyond what the LTCF typically offered, and sufficient **physical resources**. In contrast, the state-subsidised LTCF did not have access to supplementary support staff and lacked physical resources. A qualitative study in a South African rural district hospital found that poor repairs and maintenance were frequently the reason for insufficient physical resources. Not only may insufficient physical resources have legal implications for an organisation, such as negligence or increased patient deaths, but it also leaves the staff frustrated and demotivated (Moyimane, Matlala, & Kekana, 2017:100). Furthermore, nurses are often forced to make decisions about distributing scarce physical resources between patients while being mindful of the consequences of care being left undone (Primc, 2020:124-141).

In the private for-profit and state-subsidised LTCF, the participants perceived **financial constraints** as a reason for possible nurse and caregiver shortages. Shin and Shin (2019:296–301) found that, due to financial restraints, LTCFs do not budget for adequate and professional staff. Furthermore, in the state-subsidised LTCF, participants perceived financial constraints as the reason for the unavailability of relief staff to cover absences. The results of a qualitative study in twelve nursing homes in the United Kingdom revealed that only seven of the twelve nursing homes managed to maintain their quality of care when financial cost-cutting measures were imposed. Conversely, five nursing homes showed a deterioration in the quality of care. The authors postulated that cost-cutting measures diminished workers' job quality. Thus, by reducing workers' compensation and benefits while increasing their workload may lower their level of autonomy and their job quality (Burns, Hyde & Killett, 2016:991–1016).

Data from this study suggested that formal **communication** structures between nurses, caregivers, and management did not exist in either of the two settings, the private for-profit or the state-subsidised LTCF. According to the Regulations Regarding Older Persons (Republic of South Africa, 2010a:62), the facility's management is accountable for monthly operational meetings and communication with the staff, where minutes must be kept. However, the private for-profit LTCF participants seemed to view their informal communication as respectful and sufficient. It appeared that less of a communication barrier existed because of the absence of formal staff meetings. In contrast, the state-subsidised LTCF participants perceived the lack

of communication between themselves and the facility manager as a considerable barrier, where communication was either avoided by the facility manager or seldom occurred. When there was indeed communication between the facility manager and the nurses and caregivers, the communication was characterised by threats made towards the nurses and caregivers. South Africa had a high unemployment rate of 34.4% and a poverty rate of 55.5% in 2021 (World Bank, 2022). Therefore, it can be deduced that staff may be inclined to stay silent rather than resign. The literature suggests that managers' communication behaviours can facilitate the staff's job satisfaction despite a lack of formal communication structures. The results of a cross-sectional study in Japan suggested that managers using motivating language may improve the staff's work engagement, thus increasing their motivation to work. Additionally, managers using motivating language also portray recognition of the staff (Kunie *et al*., 2017:115–124).

Similarly, Zheng *et al.* (2022:2508–2516) suggested that leadership and management styles help to retain staff and build relationships if the leadership and management styles reflect that nurses and caregivers are valued and respected. Additionally, whereas the literature indicates that managers using motivating language in the workplace can build relationships, the results from a literature study revealed that hostility among colleagues sometimes led to poorer job satisfaction, which might result in an intention to leave the workplace (Al-Qahtani, Stirling & Forgrave, 2020). A cross-sectional study in two South African provinces found that, when measuring communication competencies, staff rated their managers lower than how the managers rated themselves, suggesting the managers needed training to improve their communication competencies (Munyewende, Levin & Rispel, 2016).

The findings related to Theme 1 showed that human resource practices and contextual factors may be barriers or facilitators to implementing a staffing model. For example, impractical work practices, disciplinary measures, physical and financial constraints, and poor communication between nurses, caregivers, and management were perceived as barriers to implementing a staffing model. Conversely, factors such as good teamwork, low staff turnover, and the availability of relief staff were perceived as facilitators.

Theme 2: Staffing levels favour a lower cost-model of nursing categories

This theme includes a discussion of the nurse and caregiver staffing levels, perceived as low by the private for-profit and state-subsidised LTCF participants, and the nurse and caregiver ratios to residents, which were perceived as high by the participants in both facilities.

While the participants in the private for-profit LTCF did not explicitly express concerns about low **nurse staffing levels** in total staffing, the influence thereof was observed in the participants' views of nursing responsibilities delegated to the caregivers. In contrast to the private for-profit LTCF, the state-subsidised

LTCF's participants perceived the number of nurses in all categories as inadequate. The state-subsidised LTCF participants shared that the ENs had greater responsibilities in the absence of RNs, medication administration was time-consuming (and unsupervised, which was against the SANC scope of practice for ENs), the ENAs were responsible for monitoring all the residents' vital signs in the facility, and there was seldom enough relief staff available for any category of nurse- thus increasing the workload during nurse absences. The **actual nurse staffing levels** in the private for-profit and state-subsidised LTCF were indeed lower than the prescribed minimum nurse staffing levels per the acuity of the residents, as shown in Chapter 5, Tables 5.4 and 5.6. Due to lower than the prescribed minimum nurse staffing levels per acuity of the residents, the **nurse-to-resident ratio** in both facilities was high. In the private for-profit LTCF, the total nursing HPRD was 0.65, while the minimum nursing HPRD prescribed based on the private for-profit LTCF's residents' acuity levels was 1.71 (Chapter 5).

The state-subsidised LTCF provided a lower nursing HPRD of 0.82 (including all categories of nurses) versus the 1.16 specified nursing HPRD, based on the residents' acuity levels. The findings of this study, which indicated that the nurse staffing levels were low, are aligned with the findings of studies done in the United States, United Kingdom, and South Korea, where the authors also reported low nurse staffing levels, especially RN levels (Griffiths, Saville, Ball, Jones & Monks *et al*., 2021; Harrington *et al*., 2020:1–14; Lee, Shin & Harrington, 2015:137–143). The literature supports that residents' outcomes improved with higher nurse staffing levels. A cross-sectional study by Chappell, Kirkham, and Seitz (2022:1787–1792) in the United States found that, with an increase of 1 HPRD of licensed staff (RNs and LPNs), the inappropriate prescription of antipsychotic drugs decreased by 3.09%. Already in 2016, 41 states in the country (United States) had established higher staffing standards than the federal standards required due to the low quality of care in nursing homes (Harrington *et al*., 2016:13–19).

Although the findings revealed that most participants perceived the **actual caregiver staffing levels** as inadequate, the private for-profit and state-subsidised LTCF had higher caregiver staffing levels than the prescribed minimum, as shown in Chapter 5, Tables 5.4 and 5.6. However, it appeared that the LTCFs strived to obtain higher caregiver staffing levels to compensate for lower nursing staffing levels and increase the total number of staff. The higher caregiver staffing resulted in a more favourable **caregiver-to-resident ratio** than the nurse-to-resident ratio in both facilities. Whereas a minimum of 0.86 HPRD was specified for the caregivers in the private for-profit LTCF and 0.70 HPRD for the caregivers in the state-subsidised LTCF based on the acuity levels of the residents in the private for-profit and state-subsidised LTCF, the actual HPRD was 2.94 and 1.93, respectively. The reasons for the perceived inadequate caregiver staffing levels were that the acuity of the residents appeared higher than what was estimated and, at times, required assistance from two to three caregivers as opposed to one caregiver. The higher caregiver HPRD in this study was aligned with

the caregiver HPRD in other studies, for example, South Korea: 2.58 HPRD (Shin & Shin, 2019:296–301), United States: 2.33 HPRD (Harrington *et al*., 2020:1–14), and Canada: 1.95 HPRD (Boscart *et al*., 2018:750).

The participants in the private for-profit and state-subsidised LTCF perceived that the **total staffing levels** were inadequate, even though the private for-profit and state-subsidised LTCF exceeded the minimum staffing levels prescribed in the Regulations Regarding Older Persons (Republic of South Africa, 2010a:64). As described in Chapter 5, the actual HPRD in the private for-profit LTCF was 3.59, while the minimum prescribed HPRD based on the acuity of the residents was 2.57. Similarly, the state-subsidised LTCF provided 2.85 HPRD versus the minimum of 1.86 HPRD defined based on the acuity of the residents.

Higher minimum staffing levels may lead to better resident outcomes, as the literature indicates that higher staffing levels could be linked to fewer deaths of residents (Griffiths *et al*., 2018:1474–1487), a decline in residents' hospitalisation rates, improvement in residents' activities of daily living (Harrington *et al*., 2020:1–14), lower fall rates (Abusalem *et al*., 2021:299–304), fewer pressure ulcers and a lower daily restraint use (Whitehead, Parsons & Dixon, 2015:18–35). In contrast to the advantages of having higher staffing levels, lower staffing levels increase the staff's workloads. The lower staffing levels may result in burnout (Shin & Shin, 2019:296–301), delayed care delivery, lower safety standards, limited involvement in psychosocial programmes and less emotional support to residents and family members (Al-Jumaili & Doucette, 2018:1420–1427; Griffiths *et al*., 2018:1474–1487).

Although both LTCFs had higher total staffing levels than the minimum mandated standards, participants seemed concerned that the staffing levels were not adapted during peak times. The participants mentioned peak morning times when residents were showered or fed. Also, the participants seemed to experience the medication round in the morning as a peak time. Griffiths *et al*. (2021) suggest measuring patients' needs per shift to enable staff deployment when the demands are higher. However, the authors cautioned that if the essential baseline staff was not scheduled in advance, costs may increase due to the need to use agency staff, and patient outcomes may decrease when staff is unavailable at short notice. The authors concluded that higher baseline staffing is more cost-effective than only providing the bare minimum of staff (Griffiths *et al*., 2021). In their secondary analysis of payroll-based data in the United States, Geng, Stevenson and Grabowski (2019:1095–1100) found that staffing levels were between 9% and 42% less on weekends. The authors cautioned that medication errors and falls were more likely to occur on the lower staffed days than on higher staffed days. A study in the United States analysed data from 14,717 nursing homes to examine the impact of daily staffing levels on twelve quality of care outcomes and the influence on the quality of care outcomes when the nursing homes had days where staffing levels were 20% lower than their normal staffing levels. The authors found that a lower certified nurse aide (unlicensed staff, similar to caregivers in South Africa)

staffing level was associated with a decrease in nine of the twelve quality of care outcomes when the certified nurse aide staffing levels were 20% below the nursing homes' average staffing days, especially concerning residents' activities of daily living, mobility, and pressure ulcers (Mukamel *et al*., 2012:1791–1813).

The participants perceived the total number of nurses and caregivers as inadequate. However, the data confirmed that the nurse staffing levels were lower, and the caregiver levels were higher than the minimum prescribed standards based on the residents' acuity levels. The findings showed that the low nurse staffing levels increased the workload of the caregivers, resulting in the perception that the caregiver staffing levels were also inadequate, as discussed in Theme 3. Concerning the staffing levels, it appeared that the staffing levels in the private for-profit and state-subsidised LTCF favoured a lower cost model of nursing categories.

Theme 3: Disparities in the skill mix with an overuse of lesser qualified caregivers

This study's findings showed similarities between the private for-profit and state-subsidised LTCF, where both facilities' participants had years of work experience but revealed disparities in the skill mix with the overuse of lesser qualified caregivers.

In both the private for-profit and state-subsidised LTCF, the nurses and caregivers possessed years of **work experience**. Literature indicates that quality of care improves when the staff has years of work experience, possibly due to increased knowledge of and familiarity with the LTCF, colleagues, and residents (Boscart *et al*., 2018:750). Despite years of work experience, participants expressed a lack of **competencies** and received minimal in-service **training** support in the LTCFs. As discussed in Chapter 1, accredited training courses in frail care for caregivers construe 120 hours, consisting of twelve credits at a National Qualification Framework (NQF) level 1 (South African Qualifications Authority, 2022). Thus, staff training programmes must be implemented (Republic of South Africa, 2010a:63), which should include, amongst others, training on policies, residents' safety, management of emergencies, and infection prevention and control (Republic of South Africa, 2015). Although the South African regulatory authority, the SANC, has yet to introduce a continuing professional development (CPD) system, the Skills Development Act 97 of 1998 requires employers to provide training according to the skills needed in the organisation (Republic of South Africa, 1998). Also, the professional and general nurses' scope of practice requires mentoring other nurse categories (Republic of South Africa, 2022).

In addition, various literature indicates that consideration should be given to the staff's skills, experience, and educational levels as the residents' acuity levels increase (Boscart *et al*., 2018:750; Koopmans, Damen & Wagner, 2018:988; Mueller, 2000:262–267). In an experimental study involving the nursing staff in two Chinese nursing homes, a control group received standard training on occupational standards. In contrast,

the experimental group received four months of intense training on, among others, clinical competence, ethics, and legislation. The authors reported a significant improvement in the experimental group's competence score versus the control group's competence score, as well as a considerable increase in resident satisfaction with the service provided by the experimental group's nurses (Wang, Chen, Yang, Qian & Sun *et al*., 2020). Similarly, in a study done in the United States, the authors found that additional training is essential for LPNs as their training in the United States inadequately prepared them for supervising and delegating tasks to unlicensed staff and performing resident assessments (Yang *et al*., 2021:1081–1087). Furthermore, the literature indicates the advantage of using staff with higher skills and knowledge, as RNs with degrees were 35% more likely to observe adverse drug events than RNs with diplomas (Choi *et al*., 2021:1–8).

The **nurse-to-caregiver ratios** appeared low. The **actual skill mix** in the private for-profit LTCF comprised RNs and caregivers but not ENs and ENAs, while the actual skill mix in the state-subsidised LTCF comprised RNs, ENs, ENAs, and caregivers. As discussed in Chapter 5 (Table 5.4), the **proportion of nurses versus caregivers** was 18.1% nurses versus 81.8% caregivers in the private for-profit LTCF and 32.4% versus 67.6% caregivers in the state-subsidised LTCF (Chapter 5, Table 5.6). In addition, the private for-profit LTCF had a three-hour period daily where caregivers were solely responsible for the residents in the facility without any category of nurse present. This practice of leaving caregivers to their own devices contradicts the Western Cape Government's (WCG's) Health Norms and Standards, which specify that a nurse must lead all shifts to do professional tasks, as discussed in Chapter 2 (Republic of South Africa, 2015). Moreover, the acuity levels of the residents in this study indicated that a higher skill mix was required; thus, more staff with higher educational levels are needed (Dellefield *et al*., 2015:95–108) as opposed to more unqualified staff (Harrington *et al*., 2012:88–98). A multitude of studies support the notion that a higher mix of skills may contribute to improved clinical outcomes due to psychological and physical assessment of residents (Shin *et al*., 2021:402), skilled care planning (Dellefield *et al*., 2015:95–108; Shin *et al*., 2021:402), and better decision-making skills (Dellefield *et al*., 2015:95–108). A higher RN HPRD can thus lead to fewer falls, residents experiencing less pain, less decline in activities of daily living, and fewer pressure ulcers (Shin *et al*., 2021:402). Also, a cross-sectional study in Norway found that an increase in the ratio of unlicensed staff versus professional staff led to a decrease in the quality of residents' physical and social activities (Kjøs & Having, 2016:330–339). To illustrate the impact on the quality of resident care of an adequate mix of skills in the work team, a longitudinal study done in Korea showed that increasing the HPRD of RNs by one hour per day led to a decrease in the deterioration of residents' quality of care outcomes by 10,5% (Shin *et al*., 2021:402).

The findings related to Theme 3 showed that the participants had years of work experience. However, with a lower proportion of nurses and a higher proportion of caregivers in the total skill mix, an overreliance on

caregivers seemingly followed despite caregivers not possessing the necessary competencies or training. Moreover, the caregivers were required to assist with nursing tasks, which will be further discussed in Theme 5.

Theme 4: Residents' acuity was neglected in staff allocation

This theme includes a discussion of assigning the different categories of nurses and caregivers to residents based on acuity levels, according to Mueller's framework (Mueller, 2000:262–267). Although allocating nurses and caregivers ensures optimal use of human resources aligned with the resident's needs, the findings suggested that the residents' acuity levels were neglected in staff allocation.

The **care required by** residents was determined based on the total residents per category and the hours of care they needed per week (Republic of South Africa, 2010a:64). The **resident totals** indicated that the private for-profit LTCF accommodated 35 residents during the interviews. All 35 were Category 3 (frail). In contrast, the state-subsidised LTCF housed 101 residents, including 27 Category 1 (independent residents), 28 Category 2 residents (residents needing assistance), and 46 Category 3 residents (frail). While the **acuity levels** of the residents in the private for-profit LTCF appeared to correspond with the participants' versions of the care the residents required, the participants' narratives showed that the acuity levels of the residents in the state-subsidised LTCF appeared higher than stated in their assessment forms which indicated their acuity levels.

According to Mueller's framework (2000:262–267), residents' needs should be determined through functional assessments on admission, quarterly or annually, to ensure that adequate staff is available. In South Africa, residents' acuity must be assessed on admission and annually using the Department of Social Development's approved assessment tool, the Dependency Questionnaire of 1998. The assessment includes reviewing the older persons' dependency needs and their need for professional, skilled care (Republic of South Africa, 1998, 2010a:57).

Similarly, other countries such as Germany and Australia also use comprehensive individual assessments for residents to determine their acuity levels and, accordingly, the hours of daily care needed (Barber *et al*., 2021:19). Thus, to determine the appropriate number and type of staff required to meet the residents' needs, residents' needs must be assessed correctly (Mueller, 2000:262–267).

Although **resident demands** did not feature in the private for-profit LTCF's participant interviews, the nurses and caregivers in the state-subsidised LTCF experienced that the residents' demands increased due to longer waiting times. Consequently, multiple participants reflected on the workload and frustration they experienced when the residents became verbally abusive. The consequences of not meeting residents' needs

were evident in the findings of a litigation case study done in the United States by Harrington and Edelman (2018:1–12). The authors (Harrington & Edelman, 2018:1–12) included data from court records filed between the end of 2006 and the middle of 2009. The court records showed over 3000 grievances from residents and families against 12 LTCFs from a private for-profit chain. About 700 grievances were related to low staffing levels and an insufficient skill mix, leading to poor basic care and neglecting residents' rights. After five years, a settlement was reached, resulting in a substantial financial penalty for the private for-profit LTCF chain (Harrington & Edelman, 2018:1–12).

Even though nurses and caregivers should be allocated to residents based on their acuity levels, the private for-profit and state-subsidised LTCF apparently did not consider the residents' acuity levels when allocating staff. **Considering the residents' acuity** levels is essential, as suggested in Mueller's framework (2000:262–267), which underpinned this study. The author advised that nurse managers follow a dedicated framework to analyse the residents' staffing needs since staff allocation is complex. The nurse manager should consider the contextual factors, such as the LTCFs' design and layout, which may influence staff allocation. For example, multilevel buildings (such as the state-subsidised LTCF in this study) may require more staff. Furthermore, the nurse manager must consider all the applicable legal directives, policies, job descriptions and the nurses' scope of practice to ensure that the staff can complete the assigned tasks and simultaneously comply with the legal requirements while performing them. The appropriate staff should be allocated according to the residents' care plans on allocation sheets or an allocation book per shift (Mueller, 2000:262–267).

The **allocation strategies** in the private for-profit LTCF indicated that no staff allocation was documented, and the caregivers were given the authority to decide which residents they would attend each day independently. On the other hand, the state-subsidised LTCF did document the staff allocation daily, although no consideration was given to residents' acuity levels. The findings of this study aligned with literature in the United States and across nursing homes in Canada, England, Norway, and Sweden that indicated that LTCFs do not adjust their staffing to the acuity of the residents (Harrington *et al*., 2012:88–98; Schnelle *et al*., 2016:970–977). Moreover, a quantitative cross-sectional observational study in the Netherlands examining the relationship between the type of nursing staff, residents' acuity levels, unit types, and time spent on care found that nursing home residents received the same level of care regardless of their acuity (Tuinman *et al*., 2016:148–154). The findings related to Theme 4 suggested that residents' acuity was neglected in staff allocation and that the available nurses' and caregivers' skills were not utilised to benefit the residents of the LTCFs.

Theme 5: A perceived indifference to residents' acuity with staff allocations

The findings related to this theme showed the disparity between the available nurses' and caregivers' skills and how the nurses and caregivers were assigned to various tasks and resident care.

The private for-profit and state-subsidised LTCF showed similarities regarding **the use of the nurses' skills,** indicating that the RNs provided minimum direct resident care. The RNs supervised the staff and managed medication within their **scope of practice** (Republic of South Africa, 2022; South African Nursing Council, 1984). However, Tuinman *et al*. (2016:148–154) found that RNs tended to perform interventions with residents with higher acuity levels. This was also the case in this study, where the findings indicated that RNs provided more complicated wound care.

Moreover, the findings of this study suggested that the RNs and ENs in the state-subsidised LTCF were used interchangeably. Although countries such as South Korea allow the substitution of RNs with CNAs who have a similar scope of practice to the LPNs in the United States (Lee, Shin & Harrington, 2015:137–143), only 50% of RNs may be replaced by ENs in South Africa in the case of Category 3 (frail) residents. RNs may not be replaced with ENs in the case of Category 2 (residents needing assistance) as the total number of RNs required for Category 2 residents is already lower than for Category 3 residents (Republic of South Africa, 2010a:64). The interchangeable use of RNs and ENs were even though RNs typically contribute to resident care requiring higher levels of clinical decision-making (Yoon *et al*., 2022:728–737). Furthermore, the interchangeable use of RNs and ENs in the state-subsidised LTCF had implications due to the differences in the RNs' and ENs' scope of practice. While the RNs in this study worked within their scope of practice, the ENs performed tasks beyond their scope of practice when working in the place of an RN. In South Africa, the ENs' scope of practice permits ENs to provide basic nursing care under the supervision of professional and general nurses (Republic of South Africa, 2022; South African Nursing Council, 1984). Consequently, one can deduce that the practice of ENs working beyond their scope of practice may have legal implications. The ENs in this study working beyond their scope of practice contrasted with the findings of the study done in Canada by McCloskey *et al*. (2015:1475–1483), who found that LPNs (nurses with one to two years of training) worked below 20% of their full scope of practice.

Despite already providing minimum direct care to residents, the participating RNs from the private for-profit LTCF and the RNs and ENs from the state-subsidised LTCF reported that they were required to complete **non-nursing tasks**, such as serving tea to residents at night, despite finding this task demeaning. On the other hand, while the RNs prepared and served tea to residents, the caregivers continued providing direct resident care. Non-nursing tasks in the state-subsidised LTCF included RNs and ENs making all the telephonic arrangements for medical-related appointments on behalf of the residents, making copies of documents for

the staff, printing documents, and issuing and distributing incontinent wear and toiletries. This study's findings were in line with the findings of Grosso and colleagues (2021:2658–2673), who did a cross-sectional study in Italy, including 743 nurses, of whom 54 worked in nursing homes. Of the nursing homes' participants, 37% performed administrative tasks (e.g., answering phones and secretarial duties such as scheduling appointments) and 26% performed auxiliary tasks (e.g., equipment seeking and cleansing of rooms) (Grosso, Longhini, Tonet, Bernard & Corso *et al*., 2021:2658–2673). Similarly, a multicentre cross-sectional observational study in Canada found that RNs spend a substantial portion of their time, 41.7%, on activities indirectly related to residents like recordkeeping, communication, and reviewing records and 16.9% of their time walking in the unit (McCloskey *et al*., 2015:1475–1483). In the Netherlands, Tuinman *et al*. (2016:148–154) also found that RNs spent most of their time on indirect care activities, such as recordkeeping and shift reports.

While the RNs in the private for-profit LTCF perceived the **workload** as light, especially during night duty, the state-subsidised LTCF's RNs and ENs filling the RNs' positions in the absence of RNs conveyed a picture of a high workload leading to stress and frustration and a perceived lack of support from management. The literature confirms that increased work pressure caused by low nurse staffing levels not only lowers safety standards with negative consequences for residents but may also cause low job satisfaction, resulting in burnout among the nurses (Al-Jumaili & Doucette, 2018:1420–1427; Griffiths *et al*., 2018:1474–1487).

The findings suggested that the caregivers may be overburdened. This is despite their job descriptions indicating they were required to assist residents with ADLs, which did not include nursing tasks. However, the findings suggested that the caregivers assumed **nursing responsibilities** at times. Accepting nursing responsibilities such as assisting with medication administration, administering insulin, providing wound care, doing blood pressures, hemoglucotests, haemoglobin and urine tests (private for-profit LTCF), and wound and colostomy care (state-subsidised LTCF) was beyond their competency levels. Caregivers assuming nursing responsibilities also contrasted with Mueller's (2000:262–267) recommendation that caregivers' job descriptions must be considered to ensure they are competent to fulfil their assigned duties and comply with legal requirements while executing their tasks.

The caregivers in the private for-profit LTCF experienced a high **workload**, which contrasted with the RNs in the private for-profit LTCF, who had a lighter workload. In addition, the caregivers experienced a higher workload during peak times, such as mornings when the residents were showered and fed. Similarly, in the state-subsidised LTCF, the participants conceded that the residents sometimes required high-intensity care; for example, when the residents were physically heavy, more than one caregiver was required to assist with toileting. When one caregiver had to attend to three residents needing assistance with toileting

simultaneously, it could result in resident falls and injuries to both the residents and caregivers. Authors of an Australian study found that falls were the most common adverse event associated with inadequate staffing (Nhongo, Holt, Flenady, Rebar & Bail, 2023:343–349). Moreover, a qualitative study exploring caregiver work stress in LTCFs in New Zealand found that, apart from caregivers having physically demanding work, the caregivers' work stress was exacerbated by team members' lack of recognition and respect and feelings of not being heard. Moreover, providing patient-centred care where the patient is considered correct adds to the work pressure experienced by caregivers (Czuba, Kayes & McPherson, 2019).

The misalignment of staff competencies and allocation of resident care could influence residents and cause **delayed or omitted care**. Participants provided narratives of physical care omitted, such as nail care, shaving, and the provision of health education. Similarly, Schnelle *et al*. (2016:970–977), using a discrete event simulation (DES) model in 13,533 LTCFs in the United States, found that with high resident acuity levels, there was a 22% omission of care. According to Primc (2020:124-141), the rationing of resident care, which results in the undertreatment of residents, may not only compromise resident safety but could also confront nurses with ethical dilemmas. To ensure efficiency, nurses and caregivers may take a practical viewpoint when distributing scarce resources and time, ensuring that most residents receive basic care. However, such an approach may negatively influence residents with higher care needs when the necessary care is omitted.

The participants in the private for-profit LTCF did not report **adverse events** except increased falls due to load-shedding. In contrast with the private for-profit LTCF, the state-subsidised LTCF seemingly had multiple adverse events, such as residents with falls, chafing wounds, blisters, septic wounds, and discoloured skin. The participants shared their frustration with being very busy and not causing incidents on purpose and were of the opinion that the adverse events were attributed to low staffing levels. The participants' perspectives that adverse events may be attributed to inadequate staffing levels aligned with the Harrington and Edelman (2018:1–12) findings, who found that LTCFs with residents with high acuity levels and low staffing levels caused injuries and violated residents' rights. Moreover, a cross-sectional study in the United States showed that higher fall rates in LTCFs were associated with poorer teamwork and a lack of communication regarding incidences (Abusalem *et al*., 2021:299–304). In Australia, 1560 adverse event reports in ten nursing homes were analysed using a retrospective cohort design. The authors found an average of 18.5 adverse events occurred per nursing home per month during the day shifts. Also, the adverse events increased to 33.5 per nursing home per month during the night shifts. Nhongo *et al*. (2023:343–349) also suggested that the lower nurse staffing during the night shifts might be associated with more frequent adverse events.

The findings suggested a misalignment between the nurses' and caregivers' competencies and their allocation to residents. The RNs appeared to work within their scope of practice. In contrast to the RNs, the

ENs and ENAs seemingly worked beyond their scope of practice and caregivers beyond their job descriptions. The outcomes of ENs and ENAs working beyond their scope of practice and caregivers beyond their job descriptions seemingly led to high workloads, delayed and omitted care, and adverse events.

6.6 SUMMARY

This chapter included a discussion of the findings of the interviews, where the objective was to explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs. The participants perceived facilitators to implement the staffing model as having good teamwork, a low staff turnover, staff with years of work experience, and the availability of relief staff for caregivers. In the private for-profit LTCF, a further facilitator to implementing the staffing model included the two-way communication between the manager, nurses, and caregivers. On the other hand, participants perceived barriers to implementing the staffing model in the private for-profit and state-subsidised LTCF as inadequate total staffing levels, especially the total nurse staffing levels and staff during peak times. A further barrier to implementing the staffing model in the state-subsidised LTCF was the unavailability of relief staff for nurses. The small number of nurses seemingly led to fewer skilled nurses with higher educational levels in the total skill mix and overuse of caregivers, thus diluting the total mix of skills in the LTCFs. Regarding staff allocation, residents' acuity levels were not considered. In the private for-profit LTCF, the caregivers could decide for themselves what residents they would provide care for per shift. The misalignment between the staff competencies and the staff allocation to tasks and residents led to ENs working beyond their scope of practice and nurses completing various non-nursing tasks while the caregivers performed nursing tasks.

The next chapter includes the triangulated findings from the scoping review, the document review, participant interviews, and the development of a framework to inform staffing models for LTCFs in resource-constrained contexts.

CHAPTER 7
TRIANGULATION OF THE FINDINGS

7.1 INTRODUCTION

The findings of the interviews are presented in Chapter 6. These findings provided insights into the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs (Part of Phase 1 of the study, see Chapter 1). Chapter 7 concerns Phase 2 of the study and relates to the triangulation of the findings, i.e., merging and comparing the separate findings from the scoping review, the document review, and interviews. The purpose was to understand the underlying realities and processes involved in implementing a staffing model in LTCFs from various perspectives. The findings were triangulated to reach Objective 3: To develop and validate a framework to inform staffing models for LTCFs for older persons in resource-constrained contexts. The triangulation process is explained in Chapter 3. The outlay of this chapter includes:

- A background of triangulation.
- A summary of the findings from the scoping review (detailed in Chapter 4).
- A summary of the findings from the document review (Chapter 5).
- A summary of the findings from the interviews (Chapter 6).
- A summary of the triangulated findings related to staffing levels, skill mix, and staff allocation. During the triangulation of the findings, coherent patterns were identified that reflected the essences of the data as interpreted. The patterns formed the foundation for developing themes that meaningfully reflected the triangulated findings (Section 7.6).

7.2 BACKGROUND OF TRIANGULATION

Denzin (2012:80-88) outlines triangulation as a methodological approach where a phenomenon, in this instance implementing a staffing model, is viewed metaphorically speaking through a crystal to reveal different facets, and the findings from the various aspects are then merged to enhance the trustworthiness of the findings. To further improve the trustworthiness of the findings and mitigate potential bias, authors proposed four methods or techniques of triangulation, namely methodological, data source, investigator, and theoretical triangulation (Denzin, 2012:80-88; Noble & Healy, 2019:67-68; Varpio *et al*., 2017:40–50). Three of these four methods were employed in this study. **Methodological triangulation** was done using multiple data collection techniques, including a scoping review, document review, interviews, and field notes. **Data triangulation** included diverse data sources such as published articles, individuals, and documents from two LTCFs over two years. **Investigator triangulation** was included by involving more than one investigator,

as the study supervisors, each possessing distinct areas of expertise, supported the data integration and interpretation process. Applying investigator triangulation ensured that the interpretation of the findings was not based only on the primary researcher's interpretations (Noble & Healy, 2019:67-68; Varpio *et al*., 2017:40–50).

The study was conducted from a critical realist perspective without using other specific theories. It seemed appropriate to explore staffing in LTCFs from a critical realist perspective since critical realists strive to provide a causally reliable representation of what is observed. These observations include the underlying mechanisms, what they are, how a phenomenon (e.g., staffing) is in a specific context, the relationships involved (different stakeholders and roleplayers), and how the underlying mechanisms in a particular context provide certain outcomes.

Theoretical triangulation was done according to the process described by Venkatesh, Brown, and Sullivan (2016:435-495). First, the findings of the scoping review, the document review, and the interviews were interpreted and summarised separately. Then, the separate interpretations from the three datasets were categorised according to the concepts contained in the underlying research framework, i.e., staffing levels, skill mix, and staff allocation (Addendum N). After that, the findings were compared across the three datasets to highlight convergence, complementary, and divergent findings (Tables 7.1 to 7.4). The converging and complementary findings were combined, while divergent findings were considered on an individual/separate basis, i.e., how they fitted the original research question. As discussed below, triangulation was made possible by following well-thought-out cognitive thought patterns and assessing the quality of the conclusions.

7.2.1 Reasoning process

In this study, interpretations included the researcher's construction of the literature, the content of the documents and the viewpoints of the participants, as well as how this content and viewpoints were related. The reasoning process was applied inductively, deductively, abductively, and through retroduction. With inductive reasoning, the researcher moved from specific observations to general conclusions with the interview data. In the scoping and document review, deductive reasoning allowed for drawing specific conclusions from the general data. Abductive reasoning was applied in the study by standing back and exploring the data to form logical conclusions based on the data (Venkatesh, Brown & Sullivan, 2016:435–495). Retroduction was a two-part process that involved abductive reasoning and then integrating the events to identify the interaction between the causal mechanisms. Therefore, in using a retroductive reasoning process, the researcher was able to discern the interrelationship between the literature content, document review findings, and the participants' perspectives in the LTCF context (Lawani, 2021:320–333). Following an

inductive, deductive, abductive, and retroductive reasoning approach, the researcher endeavoured to reach coherent and trustworthy conclusions grounded in logical deduction and using empirical evidence, thereby capturing the essence of implementing a staffing model in the LTCFs (Venkatesh, Brown & Sullivan, 2016:435–495). Conversely, the researcher endeavoured to present an integrative perspective in a narrative format akin to a "helicopter" view of implementing a staffing model.

7.2.2 Assessing integration quality

Venkatesh, Brown, and Sullivan (2016:435–495) proposed an Integrative Framework to assess the quality of the integrations, which was applied in this study. The authors developed their Integrative Framework in 2013 and extended it in 2016. Their framework's goal was to assist researchers in evaluating the quality of the integrations. The authors advised researchers to thoroughly explain triangulation decisions, i.e., how they developed their conclusions. The Integrative Framework consists of three processes: integrative correspondence, integrative efficacy, and inference transferability. Integrative efficacy refers to whether the conclusions were based on the triangulated data, which in this study, indicated whether conclusions were based on the findings of the scoping review, the document review and the interviews. Integrative correspondence refers to aligning the conclusions reached with the study's purpose. Inference transferability refers to how the conclusions could be applied to other settings (Venkatesh, Brown & Sullivan, 2016:435–495). Venkatesh, Brown, and Sullivan's (2016:435–495) framework was applied in this study as follows:

Integrative correspondence: To enhance consistency between the separate findings and the interpretations, the findings of the scoping review, the document review, and the interviews were each initially analysed separately according to the themes and subthemes that emerged from the dataset. After that, the findings from the scoping review, the document review, and the interviews were aligned with the study's research objectives. The key concepts were outlined in the research framework, namely, addressing staffing levels, skill mix, and staff allocation. The study supervisors provided input throughout this process to ensure that the data's interpretation was meaningful and as close as possible to the participants' intended meaning, documents, and literature.

Integrative efficacy: The integrated findings resulted from triangulating the findings from the scoping review, the document review, and the interviews. The findings were triangulated to establish logical connections between the data and existing literature. By establishing logical connections between the data and the literature, themes were developed that applied to all the datasets. Integration was done by moving back and forth between the data sets and the literature. Convergence patterns were identified, i.e., patterns indicating that findings were aligned (see the example in Table 7.1, Theme 1). After that, complementary patterns indicating related findings were grouped (see the example in Table 7.4, Theme 2). Lastly, divergent patterns

indicating disagreements or inconsistencies between the datasets were identified (see the example in Table 7.2, Theme 1). Additionally, the researcher stated findings that could not be merged with other meaningful findings (Table 7.4). After extracting insights from each dataset independently, triangulation followed, thus integrating the insights from the scoping review, the document review, and the interviews. The triangulated findings were aligned with the study's key concepts: staffing levels, skill mix, and staff allocation (Tables 7.1 to 7.4).

Inference transferability: The triangulated data on implementing a staffing model in LTCFs provided unique and meaningful insights across a South African private for-profit and state-subsidised LTCF. Therefore, steps were taken to enable readers to interpret the data and draw conclusions. These steps included thoroughly describing the research process, how the researcher applied the underlying paradigm and the study context. The context in this study included a description of the setting or places where the staffing models were implemented (the LTCFs) and a description of the circumstances in which the staffing models were implemented, including the participants' beliefs, roles, and relationships in the LTCFs (Plano Clark & Ivankova, 2016:5). Therefore, readers could decide whether this study's findings might be transferable to their settings.

7.3 SUMMARY OF THE SCOPING REVIEW FINDINGS

The scoping review was completed in Phase 1, Substudy 1. Addendum N contains the interpretations from the scoping review categorised according to the framework concepts, i.e., staffing levels, skill mix, and staff allocation. The final scoping review sample included twenty studies. Sections 7.3.1 to 7.3.5 contain a summary of the main findings, presented according to the themes and subthemes described in Chapter 4.

7.3.1 Varied global perspectives on LTCF skill mix standards

Differences in skill categories: The international categories of nurses used in the LTCFs appeared to differ slightly, with most LTCFs employing RNs, licenced practical nurses (LPNs), certified nursing assistants (CNAs), nurse assistants and caregivers (Havaei, Dahinten & MacPhee, 2019; World Health Organisation, 2020:108). For ease of reading, the term RN is used both internationally and in South Africa for the same nurse category, while an LPN appears similar to an EN in South Africa. CNAs and caregivers internationally seem similar to caregivers in South Africa since it appears that they received the same minimal level of training. Some countries use the term nurse assistants, seemingly also referring to caregivers. This terminology differs from the South African ENAs or enrolled nurse assistants. ENAs are qualified nurses with one year of training in South Africa. Thus, internationally and in South Africa, CNAs, nurse assistants, and caregivers are not recognised as nurses. Contrary to this, CNAs in South Korea seemed to have job descriptions similar to those of LPNs in the United States, with approximately 1520 hours of training (Lee *et al.*, 2022:15–25; Shin, 2019:569–579). South Korean care workers' job descriptions appeared similar to CNAs in the United States,

with approximately 240 hours of training (Lee *et al*., 2022:15–25; Shin, 2018:705–713; Shin, 2019:569–579). Furthermore, although each nurse category practices within its scope of practice, RNs and CNAs may be used interchangeably in South Korea, i.e., an LTCF can assign either an RN or a CNA (Lee *et al*., 2022:15–25; Shin, 2019:569–579; Shin & Hyun, 2015:555–564; Shin & Shin, 2019:296–301). This might lead to CNAs working outside their designated scope of practice in South Korea.

Skill mix variations between countries and within countries: There also appeared to be a considerable variation in skill mix standards both between and within countries. Research suggested that countries like the United Kingdom, Norway, and Sweden had broad statements without specific standards; for example, in the United Kingdom, the skill mix and staffing levels had to be appropriate for residents' needs and the purpose of the LTCFs. Other countries like the United States and Canada generally had minimum federal or provincial standards. For instance, the United States federal standards required the continuous presence of at least one RN for eight consecutive hours every day of the week and one RN and one licensed nurse (e.g., an LPN) on duty for the remaining two shifts (Harrington *et al*., 2012:88–98).

Evidence suggested that the different states within countries, such as the United States and Canada, had the flexibility to set higher standards than the federal or provincial standards (Harrington *et al*., 2012:88–98; Lee, Shin & Harrington, 2015:137–143). For example, one Canadian province requires a skill mix of 20% RNs. The rest of the care staff must comprise 40% LPNs and 40% resident aids (McCloskey *et al*., 2015:1475–1483). The Canadian resident aids appear similar to the South African caregivers. Germany appears to have higher staffing standards than most other countries. An RN must be on duty 24 hours a day, and RNs comprise 50% of the care staff in the LTCFs (Zimmerman & Pfaff, 2018:48–56; Zirves, Demirer & Pfaff, 2021). In contrast to Germany, South Korea appeared to allow the substitution of RNs with CNAs, apparently resulting in lower proportions of RNs or LTCFs without RNs. The fact that CNAs could be used to replace RNs seemed to result in some LTCFs not having RNs (Shin & Shin, 2019:296–301).

Proportions per category in the skill mix: The variation in skill mix standards between countries contributes to differences in the proportion of RNs in total nursing and caregiver staffing. Some LTCFs in the United States had a proportion of 13.2% RNs, while LPNs comprised 23.4% (United States) to 40% (Canada) (McCloskey *et al*., 2015:1475–1483; Yang *et al*., 2021:1081–1087). The proportion of RNs in the LTCFs' skill mix varied due to the differences in countries' skill mix standards. While some Canadian provinces require a 20% proportion of RNs in the skill mix (McCloskey *et al*., 2015:1475–1483), others require an RN on-site 24 hours (Harrington *et al*., 2012:88–98). It appeared that the proportion of caregivers in the skill mix was higher than that of all categories of nurses in the skill mix. The proportion of caregivers in the skill mix varied between 40% and 63.4% (Yang *et al*., 2021:1081–1087).

Authors suggested that higher skill mix levels, such as a higher proportion of qualified nurses in the total nurse and caregiver staff mix, were essential to effectively address the complexity of residents' conditions. It was suggested that RNs were vital to reducing adverse events, such as fall prevention (Shin & Hyun, 2015:555–564), lower rehospitalisation and emergency department visit rates (Yang *et al*., 2021:1081–1087), less deterioration in residents' activities of daily living (Shin, 2018:705–713), and responding effectively to residents' complex care needs (Shin, 2018:705–713; Yang *et al*., 2021:1081–1087; Yoon *et al*., 2022:728–737). Despite these quoted advantages of having a higher proportion of qualified nurses in the total nurse and caregiver staff mix, some countries allow lowering of the skill mix, especially the proportion of RNs on weekends. Although the initial hiring costs of RNs are higher than those of other nursing categories, it may still be more cost-effective in terms of improved resident care. However, some LTCFs still find employing more RNs to achieve an acceptable skill mix problematic. Poor working conditions and the higher labour costs of employing RNs in South Korea complicate the hiring of satisfactory numbers of RNs (Lee, Shin & Harrington, 2015:137–143; Shin, 2018:705–713).

Competencies questionable: Despite the differences in skill mix standards between countries and qualifications and expertise, the literature indicates that the actual competence of the LTCF staff is not assessed (Zirves, Demirer & Pfaff, 2021). Authors suggest that the LTCFs should provide staff with specialised training, for example, in Dementia care, regardless of the staff's qualifications, skills, and experience (Zimmerman & Pfaff, 2018:48–56).

7.3.2 Unanimity: Staffing levels vary, but higher staffing standards may improve outcomes

Varying staffing levels in countries: Evidence indicated that the staffing levels in countries varied from as low as 2.1 HPRD (hours per resident day) in Canada to as high as 5.19 HPRD in Sweden (Harrington *et al*., 2012:88–98). The variation in the staffing levels between countries suggests a need for more research to establish appropriate staffing standards to obtain high-quality care. Most countries' staffing levels also appeared to be lower than recommended, as reported by an expert panel and the Centres for Medicare & Medicaid Services in the United States, which is 4.55 HPRD (Harrington *et al*., 2012:88–98).

Regarding total staffing levels, the nurse staffing levels appeared low compared to the higher caregiver staffing levels. For example, some LTCFs in South Korea reported the ratio of nurses and caregivers to residents as one RN to 111 residents, one CNA to twenty residents, and one care worker to two residents (Lee *et al*., 2022:15–25). In the instance where the HPRD for RNs was low, between 0.17 and 1.10 and the HPRD for LPNs was between 0.16 and 0.87; caregivers provided a much higher HPRD between 1.71 and 3.39 to compensate for the poor nurse HPRD.

Staffing levels influence staff and resident outcomes: Lower staffing levels appear to be associated with increased workloads and staff burnout (Shin & Shin, 2019:296–301). Staff burnout can affect the staff's ability to provide adequate care, which may influence the residents' daily living activities (Lee, Shin & Harrington, 2015:137–143; Schnelle *et al*., 2016:970–977). Compared with the poor outcomes of lower staffing levels, most authors suggest that higher staffing levels may improve resident outcomes. For example, higher staffing levels may lead to less use of antipsychotic medication by residents (Chappell, Kirkham & Seitz, 2022:1787–1792) and improve residents' comfort and spiritual wellbeing (Shin, Park & Huh, 2014:788–805). Higher staffing levels may also lead to fewer restraints on residents, less depression among residents, and fewer residents on bed rest (Shin, 2018:705–713).

7.3.3 Congruence between staff with more qualifications and competencies (a higher skill mix), staffing levels, and resultant positive organisational outcomes

Advantages of higher-qualified staff: The literature highlighted the vital role of RNs in the LTCFs in improving the quality of care. The emphasis on RNs who underwent extensive training, enhancing decision-making, critical thinking, and clinical judgement in the skill mix, suggested that they are more suitable for managing residents' mental health and behavioural conditions.

Additionally, RNs' training presumably helped them to identify serious adverse events which might contribute to the overall competence of LTCF staff (Yoon *et al*., 2022:728–737). Compared to RNs, less-qualified nurses receive less extensive training and have fewer skills, and caregivers' training appears minimal. Some caregivers seemingly receive training from institutions that are not qualified to provide training to caregivers, or in some instances, the caregivers only receive two-week internships (Zirves, Demirer & Pfaff, 2021).

Organisational deficits related to staffing: When reflecting on the dynamics between skill mix, staffing levels, and their collective impact on organisational outcomes within LTCFs, the findings suggested that LTCFs with a higher CNA HPRD received fewer deficiency citations from state surveyors in the United States. Although a higher proportion of RNs to CNAs in the total skill mix did not correlate with fewer deficiency citations, it seemed to be associated with a lower severity level of cited deficiencies (Lerner, 2013:123–128). For example, LTCFs with a more significant proportion of higher-qualified nurses in the total staff mix had lower odds of receiving deficiency citations for improper psychotropic medication use (Yoon *et al*., 2022:728–737).

Influence of staff turnover and agency staff: Keeping staffing levels consistent might lead to better quality of care outcomes, such as lower anti-depressant use in residents. At the same time, a high RN staff turnover seemed to worsen residents' outcomes (Shin, 2018:705–713). Interestingly, the authors found that using agency staff produced mixed results; thus, using agency staff may be both a barrier and a facilitator in

obtaining staff consistency (Shin & Shin, 2019:296–301). Overall, it appeared that it was beneficial for LTCFs and their residents to have enough staff with the right competencies and to ensure staff consistency. Not only does having enough staff with the right competencies probably ensure compliance with countries' legislation, but additionally, it might also lead to better quality of care outcomes.

7.3.4 Division of labour: Caregivers on the front line with skilled nurses behind the scenes?

RNs' expertise may be underutilised: RNs' extensive training and scope of practice allow them to fulfil a more comprehensive role in LTCFs than less-qualified nurses. RNs assume nursing process responsibilities and facilitate individualised non-pharmacologic interventions that can prevent harm to residents (Yoon *et al*., 2022:728–737). Moreover, RNs perform interventions with residents with higher acuity levels (Tuinman *et al*., 2016:148–154) and supervise less-qualified nursing staff and caregivers better than other staff categories (Zimmermann & Pfaff, 2018:48–56). Still, evidence suggests that RNs spend most of their time on indirect care activities despite their training. These indirect care activities include documentation, restocking, distributing linen, shift reports, and communication (McCloskey *et al*., 2015:1475–1483).

Subcategory nurses task-oriented: Compared to the RNs, the LPNs worked under RN supervision and presumably had more task-oriented roles, such as medication administration (Yoon *et al*., 2022:728–737). Still, evidence in some countries suggested that the LPNs operated below their full scope of practice. Furthermore, the authors noted that RNs and LPNs engaged in activities such as stock distribution that could have been delegated to non-regulated care workers. This led to the need to thoroughly examine workflow processes and delegate non-nursing tasks that did not add value to resident care to enhance overall efficiency (McCloskey *et al*., 2015:1475–1483).

Caregivers frontline workers: Unlike the RNs and LPNs, unlicensed caregivers appeared to be the frontline workers. It was commonly assumed that caregivers provided most of the direct care to residents, including assisting with daily activities (Lee *et al*., 2022:15–25; Yang *et al*., 2021:1081–1087) and that they worked under RN or LPN supervision (Shin, 2019:569–579). The literature suggests that caregivers contribute valuable information for evidence-based care planning. However, the caregivers providing most of the direct resident care may lead to overextension of this category of worker (Lee *et al*., 2022:15–25; Yang *et al*., 2021:1081–1087).

The blurring of roles: Cost-saving measures seemed to be the reason for sometimes replacing RNs with lower categories of nurses like LPNs, CNAs (in South Korea) or caregivers, possibly leading to staff assuming responsibilities beyond their qualifications. For example, 22% of South Korean LTCFs did not employ RNs. In this situation, CNAs perform the RNs' roles even though they are not qualified. This may result in the CNAs

working outside their scope of practice with consequent overextension. Similarly, caregivers appear overextended because they have to assume higher responsibilities. Some studies indicated that caregivers sometimes comprise 88.1% of the total staffing in some LTCFs, although the caregivers are unlicensed (Lee *et al*., 2022:15–25; Yang *et al*., 2021:1081–1087). Therefore, the literature suggests clarifying the roles of the different categories of nurses and caregivers to enable appropriate task delegations (McCloskey *et al*., 2015:1475–1483). Using each nurse category and the caregivers according to their proper roles may ensure compliance with the different countries' legislation regimens and improve resident care.

7.3.5 Disinterest in acuity-adjusted staffing

Acuity levels high and rising: Most authors seemed to believe that LTCF residents' acuity levels were increasing due to longevity. For example, LTCFs in a Canadian province reported an increase in residents' acuity levels from 4% to 38% between 1996 and 2006 (Harrington *et al*., 2012:88–98). The increased complexity of health needs among ageing residents in LTCFs seemingly creates a demand for professional healthcare providers with higher education.

Negating acuity-based staffing methods: Despite the residents' high acuity levels and need for skilled care; generally, countries do not seem to adopt acuity-adjusted staffing methods. The exception seems to be Germany, where staffing levels are calculated based on the residents' dependency level (Harrington *et al*., 2012:88–98). A concern raised was that residents received the same overall basic care, regardless of their acuity levels (Tuinman *et al*., 2016:148–154), with the possible risk of care omission where higher resident acuity levels exist (Schnelle *et al*., 2016:970–977). The evidence suggested that residents' acuity levels and individual needs should be considered when determining staffing levels and the skill mix in the LTCFs. Also, when considering residents' acuity levels and individual needs, the literature suggested that nursing staff's education, skills, and expertise should be evaluated to ensure that they could provide diverse care tailored to residents' needs (Harrington *et al*., 2012:88–98).

7.4 SUMMARY OF THE DOCUMENT REVIEW FINDINGS TO TRIANGULATE THE DATA

The document review formed part of the holistic multiple-case study, Phase 1, Substudy 2, and a summary of the main findings was presented according to the themes and subthemes in Chapter 5. The document review focused on exploring the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons. Addendum N contains the interpretations from the document review categorised according to the framework concepts, i.e., staffing levels, skill mix, and staff allocation. The review included 45 documents.

7.4.1 Human resource practices influence staff management

According to Mueller (2000:262–267), human resource practices such as LTCFs' reporting structures might facilitate staff management within LTCFs. The context wherein care delivery takes place may also influence nurse and caregiver staffing in an LTCF, such as the availability of resources, the presence of staff turnover, the availability of relief staff, and the type of work shifts.

Resource availability and staff wellbeing: The findings from the document review suggested that the LTCFs' access to resources appeared to be linked to the provision of employee benefits. While the state-subsidised LTCF did not provide any employee benefits, the private for-profit LTCF's minutes from an AGM showed that management emphasised employee wellbeing and provided employee benefits. Long service records were recognised, and condolences were extended to team members who had lost family members due to the COVID-19 pandemic. This might have contributed to why no disciplinary issues were documented in the private for-profit LTCF. In contrast to private for-profit LTCF, no documents in the state-subsidised LTCF referred to the employees' welfare, and the state-subsidised LTCF documented the frequent imposition of disciplinary measures against nurses and caregivers.

Staff turnover seemed minimal in the LTCFs, which might ensure staff consistency. The minimal staff turnover may be attributed to South Africa's high unemployment rate of 34.4% in 2021 (World Bank, 2022). While there were no caregiver vacancies in the LTCFs, vacancies for various nursing positions existed in the state-subsidised LTCF without management seemingly trying to fill them. It was noted that the state-subsidised LTCF's management failed to document the reasons for not filling vacant nursing positions or the intended strategy for filling vacancies. Since the state-subsidised LTCF provided services in a resource-constrained context, it might be a cost-saving strategy not to fill nursing vacancies. In this way, budget deficits could be addressed.

Partiality in relief staff provision: Both the LTCFs tended to provide relief staff for caregivers during scheduled and unscheduled leave periods. However, it appeared that the caregivers were more inclined to take unscheduled leave, possibly due to the availability of relief staff. It may also be due to the nurses' professionalism versus the caregivers' non-professionalism, as the nurses receive ethics training and are made aware of the influence of absenteeism on residents. In contrast to the caregivers, relief staff for nurses were seldom provided. Since the private for-profit LTCF employed a work schedule where the RNs could volunteer to work additional shifts when colleagues took scheduled or unscheduled leave, relief staff for the RNs appeared unnecessary. The state-subsidised LTCF's management seemed to hesitate to provide relief staff for nurses, which again might be due to budgetary constraints and the higher costs associated with relief staff for nurses versus the costs associated with relief staff for the less costly caregivers. Nurses, especially

RNs in the state-subsidised LTCF, appeared to rarely take unscheduled leave as no relief staff were available for them. It seemed as if the remaining staff had to cope without an RN in the absence of relief staff. This resulted in no RNs being available during weekends in the state-subsidised LTCF.

Staffing not aligned with needs: The shift characteristics (e.g., duty hours, shift durations, weekend and night schedules) in both LTCFs might indicate less than optimal management of human resources. Shift characteristics seemed to reflect limited consideration of peak times when the care demand was higher. For instance, there was the same number of staff during the mornings when the residents needed to be showered and fed as during the early afternoons when the residents were resting. With blocked shifts, such as in the state-subsidised LTCF, where the nurses and caregivers worked fixed routines for two weeks before repeating the same shifts, staffing levels fluctuated minimally between weekdays and weekends. There appeared to be no consideration for the higher level of operations during the weekdays, for example, where doctors' visits and physiotherapy sessions were scheduled, versus a lower level of operations during weekends.

7.4.2 Nurses and caregivers were left to their own devices

Nurses and caregivers in the LTCFs seemed to be left without clear guidance, and formal communication channels appeared to be lacking.

Job description limitations: It was observed that both LTCFs offered job descriptions, albeit with notable differences. The private for-profit LTCF provided comprehensive job descriptions, including specific performance indicators, but these descriptions sometimes contradicted each other by referencing non-existent policies. Conversely, the state-subsidised LTCF's job descriptions focused on tasks. These included directives that conflicted with nurses' scope of practice, such as ENs being tasked with medication administration without the required legislated RN supervision.

Limited guidelines for directing staff: A similarity was noticed in that both LTCFs lacked job-specific policies and procedures; thus, established guidelines to direct the nurses and caregivers when making resident care decisions were absent. The absence of job-specific guidelines might suggest that procedures were performed less efficiently. Another contrast was noted regarding the availability of human resource policies. While the state-subsidised LTCF possessed human resource policies, the private for-profit LTCF lacked such policies. Therefore, it might have been unclear to the private for-profit LTCF's nurses and caregivers what the responsibilities of the employer and employees were.

Limited communication opportunities: Although records existed for an AGM in the private for-profit LTCF and a Board of Directors meeting (state-subsidised LTCF) from the previous year, neither LTCF maintained

records of staff meetings. The lack of staff meetings suggested a lack of communication between management, nurses, and caregivers. Thus, there were fewer opportunities to share information between team members, such as regarding expected behaviour in the LTCFs, in the absence of guidelines and policies.

7.4.3 Staffing levels favour a lower-cost model of nursing categories

The LTCFs appeared to be focused on providing enough staff for essential services and ensuring resident care. However, as per the staffing model, they seemed to disregard the staffing levels required for each nurse category and the caregivers.

High total staffing levels: Both LTCFs surpassed the prescribed total staffing levels, having 22 and 37 staff units (one staff unit equals one staff member), where a minimum of 16 and 27 respectively, were prescribed. The private for-profit LTCF provided 3.95 HPRD, while 2.57 HPRD was the minimum standard per the acuity of the residents. Similarly to the private for-profit LTCF, the state-subsidised LTCF also provided more HPRD (2.85) than the minimum standard of 1.86 HPRD as per the acuity of their residents.

Low nurse staffing levels: A difference arose in the nursing staff composition between the private for-profit and state-subsidised LTCF in that the private for-profit LTCF only employed RNs, disregarding ENs and ENAs. However, the state-subsidised LTCF complied with the prescribed staffing legislation by employing RNs, ENs, and ENAs. Despite the difference in the nursing staff composition, both LTCFs fell below the minimum prescribed nurse staffing levels. The private for-profit LTCF had only four nurses (RNs), where the minimum required was 11, and the state-subsidised LTCF had twelve nurses instead of the minimum of fifteen nurses. The nurse-to-resident ratio per shift in the private for-profit LTCF was one nurse for 35 residents, and in the state-subsidised LTCF, one RN for 101 residents, one EN for between 33 and 101 residents, and one ENA for between 50 and 101 residents per shift.

High caregiver staffing levels: Most of the HPRD were provided by caregivers since the LTCFs had nearly double or triple the minimum number of caregivers. Compared to higher nurse-to-resident ratios, the caregiver-to-resident ratio was one caregiver for six residents during the day shifts, one caregiver for twelve residents during the night shifts (private for-profit LTCF), one caregiver for 11 to 12 residents during the day shifts, and one caregiver for 25 residents during the night shifts (state-subsidised LTCF).

The low nurse staffing levels versus the higher caregiver numbers suggested an unbalanced approach favouring a lower-cost model of nursing categories to meet minimum staffing requirements.

7.4.4 Disparities in the skill mix with overuse of lesser qualified caregivers

Prerequisites for appointments: Setting predetermined criteria might facilitate appointing suitable staff with the right qualifications and experience in LTCFs. However, the state-subsidised LTCF did not set predetermined criteria for nurse and caregiver appointments regarding experience, competencies, or qualifications. This might suggest that the state-subsidised LTCF may find recruiting suitable candidates for positions more difficult. Fewer staff are available with adequate qualifications and experience since employment is favoured in acute care settings with more attractive remuneration. The private for-profit LTCF demonstrated a more selective approach by appointing caregivers with prior experience in care settings. The private for-profit LTCF also seemed to prefer appointing RNs with prior geriatric care experience and additional qualifications in Dementia and palliative care.

Overuse of lesser qualified caregivers: The skill mix composition in both LTCFs appeared inconsistent. The proportion of caregivers in the skill mix ranged between 67.6% and 81.8% of total nurse and caregiver staffing. In contrast to the high proportion of caregivers, the proportion of nurses within the total skill mix was low in both settings. For instance, the private for-profit LTCF had only 18.1% nurses versus the prescribed minimum of 66.7%, and the state-subsidised LTCF had 32.4% nurses versus the prescribed minimum of 62.5% based on the acuity of the residents in the respective LTCFs. In both LTCFs, the low proportion of nurses within the total skill mix seemed to result in a low nurse-to-caregiver ratio, which ranged from one nurse per 2.08 to 4.5 caregivers. Although both LTCFs had fewer nurses than the prescribed minimum needed for the acuity of the residents, the state-subsidised LTCF had a higher total proportion of nurses in the skill mix (32.4%) compared to the private for-profit LTCF (18.1%), which only employed RNs.

Fewer nurses in the skill mix: While prioritising the appointment of higher-qualified RNs (such as in the private for-profit LTCF) might seem strategic, the LTCF seemingly failed to recognise the need to increase the number of RNs proportionally to meet mandated staffing levels. Therefore, although the private for-profit LTCF exceeded the minimum prescribed percentage of 16.75% RNs by having 18.1% RNs, excluding ENs and ENAs in the skill mix meant that the private for-profit LTCF still had only 18.1% nurses instead of the required minimum of 66.7%. Although the state-subsidised LTCF employed all three nurse categories, the proportion of RNs in the skill mix was only 5.4% versus the prescribed minimum of 12.5%. The proportion of ENs exceeded the minimum standards. The ENAs comprised only 8.1% versus the prescribed minimum of 37.5% ENAs. In addition, the lower proportion of nurses, especially RNs, seemed to leave the LTCFs sometimes without RNs. For instance, no RNs were available for night duty in the state-subsidised LTCF, and no RNs (or any other category of nurses) were on duty for three hours daily in the private for-profit LTCF. The LTCFs appear to employ more lesser qualified caregivers and fewer nurses, leading to an unbalanced skill mix.

7.4.5 Residents' acuity was seemingly neglected in staff allocation

In the private for-profit LTCF, although the job descriptions of RNs explicitly outlined the responsibility of allocating staff based on operational requirements and resident acuity, formal records of staff allocation were not found. Despite all the residents in the private for-profit LTCF being frail, the caregivers were seemingly allowed to organise themselves and choose which residents they would care for. The state-subsidised LTCF showed a marginally better approach than the private for-profit LTCF by recording staff allocation in duty rosters and transcribing it daily in an allocation book. Nevertheless, residents' acuity levels appeared to be ignored. The allocation of RNs in the state-subsidised LTCF appeared vague, often limited to tasks such as 'supervision' and 'medication administration'. Moreover, there seemed to be minimal variations in the allocation process. The staff were allocated to geographical areas, which could be for up to three months, but they were not assigned to residents. Therefore, none of the LTCFs' staff allocation practices apparently considered the residents' acuity levels.

7.4.6 A perceived indifference to residents' acuity with staff allocations

Unclear role boundaries: The private for-profit LTCF's RN job descriptions indicated they had to meet clinical and nursing care standards according to the private for-profit LTCF's regulations and policies, but there were no written policies in the facility. In addition, RNs were expected to allocate staff, which did not happen. The roles between the RNs and ENs seemed less distinct in the state-subsidised LTCF. Job descriptions in the state-subsidised LTCF for the RNs and ENs appeared to be mostly similar. Furthermore, the ENs were allocated similarly to the RNs, thus possibly assuming the same responsibilities as RNs in the RNs' absence, which might be beyond their scope of practice, especially during RNs' absences over weekends and on night duty. In the state-subsidised LTCF, the duties of ENAs appeared appropriate, except for mentioning in the allocation book that the ENAs were also responsible for non-nursing tasks such as laundry. Allocation of these non-nursing tasks appeared counterintuitive when considering the already low proportion of ENAs in the total skill mix. Moreover, the job descriptions of ENAs and caregivers appeared mostly similar, except for tube feeding and vital signs monitoring, which the caregivers did not have to do. Remarkably, despite the absence of ENs and ENAs, the absence of nurses for three hours daily in the private for-profit LTCF, and potential role overlaps, the private for-profit LTCF reported no adverse events, while the state-subsidised LTCF faced several, including resident falls and wounds. The higher adverse events in the state-subsidised LTCF might be due to low RN supervision since the ratio was one RN to 101 residents per day shift and no RNs on night duty, as opposed to the private for-profit LTCF, with a ratio of one RN to 35 residents per shift during weekdays and the nights (excluding three hours during the day shifts).

Competency development: Neither the private for-profit LTCF nor the state-subsidised LTCF kept evidence of staff training, suggesting a lack of opportunities for the nurses and caregivers to develop their competencies.

7.5 SUMMARY OF THE INTERVIEW FINDINGS TO TRIANGULATE THE DATA

The interviews formed part of the holistic multiple-case study, Phase 1, Substudy 2. Addendum N contains the interview interpretations categorised according to the framework concepts, i.e., staffing levels, skill mix, and staff allocation. Nineteen interviews were conducted. The focus of the interviews was to reach Objective 2: To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons. The following summarises the main findings, presented according to the themes and subthemes described in Chapter 6:

7.5.1 Human resource practices influence staff management

While human resource practices such as the LTCFs' delegation processes may facilitate the implementation of a staffing model, the interview data revealed several contextual factors that seemed to influence nurse and caregiver staffing in LTCFs, thereby reinforcing the importance of considering these factors in staff planning.

Lack of benefits devalues staff: The two LTCFs differed in providing employee benefits. The private for-profit LTCF's employees seemingly enjoyed benefits such as a transport subsidy, meals, and employer contributions to provident funds. In contrast, the state-subsidised employees were seemingly not treated well regarding benefits. The state-subsidised LTCF is not state-owned. Instead, the state-subsidised LTCF derives an income from government subsidies and residents' minimal social grants. Therefore, the state-subsidised LTCF's employees did not receive the benefits typically received by government employees, but benefits such as annual bonuses seemed to depend on the facility's financial position. Employees in the state-subsidised LTCF appeared discouraged and seemingly did not feel valued due to the lack of benefits.

The positives of good teamwork and low staff turnover: In both facilities, teamwork was considered necessary for managing the workload. Participants reported strong support from their colleagues and multidisciplinary teams. Staff turnover also appeared low in both facilities despite differences in the LTCFs' resource levels. Most caregivers in the private for-profit LTCF seemed to have worked at the facility for between 25 and 30 years, with the most recent caregiver appointment being five years ago. Similarly, despite a perceived difficult work environment and a lack of benefits, the state-subsidised LTCF experienced minimal turnover, with the last appointment (ENA) being four months before conducting the interviews. However, the other vacancies for ENs and ENAs were not filled in the previous twelve months before data collection.

The position of the nurse manager, who resigned approximately three months before the interviews, was advertised during the data collection period.

Frustrating, impractical work practices: Nurses and caregivers shared that impractical work practices hindered care delivery in the LTCFs. Time-consuming tasks like retrieving and distributing supplies that had to be distributed by the RNs for oversight and stock control purposes seemed to frustrate the staff. Moreover, storing residents' files (including the nursing process documents) in the RN's office seemed to be impractical since the staff were required to document their care activities after each intervention. These impractical work practices might result in less time for direct resident care, and making notes to transcribe later in residents' files could increase the margin for errors or lead to the omission of or making faulty care entries. In the private for-profit LTCF, the nurses and caregivers were expected to assist residents in the retirement village outside the frail care area. The staff were responsible for, among other things, monitoring residents' blood pressure and assisting them during medical emergencies. When the nurses and caregivers had to leave the LTCF to assist residents in the retirement village area, that might lead to higher staff-to-resident ratios in the private for-profit LTCF.

Punishment versus correction of actions: Both LTCFs applied disciplinary measures, although to a different degree. The private for-profit LTCF mainly addressed minor disciplinary issues, such as inappropriate language use through consultation. Disciplinary measures were more frequent in the state-subsidised LTCF, where the nurses and caregivers perceived the disciplinary measures as excessive since the LTCF management seemingly applied harsh measures for minor transgressions. These minor transgressions included, for example, disrespectful behaviour toward multidisciplinary team members. Moreover, it appeared that the management did not acknowledge the staff's contributions to resident care. The frequent disciplinary measures and lack of recognition contributed to the nurses' and caregivers' feelings of not being valued.

Partiality in relief staff provision: Both LTCFs seemed to provide relief staff for caregivers when they took unscheduled or scheduled leave. For example, the private for-profit LTCF had three additional caregivers for the seventeen full-time caregivers, and the state-subsidised LTCF obtained services from caregivers outside the LTCF when needed or relied on their existing staff to cover shifts when staff shortages occurred. However, the LTCFs differed in their approach to providing relief staff for nurses. While the private for-profit LTCF used locum RNs to cover nurse absences, the state-subsidised LTCF seldom provided relief staff for any category of nurses. Because the state-subsidised LTCF previously used agency staff to augment staff shortages, participants believed that using agency staff might facilitate staffing as they reduce the workload of the remaining staff.

Conversely, using agency staff could also be a barrier, as some participants perceived that agency staff required more supervision. Instead of providing relief staff for nurses, the state-subsidised LTCF seemed to rely on existing staff to cover shifts where staff shortages occurred, which was often met with resistance from the staff due to reluctance to forfeit rest days. Most participants believed that financial constraints were the reason for the unavailability of relief staff.

An RN participant shared that the LTCF manager's constant reluctance to provide relief staff led her to not even ask for relief staff when she went on two weeks of scheduled leave, as she presumed pre-emptively that the request would not be granted. Furthermore, the human resource budget was seemingly used for other purposes, such as buying a generator to provide electricity during load-shedding periods. This misappropriation of the human resource budget seemingly left insufficient funds for relief staff. This failure to provide relief staff seemed to add to the burden of the remaining staff.

Unwanted budgetary consequences: The state-subsidised LTCF's financial constraints seemed to have led to a shortage of physical resources such as cot beds and restraint belts. The caregivers were frustrated with the shortages as they felt that it hindered their ability to provide quality resident care. It also appeared that the private for-profit LTCF could provide the staff with additional resources when needed, such as the services of external wound care specialists. Compared to the private for-profit LTCF, the state-subsidised LTCF appeared to have limited access to such support staff and additional services, even when needed. In the private for-profit LTCF, budget limitations led to reduced locum RNs' hours. Whereas previously, the locum RNs had worked 12-hour shifts, upon their request for an increase in the hourly rate, management rather opted for a negotiated reduction of the locum RNs' work hours from 12-hour to 9-hour shifts. This allowed them to receive the same payment for a 9-hour shift as the RNs had previously received for a 12-hour shift instead of the requested pay rise. Allowing the RNs to work fewer hours seemingly allowed the private for-profit LTCF to stay within their budget but subsequently resulted in the caregivers working without any nurses on duty for three hours daily.

Student caregivers augment staffing: The fact that both LTCFs served as practical training facilities for student caregivers further influenced the nurse and caregiver staffing in the LTCFs. The participants shared that they used these students as extra 'hands', which were viewed as both a benefit and a burden. While some participants saw the caregiver students as additional unpaid labour, supervising them was considered by many as adding to the workload of nurses and caregivers. An advantage of the private for-profit LTCF serving as a practical training facility for caregiver students was that recruitment and appointments were typically made from this pool since the caregiver students were known to the LTCF's staff before an appointment was made.

Communication patterns influence staff morale: No staff meetings were held in the LTCFs. The informal communication patterns showed differences in that the private for-profit LTCF's nurses and caregivers experienced verbal communication between management and staff as respectful. In contrast, the state-subsidised LTCF's verbal communication often included threats from management. For example, when nurses requested relief staff, they were told that no funds were available. Should their request for relief staff be granted, their annual bonuses would be withheld. Moreover, comments were made, such as stating that if the staff were unhappy, they could look for other work since they were not 'chain-bound'. These threats apparently discouraged the staff from requesting additional resources. This verbal communication seemed like overt bullying, which adversely influenced staff morale which could adversely influence the residents.

7.5.2 Total staffing levels perceived as inadequate

Although the total staffing levels met the minimum prescribed standards, the nurses and caregivers considered this to be insufficient. In particular, the low nurse staffing levels resulted in high nurse-to-resident ratios in both facilities.

Cost savings measures leading to low RN levels: In the private for-profit LTCF, one RN shared the positions of facility manager and RN in charge. Standard practice suggests having a facility manager in addition to the RN in charge or the nursing manager. Sharing two positions in the private for-profit LTCF appeared optimal since using someone who could have provided services across categories might have saved costs. However, the dual role of this RN might suggest that she could be overburdened since she was the only nurse on day duty from Mondays to Thursdays. This RN might be tasked with resident care, such as medication management and resident appointments, and additionally, might have to perform administrative tasks as a facility manager.

This dual position of the facility manager/RN consequently reduced the nurse-to-resident ratio during the day shifts in the private for-profit LTCF, which was one nurse (RN) for every 35 residents. The financial constraints leading to the shortening of the RNs' day shifts from twelve to nine hours seemingly led to this same RN (facility manager and nurse in charge) being on call for emergencies during the three hours when no nurses were on duty daily in the private for-profit LTCF. Furthermore, having no nurses on duty for three hours daily in the private for-profit LTCF might suggest that more nursing responsibilities were assigned to caregivers. These higher responsibilities could increase their workload and possibly result in burnout. The nurse-to-resident ratio in the state-subsidised LTCF also appeared high, with one RN for 101 residents on day duty. The low RN level in the state-subsidised LTCF seemingly left the LTCF without RNs being available for night duty and no RNs being available on weekends when one of the two RNs took vacation leave.

Shortfalls of subcategory nurses: In the state-subsidised LTCF, there was one EN for 33 to 50 residents, depending on whether two or three ENs were on duty, and one ENA for 50 to 101 residents, depending on the shifts. All three ENAs employed in the state-subsidised LTCF worked day shifts. Two ENAs worked day shifts opposite each other from 07:00 to 19:00, and the remaining ENA worked day shifts from Monday to Friday, 07:00 to 16:00. Thus, there were two ENAs for 101 residents during weekdays and only one ENA for 101 residents on weekends.

Participants perceived the ENA level as inadequate due to the workload since they were responsible for wound care, vital signs monitoring, and direct resident care. For instance, the responsibility for wound care seemed to result in the ENAs constantly moving between residents, such as when the caregivers removed wound dressings to enable the ENAs to inspect the wounds. Although removing wound dressings was part of the wound care procedures, the practice in the state-subsidised LTCF was that caregivers assisted the ENAs by removing the wound dressings before wound cleaning. Still, the ENAs had to perform the actual wound care, seemingly leaving the ENAs overburdened.

Nurse vacancies a low priority: There were no caregiver vacancies in either LTCF, and the private for-profit LTCF had no nurse vacancies despite not employing subcategory nurses. The state-subsidised LTCF had one EN and two ENA vacancies, possibly contributing to the low nurse staffing levels. However, it seemed that the state-subsidised LTCF's management did not make concrete plans to fill the vacant positions; rather, they would fill them only when they considered it an emergency. The staff were not aware of what the management considered an emergency.

High caregiver levels are still inadequate: In both LTCFs, caregiver levels were perceived as inadequate. The private for-profit LTCF seemingly had a caregiver-to-resident ratio of one caregiver for seven residents during the day shifts and one caregiver for approximately 11 to 12 residents during the night shifts. The state-subsidised LTCF seemingly had a caregiver-to-resident ratio of one caregiver for 11 to 13 residents during the day shifts and one caregiver for 25 residents during the night shifts. These caregiver-to-resident ratios in the private for-profit LTCF and the state-subsidised LTCF were lower than the nurse-to-resident ratios in the private for-profit LTCF and state-subsidised LTCF. It seemed possible that the caregiver staffing levels were considered insufficient because the available caregivers had to be distributed in buildings with long corridors as well as between the floors in a multilevel building (state-subsidised LTCF). It also seemed that the caregiver levels were inadequate during peak times, such as in the morning when residents had to be showered and fed. Furthermore, the low nursing staff levels could have increased the caregivers' responsibilities and led to the perception that the caregiver levels were insufficient. The overuse of caregivers is discussed in more detail in the following theme.

7.5.3 Disparities in the skill mix with overuse of lesser qualified caregivers

Own competencies a concern: The nurses and caregivers in both LTCFs apparently had years of work experience in their respective LTCFs, of which some had up to 35 years. Only one nurse, an ENA, was newly appointed four months before the interviews (state-subsidised LTCF), while the latest appointment in the private for-profit LTCF happened five years ago. Despite their years of work experience, some ENAs in the state-subsidised LTCF felt that they lacked the necessary competencies to practise safely and competently, especially regarding managing residents with Alzheimer's and Dementia. Despite their feelings of lacking competencies, no category of nurses or caregivers received formal in-service training in the LTCFs, possibly impeding their ability to perform optimally.

Cost of labour and of caring competently: Both LTCFs appeared to have imbalances in their skill mix. However, there were differences in the mix of skills between the LTCFs. The management of the private for-profit LTCF decided to use the services of RNs and forfeit the services of ENs and ENAs based on their limited scope of practice, which required the ENs and ENAs to work under an RN's supervision. Although using only RNs was perceived as more costly, it was seemingly still less expensive than employing all categories of nurses. In addition, the private for-profit LTCF participants perceived that one RN or EN per shift, in addition to caregivers, was sufficient to provide the necessary care to residents. Also, the private for-profit LTCF caregivers perceived that ENAs in the skill mix were not essential. These perceptions might convey that they might be oblivious to or possibly unconcerned about the potential risks, as it was evident that the caregivers now completed the tasks usually performed by ENAs, such as monitoring vital signs. Also, with the RNs on day duty in the private for-profit LTCF working 9-hour shifts, the RNs had to hand over and receive handover reports daily from caregivers due to the absence of a nurse to hand over to or receive the handover report. This oversight might have led to a lack of continuity in resident care and possible adverse events going unnoticed.

Task allocation according to category may transgress scopes of practice: Unlike the private for-profit LTCF, the state-subsidised LTCF included all the nurse categories: two RNs, seven ENs, and three ENAs. Despite employing RNs, ENs, and ENAs, most nurses and caregivers perceived the proportion of nurses to caregivers as low. The proportion of nurses versus caregivers in the total skill mix was four nurses to eighteen caregivers in the private for-profit LTCF (±18% nurses and ±82% caregivers) and 12 to 25 in the state-subsidised LTCF (±32% nurses and +68% caregivers). As discussed, the low proportion of RNs in the skill mix in the state-subsidised LTCF resulted in the interchangeable use of the RNs and ENs, and no RNs were available for night duty. As a result, ENs were expected to assume responsibilities outside their scope of practice. There also seemed to be a perception that RNs and ENs were only appointed for specific tasks, such as staff supervision

and medication management. In addition, the failure to provide relief staff for nurses further lowered the proportion of nurses in the skill mix.

Assign responsibilities to caregivers beyond their job scope: Both LTCFs appeared to rely heavily on caregivers. With the low proportion of nurses in the skill mix and despite caregivers comprising most of the staff, most participants still perceived the proportion of caregivers in the skill mix as low. Task shifting seemed to occur, allowing the caregivers to practise within the scope of ENA practice. For instance, the private for-profit LTCF's caregivers had five to 32 years of work experience. As a result, RNs in the private for-profit LTCF seemingly delegated higher levels of responsibility to caregivers, such as administering medication to residents. Although the caregivers accepted the higher responsibilities, they conveyed displeasure about the delegated tasks but did not appear concerned about the consequences of working outside their job scope. The inappropriate use of caregivers may have legal implications - further discussed in Section 7.5.5.

7.5.4 Residents' acuity was neglected in staff allocation

The same basic care provision regardless of acuity levels: It appeared that neither LTCF considered resident acuity when allocating staff. In the private for-profit LTCF, all residents were categorised as frail, thus seemingly needing higher levels of care, but there was no formal documentation of staff allocation. The RNs seemingly gave caregivers the freedom to decide which residents they would attend to daily. The RNs perceived their roles as overseeing caregivers and managing medication. Since no other nursing categories besides RNs were employed, basic care tasks seemed to fall primarily to caregivers regardless of the level of care the residents needed.

In contrast to the private for-profit LTCF, where staff allocation was not documented, the state-subsidised LTCF documented staff allocation daily in an allocation book.

With the interchangeable use of RNs and ENs in the state-subsidised LTCF, ENs were also responsible for staff allocation in the absence of RNs. The staff were mainly assigned according to the building outlay for up to three months. Therefore, caregivers assigned to a specific area of the building were responsible for the residents in that area, irrespective of their acuity levels and the level of care they needed. For instance, nurses and caregivers were not explicitly assigned to care for dying residents. The allocation book was apparently more valuable in ensuring that not all staff members took breaks simultaneously. Not considering the residents' acuity levels in the LTCFs might have led to residents receiving only basic care instead of specialised care according to their needs.

Higher care needs than estimated: In the state-subsidised LTCF, participants viewed the residents' acuity levels as higher than those recorded in the residents' assessment forms. Although only 46 out of 101

residents were officially categorised as frail, participants felt that many more required a higher level of care. For instance, 98 residents needed medication, 70 were incontinent, and some required specialised care since they had colostomy bags, suprapubic catheters, or received oxygen 24 hours daily. Given these high acuity needs, participants shared that the level of care required was more than only assisting with activities of daily living.

7.5.5 A perceived indifference to residents' acuity with staff allocations

Misguided use of RN competencies: There appeared to be a misalignment between the competencies of the nurses and caregivers and their actual job roles. RNs seemed primarily responsible for staff supervision and managing medication. These tasks were within their defined scope of practice. The RNs appeared to provide minimum direct resident care but also performed non-nursing duties. For instance, RNs in the private for-profit LTCF were expected to serve tea to residents at night while the caregivers continued providing direct resident care. This arrangement appeared to be a customary practice for RNs on night duty, which included familiarising themselves with residents after their off-duty hours, serving as hosts, observing residents' wellbeing, and monitoring fluid intake. This practice was applied uniformly to RNs of all racial backgrounds on night duty. Nonetheless, black RNs were concerned that, given South Africa's historical context, particularly during the era of 'Apartheid,' white elderly residents might perceive black women as domestic workers.

The nurses and caregivers in the state-subsidised LTCF also shared that the RNs were required to complete various non-nursing tasks. These non-nursing tasks seemingly included making phone calls for medical appointments, copying documents, printing, and distributing incontinent wear and toiletries. Even though the RNs completed non-nursing functions in addition to their required work as RNs, they seemingly had different perspectives regarding their workloads. The RNs in the private for-profit LTCF perceived their workload as light, especially during night shifts, while the RNs in the state-subsidised LTCF felt overwhelmed and perceived the lack of management support as stressful.

Possible transgression of scopes of practice: The use of ENs to fulfil the roles of RNs in the state-subsidised LTCF led to an overlap in roles and seemingly resulted in the ENs working outside their scope of practice. Moreover, there appeared to be a longstanding misinterpretation of job roles. For instance, some ENs perceived medication administration without RN supervision as within the ENs' scope of practice. With the ENs completing tasks designated for RNs, their workload seemed to increase, necessitating shifting EN tasks to ENAs. When the ENAs were required to perform functions typically done by ENs, it seemingly caused frustration for the ENAs, who felt they were not supported as management did not understand their work situation. Additionally, ENAs' functions were moved to caregivers.

Overextending and possibly exploiting caregivers: Even though the caregivers' primary role was to assist residents with daily activities, they shared narratives of assuming nursing responsibilities beyond their competency levels. The caregivers provided examples of assisting with medication administration, administering insulin, providing wound care, taking blood pressures, hemoglucotests, haemoglobin and urine tests (private for-profit LTCF), and wound and colostomy care (state-subsidised LTCF). However, caregivers did not seem overly concerned about the consequences of working outside their job scope. These perceptions might convey ignorance, as it was evident that the caregivers were now completing tasks usually performed by ENAs, ENs, or, in some instances, RNs.

Accepting tasks that typically should have been performed by nurses also increased the caregiver's workload. High workloads might have led to burnout, which could have influenced the caregivers' professional wellbeing. Some caregivers conveyed that they felt pressured to comply with RN directives, even when such directives were outside their job scope. The high workload and possible burnout might suggest that the caregivers were exploited. Caregivers assuming responsibilities beyond their job scope might risk inadequate resident care due to their lack of qualifications. Moreover, the inappropriate use of caregivers may compromise LTCFs' legal registration status as long-term care facilities.

High workloads may jeopardise care: Delayed or omitted care, including missed nail care, shaving, providing health education, and resident report writing, seemed to occur due to the nurses' and caregivers' increased workloads. The delayed or omitted care occurred especially during peak times like morning routines where residents had to be washed and fed. Despite the delayed or omitted care, the private for-profit LTCF did not report adverse events beyond increased falls during load-shedding. However, the nurses and caregivers shared that various adverse events, including falls, chafing wounds, septic wounds, and blisters, occurred in the state-subsidised LTCF.

The perceived link between these adverse events and low staffing levels appeared to frustrate the nurses and caregivers and increase their stress. Moreover, residents were seemingly dissatisfied when waiting longer to receive care due to the staff's higher workloads. The delayed care seemingly caused residents to abuse the nurses and caregivers in the state-subsidised LTCF verbally.

7.6 SUMMARY OF THE TRIANGULATED FINDINGS RELATED TO STAFFING LEVELS, SKILL MIX, AND STAFF ALLOCATION

The findings from the scoping review, the document review, and the interviews were integrated and compared across these three data sets. The integration and comparison of findings assisted with identifying areas of convergence, complementarity, and divergence. The triangulated findings are summarised in the following tables: Table 7.1 includes the findings relating to staffing levels, Table 7.2 contains the findings

pertaining to skill mix, Table 7.3 includes the findings relating to staff allocation, and Table 7.4 contains the findings not directly related to the key concepts in the research framework. The researcher decided to include findings that did not directly relate to the research framework but were seemingly related to staffing practices in the LTCFs.

The findings suggested that contextual factors such as workplace culture and communication barriers influenced the staff's wellbeing and were thus considered important in understanding the topic. Some contextual factors did not emerge in the scoping review, possibly because of its focus on exploring nurse and caregiver staffing models within other (mostly international) LTCFs in resource-rich and resource-limited contexts. However, the document review and interviews revealed insightful information regarding the contextual factors in the specific national LTCFs. Moreover, the integrated data from the scoping and document reviews might suggest positive reflections on specific themes.

In contrast, the more subjective perspectives gained from the interview data suggested underlying concerns and divergent perspectives. Consequently, as Bhaskar (2008:47) recommended, using multiple sources of evidence and combining the more subjective perspectives of participants with the more objective insights from the scoping review and document review could help gain a better understanding of the topic.

7.6.1 Triangulated findings relating to staffing levels

Table 7.1 contains the integrated findings of each dataset and the subsequent triangulated findings about staffing levels. Staffing was discussed under six themes: The international and South African variations in total nurse and caregiver staffing levels, low nurse staffing levels, high caregiver staffing levels, low staff turnover, relief staff being a double-edged sword, and lower staff levels leading to higher workloads and adverse events.

The abbreviations for international and national nurse categories used in Tables 7.1 to 7.4 are displayed in the list of abbreviations before Chapter 1. For ease of use, it is repeated here. South Africa (SA) uses the following terminology for the nurse categories registered or enrolled as such at the SANC (South African Nursing Council): RNs (Registered nurses with four years of training), ENs (Enrolled nurses with two years of training), and ENAs (Enrolled nursing assistants with one year of training). Internationally, the nurse categories are RNs (Registered nurses) and LPNs (Licensed practical nurses). LPNs appear to be similar to ENs in South Africa. Compared to South African caregivers (who are not regulated by the SANC and have minimal training in caring), international terminology includes CNAs (Certified nurse assistants) and NAs (Nursing assistants), seemingly similar to SA caregivers. An exception is the South Korean CNAs, who have a scope of practice comparable to that of international LPNs.

Although this study's sample included a state-subsidised and private for-profit LTCF in the Cape Metropole, Western Cape province, the abbreviation SA (South Africa) is used to ease reading.

Table 7.1: Triangulated findings relating to staffing levels

Triangulated findings relating to staffing levels			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Theme 1: International and South African sample variations in total nurse and caregiver staffing levels			
The total staffing levels varied between and within countries, but most LTCFs provided less HPRD than experts recommended. Some provinces (e.g., New Brunswick and Ontario in Canada) and states (Delaware and Florida in the United States) in countries prefer to set higher standards than the federal or provincial standards. The SA sample LTCFs also provided more HPRD than the national minimal prescribed standards.	The SA sample LTCFs exceeded the minimum prescribed standards, but the higher total staffing levels were seemingly achieved by using more caregivers and fewer nurses. • More HPRD were provided than the minimum standards. • Staffing levels were not adjusted during peak times or weekdays when operation levels were higher than the lower operations over the weekend.	The total staffing levels were deemed inadequate, and caregiver students were used to augment staffing levels. In both sample LTCFs, the seemingly inadequate staffing levels increased the nurses' and caregivers' workloads and were intensified by: • High resident acuity levels. • Poor consideration of peak times. • Impractical work practices. • Unfilled nurse vacancies (state-subsidised LTCF). • The private for-profit LTCF had no nurse vacancies even though neither ENs nor ENAs were employed at the facility. • Additional supervision of student caregivers.	The findings suggested inconsistencies between prescribed staffing standards and actual staffing needs in LTCFs. The actual staffing needs in the sample LTCFs were seemingly influenced by residents' acuity levels, peak times, staff vacancies, work practices, and additional supervisory roles concerning student caregivers. These inconsistencies between prescribed staffing standards and actual staffing needs in LTCFs seemingly led to LTCFs internationally and in the SA sample preferring to set higher standards. • Additionally, in the SA samples, to meet staffing demands, the LTCFs had to increase the number of caregivers and use caregiver students (unpaid) to augment staff shortages.
Theme 2: Low nurse staffing levels			
The nursing staffing levels, meaning the number of nurses in each category, were low when compared to the total staffing levels. Internationally, RNs and LPNs provided the lowest HPRD out of residents' total care. In SA, legislation prescribed the same minimum HPRD for RNs and ENs while prescribing	The nurse staffing levels were lower than the minimum standards: • Both SA sample LTCFs provided less total nursing HPRD than the minimum standards. • The nurse-to-resident ratios appeared high. • There were no nurses (any category) for three hours daily (private for-profit LTCF) and no	Most participants considered the nurse staffing levels inadequate, leaving the SA sample LTCFs without RNs for several hours per day (private for-profit LTCF), night duty, and some weekends (state-subsidised LTCF). Factors further aggravating the low nurse staffing levels were:	The low international and national nurse staffing levels in LTCFs might have led to high nurse-to-resident ratios. The low nurse staffing levels seemingly resulted in residents receiving less care from higher-qualified nurses or, at times, only care from caregivers. Specifically, in the SA samples, the LTCFs

Triangulated findings relating to staffing levels			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
the same minimum HPRD for ENAs and caregivers.	nurses available for night duty or on weekends when an RN took leave (state-subsidised LTCF).	• One person (RN) in the private for-profit LTCF shared the position of facility manager and nurse in charge and was on call for three hours daily when no nurses were on duty. This dual role might have overburdened this RN.	showed non-compliance with legislation and overburdening of the nurses and caregivers.
Theme 3: High caregiver staffing levels			
Internationally, LTCFs seemingly provided higher caregiver HPRD than nurse HPRD since the caregiver staffing levels were higher than the nurse staffing levels.	The SA sample LTCFs had nearly twice to triple the minimum prescribed caregiver numbers, with lower caregiver-to-resident ratios than the higher nurse-to-resident ratios (including RNs, ENs, and ENAs in the state-subsidised LTCF and RNs in the private for-profit LTCF). • Both LTCFs provided more caregiver HPRD than the minimum standards per residents' acuity levels.	The caregiver levels were perceived as too low despite being higher than what legislation requires. Upon exploring why this perception exists, it appeared that the residents' high acuity levels might have been why the caregiver levels were considered low. The residents' high acuity levels suggested a need for more nursing care, and due to the low nursing staff levels, the caregivers had to provide more resident care. Consequently, the nurses and caregivers experienced the caregivers' workload as being heavy.	Both nationally and internationally, the caregiver staffing levels were higher than the nurse staffing levels in the LTCFs. The higher caregiver staffing levels seemingly led to lower caregiver-to-resident ratios than the relatively high nurse-to-resident ratios (including all nurse categories). Despite these seemingly higher caregiver staffing levels, the low nurse staffing levels appeared to contribute to increased caregiver workloads. Thus, the caregivers had to provide more direct resident care because fewer nurses were available. Therefore, the relatively high caregiver staffing could not fully offset the influence of low nurse staffing levels.
Theme 4: Staff turnover low			
The scoping review did not include searching for staff turnover per se, but internationally, the influence of staff turnover surfaced: • Low staff turnover led to better quality of care outcomes. • A high staff turnover, especially among RNs, results in fewer staff members with the	Staff turnover was minimal in both SA sample LTCFs, with no caregiver vacancies. However, the LTCFs differed because the private for-profit LTCF had no nurse or caregiver vacancies, while the state-subsidised LTCF had EN and ENA vacancies. • Vacant nursing positions were not filled (state-	Staff turnover was low in both the LTCFs, but recruitment and appointment practices seemed to differ: • The private for-profit LTCF used the pool of caregiver students for recruitment and appointments, with the last appointment made five years ago.	The international literature search did not address staff turnover, only its influence on care outcomes. The literature suggested that staff consistency might lead to better-quality care outcomes. Low staff turnover was evident in the LTCFs in the SA sample. Despite differences in the SA

Triangulated findings relating to staffing levels			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
necessary skills available to provide care to residents, leading to poorer resident care.	subsidised LTCF), and the reasons for not filling them were not documented. • The absence of subcategory nurses at the private for-profit LTCF suggested they did not intend to employ them. This may suggest that the LTCF considered employing only RNs and caregivers sufficient despite the implied legislative non-compliance.	• Some participants perceived that management (state-subsidised LTCF) would only fill the vacant nursing positions when emergencies occurred without qualifying what constitutes an emergency.	LTCFs' recruitment and appointment practices, no caregiver vacancies existed, but unfilled vacant nurse positions did exist. The findings also suggested that the LTCFs did not intend to fill positions. The unfilled positions might worsen resident outcomes. (The document and interview findings show convergence, and the scoping review findings are complimentary).
Theme 5: Relief staff a double-edged sword			
Internationally, some LTCFs' baseline staffing appears to contain enough staff to provide care. However, when staff absences occur, the baseline staffing may be insufficient to provide adequate services. Staff from agencies were then used to supplement the baseline staffing. Using RNs and CNAs from agencies to relieve existing staff when staff absences occur did not seem to noticeably influence resident outcomes.	In the SA sample, management tended to provide caregivers from outside the organisations to supplement staff. The permanent caregivers in both LTCFs seemed to take advantage of the situation by taking more unscheduled leave than nurses. In the private for-profit LTCF, relief staff were seemingly unnecessary for RNs since six RNs were available for four full-time equivalent posts. Therefore, the RNs organised between themselves to cover all shifts. The nurses in the state-subsidised LTCF seldom received relief staff to cover absences and seldom took unscheduled leave. The absence of relief staff for nurses had consequences: • It increased the nurse-to-resident ratios. • A lack of relief staff for RNs led to no RNs on weekends when RNs took scheduled leave	Both facilities in the SA sample seemed to provide relief staff for caregivers by using caregivers outside the organisations. While the private for-profit LTCF used their regular locum RNs for RN absences (the private for-profit LTCF did not employ ENs and ENAs), the state-subsidised LTCF found it difficult to find relief staff for all categories of nurses. • Upon further exploration, financial constraints were frequently cited for not providing relief staff for nurses (state-subsidised LTCF). This might be because of the higher labour costs associated with relief staff for nurses than the lower labour costs associated with relief staff for caregivers. • The state-subsidised LTCF's practice of using existing staff to cover shifts when staff shortages occurred was seemingly met with resistance from the staff	Internationally, when agency staff were used to supplement baseline staffing, the agency staff did not have a noticeable influence on resident outcomes. In the SA sample, relief for caregivers was provided in both facilities. The permanent caregivers in both facilities possibly took advantage of this situation. Nurses in the state-subsidised LTCF rarely received relief staff to cover absences due to perceived financial constraints and the higher labour costs associated with relief staff for nurses. Consequently, the nurses in the state-subsidised LTCF seemed to take unscheduled leave seldom. There appears to be a need for more sustainable staff solutions since: • Existing staff resist shift adjustments due to the absence of colleagues (and might influence their wellbeing), thus exacerbating the difficulties in

Triangulated findings relating to staffing levels			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
	(the state-subsidised LTCF).	due to their reluctance to forfeit rest days as it adversely influenced their wellbeing. • The state-subsidised LTCF provided agency staff previously. This practice was discontinued due to the costs involved. Using agency staff also increased the supervision time for nurses. Therefore, using agency staff increased the permanent staff's workload.	maintaining consistent staffing levels. • Using agency staff does not necessarily improve resident outcomes. Additionally, it can increase the workload of existing staff since additional supervision might be required.
Theme 6: Lower staff levels lead to higher workload and adverse events			
Higher staffing levels seemed to lead to better resident outcomes. For instance, internationally, higher staffing levels led to lower rates of antipsychotic prescribing and reduced deaths. Higher staffing levels also appeared to lead to better outcomes for nurses and caregivers since their workloads were lower. In contrast, when staffing levels were low, staff seemed to have increased workloads, which might lead to burnout and compromise the staff's ability to provide adequate care.	The private for-profit LTCF documented no adverse events. This was despite having residents with high acuity levels (all 35 residents were frail). No ENs and ENAs were employed, and no nurses (RNS) were on duty for three hours daily. The state-subsidised LTCF documented several adverse events despite having a lower proportion of frail residents among the total residents than the private for-profit LTCF, where all the residents were frail. In the state-subsidised LTCF, 46 residents were frail, 28 needed assistance with their daily activities, and 27 were independent. The low RN supervision seemed to be associated with higher adverse events.	The nurses and caregivers in the private for-profit LTCF and the state-subsidised LTCF ascribed delayed and omitted care to low staffing levels and high workloads: • Care omitted included writing residents' reports, nail care, and providing health education to residents. • Delayed care seemingly caused residents to verbally abuse caregivers in the state-subsidised LTCF. • While the private for-profit LTCF's nurses and caregivers did not report adverse events, the nurses and caregivers in the state-subsidised LTCF shared that adverse events occurred due to low staffing levels.	Low staffing levels in LTCFs seemed to contribute to high workloads, leading to burnout. They also seem to lead to poorer resident outcomes, such as care delays, care omissions, and adverse events. In contrast to low staffing levels, high staffing levels might lead to lower workloads and better quality of resident care, e.g., less prescribing of antipsychotic medications, care omissions and delays, and fewer adverse events.

Summary of the triangulated findings related to staffing levels

The minimum prescribed staffing levels might not align with the actual staffing needs in the LTCFs. The actual staffing needs in the LTCFs were seemingly influenced by residents' acuity levels, peak times, staff vacancies,

work practices, and additional supervising roles concerning student caregivers. The staff turnover in the private for-profit and the state-subsidised LTCF appeared minimal, and the literature suggests that staff consistency might lead to better quality care outcomes. Despite differences in the private for-profit and state-subsidised LTCFs' recruitment and appointment practices, there were no caregiver vacancies. However, nurse vacancies existed in the state-subsidised LTCF, and it appeared that management was reluctant to hire nurses to fill the vacancies.

Similarly, the absence of subcategory nurses in the private for-profit LTCF suggested that the management did not intend to employ them. This might suggest that the management considered the number and categories of nurses sufficient and showed indifference towards hiring ENs and ENAs. The management's apparent indifference toward the problems occurred despite the implied legal implications that could result from not adhering to the prescribed minimum staffing standards.

Both facilities provided relief staff for caregivers. However, while RN absences were covered between the private for-profit LTCF locum RNs, nurses in the state-subsidised LTCF rarely received relief staff to cover absences due to perceived budget constraints. This was seemingly due to the higher labour costs associated with relief staff for nurses, as opposed to the lower costs associated with relief staff for caregivers. The literature suggested that hiring agency staff does not necessarily improve resident outcomes, but using agency staff can increase the workload of existing staff since additional supervision might be required. The private for-profit and state-subsidised LTCF seemingly increased the number of caregivers to meet staffing demands. They used student caregivers (unpaid) to augment staff shortages.

Both nationally and internationally, the caregiver staffing levels were higher than the nurse staffing levels in the LTCFs. However, the low nurse staffing levels, both internationally and nationally, might signify deficiencies in nurse staffing, seemingly leading to residents receiving less care from nurses or, at times, only care from less trained caregivers. Low staffing levels in LTCFs seemed to contribute to high workloads, leading to burnout. They also seem to lead to poorer resident outcomes, such as care delays, care omissions, and adverse events. Moreover, the residents in the state-subsidised LTCF showed dissatisfaction towards the staff when they did not receive person-centred care. Nurse staffing levels lower than the prescribed standards may also have legal consequences, such as exposing the LTCFs to legal action.

7.6.2 Triangulated findings relating to skill mix

Four themes surfaced in terms of skill mix, and they are reflected in Table 7.2. These themes included the competencies and work experience that require developmental attention. A matter of concern was variations in the skill mix that lowered the bar of quality care and the proportion of nurses to caregivers in the total skill

mix. The last theme included the influence of the skill mix on residents, nurses, caregivers, and the LTCFs, which are mostly unsatisfactory.

Table 7.2: Triangulated findings relating to skill mix

Triangulated findings relating to skill mix			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Theme 1: Competencies and work experiences require developmental attention			
The included studies did not address the nurses' and caregivers' years of work experience. However, higher-qualified nurses, like RNs, seemed to play a more comprehensive role in resident care. This might be due to the RNs' extensive training, while caregivers have minimal training. • It appears that the RNs' extensive training may better equip them to address residents' behavioural and psychological symptoms and mental health conditions and identify serious adverse events. • Nursing staff's education, skills, and expertise should be regularly evaluated. It seemed likely that the nurses' actual competence was not measured in the LTCFs. • LTCFs should provide specialised training to ensure that nurses and caregivers are competent.	The documents did not reflect nurses' and caregivers' work experience, but some job descriptions contained the required competencies they had to possess before appointment. • No evidence was available in the private for-profit or the state-subsidised LTCF of job-specific policies to guide nurses and caregivers. • No written evidence of formal in-service training was available in either LTCF. • Differences surfaced between the two LTCFs in that the private for-profit LTCF set predetermined criteria for nurse and caregiver appointments regarding competencies, qualifications, and work experience. Conversely, the state-subsidised LTCF set no predetermined criteria for nurse and caregiver appointments. • Another difference between the two LTCFs was that the state-subsidised LTCF had human resource policies, while the private for-profit LTCF had none.	Most nurses and caregivers had years of work experience in their respective facilities in the SA sample. Despite years of work experience, not all nurses felt they had the necessary competencies to practise safely and competently: • Some nurses felt that they lacked the competencies to care for residents with Alzheimer's and Dementia adequately and expressed a need for training. • There was no evidence of formal in-service training in the LTCFs.	The nurses and caregivers in the SA sample had extensive work experience in their respective LTCFs, which could have been beneficial in the work situation because they were familiar with the residents and the work. Still, the lack of set criteria for hiring nurses and caregivers raised concerns, especially since there were no job-specific policies to guide their practice. Internationally, it was found that RNs with higher qualifications might be better equipped to manage residents with behavioural and cognitive issues. Some less-qualified nurses did express a need for additional training and skills to manage residents with Dementia and Alzheimer's. However, there was no evidence of providing formal in-service training. To ensure safety and competence in LTCFs: • Nurses' and caregivers' competencies should be regularly evaluated. • Specialised training should be provided.
Theme 2: Variations in skill mix lower the bar of quality care			
Internationally, the countries' national standards regarding the skill mix in LTCFs varied.	Both LTCFs' documents reflected discrepancies in the skill mix composition when compared to	There were differences in the mix of skills between the LTCFs. In the state-subsidised LTCF, the mix of	Internationally, the countries' national standards varied regarding the skill mix in LTCFs. In

Triangulated findings relating to skill mix			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Some countries explicitly state the required skill mix, while others only require that it be appropriate for residents' needs. • Some countries had a lower skill mix over weekends than weekdays.	minimum legal skill mix standards: • There were fewer nurses in the skill mix than the minimum standards prescribed. • Differences surfaced in the skill mix composition between the LTCFs. The private for-profit LTCF only employed RNs and caregivers, not ENs or ENAs, while the state-subsidised LTCF employed all three nurse categories and caregivers. • The state-subsidised LTCF had no RNs on night shifts and, at times, no RNs on weekend shifts. The state-subsidised LTCF did have ENs on night and weekend shifts. • For three hours daily, only caregivers were on duty in the private for-profit LTCF.	skills included RNs, ENs, ENAs, and caregivers. In contrast to the state-subsidised LTCF, the private for-profit LTCF employed only RNs and caregivers. Further probing revealed that the RNs and caregivers in the private for-profit LTCF found that ENs and ENAs were redundant, possibly conveying that they were oblivious to or perhaps unconcerned about the potential risks: • The private for-profit LTCF's RNs and caregivers perceived that an RN *or* EN per shift, as opposed to both nurse categories on duty per shift, in addition to caregivers, was sufficient to provide necessary care to residents. • The private for-profit LTCF caregivers perceived that ENAs in the skill mix were not essential. • The management of the private for-profit LTCF decided to forfeit the services of ENs and ENAs based on their limited scope of practice, which required them to work under an RN's supervision. • Although using only one RN per shift in the private for-profit LTCF was perceived as more costly, it was seemingly still less expensive than employing all categories of nurses.	the SA sample, the skill mix also varied since the private for-profit LTCF only employed RNs and caregivers, while the state-subsidised LTCF employed RNs, ENs, ENAs, and caregivers. The LTCFs in the SA sample appeared to have a skill mix consisting of more caregivers and fewer qualified nurses. Internationally, and in the SA sample, a lower skill mix (fewer nurses and more caregivers) was apparent over weekends compared to the weekdays. It appeared as if the LTCFs in the SA sample considered the prescribed staffing model only as a guideline and showed evidence of non-compliance: • The private for-profit LTCF excluded ENs and ENAs, seemingly considering these nurse categories redundant. This may indicate obliviousness to the consequences, such as potential legal risks and overburdening of caregivers. • Cost considerations and ENs' limited scope of practice seemed to have led to this decision to replace ENs with RNs. • Fewer qualified nurses in the skill mix led to the absence of RNs on specific shifts or for some hours per day. (The findings indicate convergence, except for the divergence between the skill mix in the private for-profit LTCF and the state-subsidised LTCF)

Triangulated findings relating to skill mix			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Theme 3: The proportion of nurses to caregivers in the total skill mix is of concern			
A low proportion of nurses to caregivers in LTCFs led to a diluted skill mix with fewer RNs. • The proportion of RNs in the total nurse and caregiver staff seemed to vary across countries. The proportion of RNs in the total nurse and caregiver staff was often less than 24.1%. Germany appeared to have a higher proportion of RNs in the skill mix since 50% of the care staff had to include RNs. • The proportion of LPNs to the total nurse and caregiver staff was often less than 40%. • The proportion of caregivers to the total nurse and caregiver staff could be as much as 63.4%.	In both SA sample LTCFs, the proportion of nurses within the total staffing appeared low (between 18.1% and 32.4%), while the proportion of caregivers in the skill mix appeared higher, ranging between 67.6% and 81.8%. • The proportion of RNs and ENAs to caregivers was lowest in the state-subsidised LTCF. • Although the proportion of RNs to caregivers exceeded the minimum prescribed standards in the private for-profit LTCF, there were no ENs or ENAs, leading to a deficiency in the total proportion of nurses to caregivers. • The nurse-to-caregiver ratio reflected one nurse for between 2,08 and 4,5 caregivers. • The state-subsidised LTCF was slightly better staffed with nurses than the private for-profit LTCF, with a higher proportion of nurses in the skill mix and slightly less frail residents than in the private for-profit LTCF.	Most nurses and caregivers in the SA sample perceived the proportion of nurses in the skill mix as low. In both LTCFs, caregivers comprised most of the staff mix, but noticeably more so in the private for-profit LTCF. The low proportion of nurses in the skill mix was seemingly exacerbated by: • Financial constraints in the private for-profit LTCF, where the RNs' work hours seemed to have been reduced. • ENs and ENAs were excluded from the private for-profit LTCF's mix of skills. • The failure to provide relief staff for nurses. • Nurse vacancies (state-subsidised LTCF).	Both internationally and nationally, there seemed to be a low proportion of nurses, especially of higher nurse categories, such as RNs, and a high proportion of caregivers in the total skill mix. In the SA sample, the skills shortage might be due to fewer nurses with higher qualifications in the total skill mix and the exclusion of specific nurse categories. Therefore, the low proportion of nurses in the total skill mix could have limited the availability of skills for the residents. Financial constraints seemingly led to a low proportion of nurses in the skill mix, so nurse vacancies were not filled, and relief staff was not provided for nurses.
Theme 4: The influence of the skill mix on residents, nurses and caregivers, and the LTCFs are mostly unsatisfactory			
A higher skill mix, especially a higher proportion of RNs, might improve the quality of care. More RNs allowed more time for this nurse category to examine the underlying causes of behavioural symptoms. Employing more RNs might be worthwhile since it leads to better resident	Both LTCFs showed non-compliance with legislation in terms of the skill mix: • The LTCFs appeared not to provide the required skills needed per the acuity of the residents since the proportion of nurses in the skill mix was lower and the proportion of caregivers	The low proportion of nurses in the skill mix possibly led to poor continuity in resident care. It might also have led to possible adverse events going unnoticed and the shifting of nursing tasks to caregivers. This shift of tasks from nurses to caregivers resulted in high workloads for caregivers	The imbalance between the proportions of higher and less qualified nurses in the skill mix and an apparent overreliance on caregivers might result in a lower quality of care and adverse events going unnoticed. The low proportion of qualified nurses in the skill mix might increase the

Triangulated findings relating to skill mix			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
outcomes, which might be potentially cost-effective for LTCFs. • Adding more nurses to the skill mix might ensure better compliance with countries' legislation and fewer and lower severity of deficiency citations for LTCFs. These deficiency citations are given to LTCFs, for example, in the United States, when the LTCFs fail to meet the required federal staffing standards.	was higher than those mandated by legislation.	who then performed tasks beyond their job descriptions. However, the caregivers seemed oblivious to the legal implications of performing tasks beyond their job descriptions: • In the private for-profit LTCF, RNs had to hand over and receive handover reports daily from caregivers due to the absence of a nurse to hand over to or receive the handover report from. This might have led to a lack of continuity in resident care and possible adverse events going unnoticed. • Most caregivers shared that their workloads were high. They had to assume nursing responsibilities sometimes, and they felt overburdened.	workloads for lower categories of nurses and overburden the caregivers. Overusing the caregivers may result in international LTCFs receiving deficiency citations for failure to meet the required staffing standards and may have legal implications for the South African LTCFs. Moreover, caregivers working beyond their job scope could be exposed to legal action.

Summary of the triangulated findings related to skill mix

The nurses and caregivers had extensive work experience in the private for-profit and the state-subsidised LTCFs. However, there were no job-specific policies to guide their practice. Some less-qualified nurses also expressed a need for additional training and skills to manage residents with Dementia and Alzheimer's. However, there was no evidence that the LTCFs provided formal in-service training. Internationally and in the private for-profit and the state-subsidised LTCFs, the skill mix in the LTCFs indicated a higher proportion of caregivers and a lower proportion of nurses. The low proportion of nurses appeared more evident on weekends than on weekdays. Furthermore, the proportion of nurses in the private for-profit LTCF's skill mix seemed to have decreased due to excluding the EN and ENA nurse categories.

The nurses and caregivers seemingly viewed the EN and ENA nurse categories as redundant. The management excluded these nurse categories from the skill mix based on cost considerations, which suggested an indifference to the subsequent scope of practice limitations and legal implications. The low proportion of nurses in the total skill mix in the private for-profit and the state-subsidised LTCF led to shifts

without RNs or nurses being unavailable for hours per day. Consequently, excluding ENs and ENAs and the low proportion of nurses in the skill mix seemingly led to an overreliance on caregivers. With the overreliance on caregivers, the workload of the caregivers appeared to increase. Also, caregivers seemingly had to accept tasks beyond their level of expertise. In turn, the higher responsibilities and workload of the caregivers seemed to influence their morale, possibly leading to burnout. The findings suggested that the lower proportion of nurses, especially RNs, led to fewer skills being available to address residents' higher care needs. Therefore, the limited higher skills available might compromise the quality of care. Furthermore, the inadequate skill mix indicated non-compliance with legislation. Internationally, LTCFs might receive deficiency citations for failing to meet federal staffing standards. Likewise, the failure to meet minimum skill mix requirements in South Africa could have legal implications for the LTCFs. Moreover, the caregivers could also be exposed to legal action when completing tasks beyond their job scope.

7.6.3 Triangulated findings relating to staff allocation

Table 7.3 contains the triangulated findings relating to staff allocation. Staff allocation was related to four themes: The perceived increase in residents' acuity levels, acuity considerations and allocation strategies not taken on board, the nurses' scope of practice and staff allocation in the crossfire of economic considerations, and caregivers as primary providers requiring structure and support.

Table 7.3: Triangulated findings relating to staff allocation

Triangulated findings relating to staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Theme 1: Perceived increase in resident acuity levels			
Residents' acuity levels appear to rise, possibly due to the larger elderly populations worldwide, requiring complex nursing care. Where acuity levels of residents are higher, care omissions can occur. Some authors found a rate of 22% care omissions in residents with such higher acuity levels.	The residents' acuity levels were high in the private for-profit LTCF since all were frail. In contrast, the number of frail residents in the state-subsidised LTCF was slightly lower than in the private for-profit LTCF since in the state-subsidised LTCF, Category 1 and 2 residents diluted the high acuity.	In the SA sample, the nurses and caregivers seemingly perceived the acuity levels of the residents as high and sometimes higher than initially determined when staff numbers were allocated: • In the private for-profit LTCF, all the residents were frail. Their frailty levels suggested that they might have needed higher levels of care. • In the state-subsidised LTCF, the residents' acuity levels seemed higher than initially assessed, suggesting they might have needed	Internationally, the residents seemed to have higher acuity levels due to the increasing elderly population. The residents in the SA sample also showed higher acuity levels with increasingly complex needs, which could have indicated that the residents required higher levels of care. It was perceived that the levels of care needed went beyond just assisting with basic activities of daily living, requiring higher-level nursing skills. When a high level of care was unavailable for residents with high acuity levels and lower categories of staff

Triangulated findings relating to staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
		higher levels of care than only assistance with their ADLs.	provided the care, there was a risk that specific care might be omitted.
Theme 2: Acuity considerations and allocation strategies not taken on board			
Despite the rising acuity levels of residents, LTCFs seemed disinterested in adopting acuity-adjusted staffing models. • Germany was the exception, where staffing levels were calculated based on the residents' dependency levels. • Elsewhere, nurses and caregivers were seemingly not allocated according to residents' acuity levels. • Residents received the same overall care regardless of their acuity levels.	The LTCFs showed similarities in that the residents' acuity levels seemed disregarded when allocating the staff. • No staff allocation adjustments were recorded in the private for-profit LTCF despite residents' high acuity levels. • The state-subsidised LTCF recorded staff allocation in duty rosters and transcribed it daily in an allocation book. • However, in the state-subsidised LTCF, the staff were allocated to the same geographic areas for extended periods without mentioning resident names in the allocation book, indicating a lack of consideration of nursing allocation related to the acuity of residents.	Staff allocation was seemingly not done or done inappropriately, and the responsibility for allocating the staff seemed to be delegated to lower-skilled staff. • Staff allocation was not documented in the private for-profit LTCF. • The private for-profit LTCF's caregivers were responsible for deciding which residents to care for daily. • The state-subsidised LTCF's ENs assumed responsibility for staff allocation when RNs were unavailable. • No staff members were explicitly assigned to dying residents in the state-subsidised LTCF. • A staff allocation book was used in the state-subsidised LTCF. Still, it was considered more helpful in preventing staff members from taking breaks simultaneously than allocating staff according to residents' acuity levels.	Residents' needs were becoming more complex, thus requiring more skilled care. Despite needing more staff or more skilled care, the LTCFs seemed to overlook the residents' acuity when assigning staff, resulting in residents receiving the same basic care regardless of their individual needs.
Theme 3: Nurses' scope of practice and staff allocation in the crossfire of economic considerations			
It appeared that higher-qualified staff like RNs were replaced by less-qualified staff such as LPNs and caregivers. These replacements may be due to cost savings. Some countries, such as South Korea, seemingly allowed RNs and CNAs to be used interchangeably.	Both LTCF's job descriptions showed inconsistencies. Tasks appeared to overlap between the nurse categories and caregivers, and ENs' job descriptions contradicted their scope of practice. Nurse allocation appeared vague. They were either not assigned to residents, assigned tasks beyond	Participants experienced that, with the shortage of RNs and subsequent interchangeable use of RNs and ENs (state-subsidised LTCF), it seemed necessary to shift tasks from the RNs to the ENs, resulting in ENs assuming RN duties beyond the ENs' scope of practice, such as administering medication	Both internationally and nationally, a shortage of RNs or possibly efforts to cut costs sometimes resulted in replacing higher-qualified nurses with less-qualified nurses, thus blurring the roles between the nurse categories. In the SA sample, inappropriate job descriptions contributed to role blurring between

Triangulated findings relating to staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Replacing higher-qualified staff with less-qualified staff might lead to: • There are fewer distinct roles between nurse categories despite different training and scopes of practice. • Nurses may assume responsibilities beyond their qualifications. • RNs were more involved with indirect care activities such as documentation and provided less direct resident care. Compared to the RNs, the LPNs appeared to have more task-oriented roles. • Qualified nurses performed tasks which could have been assigned to caregivers. • Some LPNs worked below their scope of practice.	their scope of practice (ENs), or assigned non-nursing tasks. • Job descriptions referenced policies that seemingly did not exist. For example, the RNs were required to adhere to the nursing care standards stipulated in the private for-profit LTCF's policies, but the LTCF did not have any job-specific or human resource policies. • No staff allocation was documented in the private for-profit LTCF, although the RNs were responsible for staff allocation based on resident acuity and operational requirements per their job descriptions. • In the state-subsidised LTCF, the job descriptions of RNs and ENs were mainly similar, and those of ENAs and caregivers were similar, except that the caregivers were not exempted from tube feeding and vital signs monitoring while these tasks were within ENA's job descriptions. • The allocation of RNs in the state-subsidised LTCF appeared vague, limiting allocation to supervision and medication administration without mentioning residents. • ENs were allocated similarly to the RNs, thus assuming the same responsibilities as RNs in the RNs' absence. • Non-nursing tasks such as laundry care were	without the required legislated RN supervision. Although there was a shortage of RNs, non-nursing tasks were still assigned to the RNs. • The RNs (in the private for-profit LTCF and the state-subsidised LTCF) and ENs (state-subsidised LTCF) perceived their roles as primarily being medication management and supervising lower categories of staff. • ENs had to work in the place of RNs when no RNs were available, such as on night duty and over weekends (state-subsidised LTCF). • The ENs seemingly completed tasks designated for RNs in the absence of RNs. The ENs' tasks were seemingly shifted to the ENAs (state-subsidised LTCF). • The nurses were seemingly oblivious to the legal implications of working beyond their designated scopes of practice. • RNs in both LTCFs and ENs in the state-subsidised LTCF were seemingly required to complete non-nursing tasks. • Despite the reasoning behind requiring RNs on night duty to serve tea to residents (to facilitate communication and observation- private for-profit LTCF), some RNs found this task demeaning due to South	the different categories of nurses and caregivers. • Blurred roles seemingly caused nurses to take on responsibilities for which they were not adequately trained. • Task shifting seemingly occurred from RNs to ENs, thereby contradicting the ENs' scope of practice. • Some activities performed by higher-qualified nurses could be delegated to less-qualified nurses, and non-nursing tasks could be delegated to caregivers. (Convergent findings: some LPNs worked below their scope of practice, which appeared divergent to the findings related to ENs in the state-subsidised LTCF).

Triangulated findings relating to staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
	assigned to ENAs in the state-subsidised LTCF.	Africa's historical context.	
Theme 4: Caregivers as primary providers require structure and support			
Caregivers seem to provide most of the direct resident care in the LTCFs. The high burden of providing this care may lead to caregiver overextension. The roles between nurses and caregivers seem to become increasingly blurred due to a lack of differentiation in staffing requirements. • This role blurring raised questions about resource utilisation and role clarity.	Tasks that nurses should have done according to their scope of practice were seemingly shifted to caregivers: • In the state-subsidised LTCF, ENAs were seldom allocated to residents but to specific functions, such as wound care and doing observations. In contrast, all the basic care was assigned to caregivers. • In the private for-profit LTCF, in the absence of any nurses at certain times of the day, the caregivers were responsible for the residents, thus seemingly assuming all nursing responsibilities.	The bulk of the resident care seemed to fall primarily to caregivers regardless of the level of care the residents needed, and caregivers were allowed to practice within the scope of practice of several categories of nurses: • Caregivers practised within the scope of practice of ENAs in both LTCFs, such as providing basic nursing care and wound care. • Caregivers sometimes practised within the scope of ENs, such as providing colostomy care (state-subsidised LTCF). • Caregivers sometimes practised within the scope of practice of RNs, such as administering medication (private for-profit LTCF). • Caregivers did not appear concerned about the consequences of working outside their job scope but felt overburdened. • Caregivers were seemingly oblivious to the legal implications of working beyond their scope.	Both internationally and nationally, caregivers seemingly provided the most direct resident care, regardless of the specific care level needed. Tasks that typically fall within the nurses' scope of practice were being shifted to caregivers, suggesting that caregivers might be operating beyond their job scope, either because they were unaware of the potential risks or simply unconcerned about them. Allocating higher responsibilities to caregivers raised concerns about resource utilisation and role clarity, with caregivers potentially bearing a heavy burden, which could lead to overextension and burnout. However, the caregivers seemed oblivious to possible litigation and disciplinary actions against them.

Summary of the triangulated findings related to staff allocation

Despite residents' rising acuity levels, many LTCFs do not adjust their staff allocation strategies to align with residents' higher care needs. The tendency to assign staff without considering residents' specific care requirements seemed to result in residents receiving only basic care instead of personalised and/or specialised care according to their needs. When staff with lower qualifications care for residents with high acuity, there is a risk that such specific care will be omitted. Replacing RNs with less qualified nurses such as

ENs, possibly to save costs, might have led to less distinct role differences between these nurse categories. As a result, tasks seemed to have shifted from the RNs to ENs, which might have resulted in ENs taking on responsibilities that they might not have been adequately trained for and which contradicted their scope of practice. However, the nurses were seemingly oblivious to the legal implications of working beyond their designated scope of practice. The findings also suggested that there was an inefficient use of available nurses and caregivers. Higher-qualified nurses seemingly performed non-nursing tasks that could have been delegated to caregivers. Caregivers seemingly already provided most of the direct resident care in LTCFs despite such care falling within the nurses' scope of practice. Shifting tasks from nurses to caregivers seemingly increased the caregivers' workload and led to overextension and possible burnout. Moreover, the caregivers seemed oblivious to possible litigation and disciplinary actions against them. The management also appeared indifferent regarding the overuse of caregivers in the LTCFs.

7.6.4 Triangulated findings relating to staff wellbeing

Table 7.4 includes integrated findings that did not directly relate to the key concepts in the research framework (staffing levels, skill mix, and staff allocation) but were related to staffing practices in the LTCFs. The triangulated findings on staff wellbeing comprised workplace culture issues and communication barriers that left nurses and caregivers in the cold, and budget constraints and lack of employee support which tended to cause distress.

Table 7.4: Triangulated findings relating to staff wellbeing

Triangulated findings not directly related to the key concepts in the framework, namely staffing levels, skill mix, and staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
Theme 1: Workplace culture issues and communication barriers leave nurses and caregivers in the cold			
The scoping review did not include searching for issues related to workplace culture or communication barriers. However, staff burnout did surface in the included studies, as discussed in Table 7.1. Low staffing levels appeared to increase nurses' and caregivers' workloads, which might lead to burnout and compromise their ability to provide adequate resident care.	Both LTCFs appeared to lack formal staff meetings. The private for-profit LTCF did not document any disciplinary measures against nurses and caregivers, while the state-subsidised LTCF documented various disciplinary measures against nurses and caregivers.	Issues that hampered the nurses' and caregivers' well-being related to communication structures and the workplace culture: • Nurses and caregivers shared that staff meetings did not take place in the LTCFs. • The managers were seemingly indifferent to the possible legal implications of not conducting staff meetings. • Some nurses and caregivers perceived a lack of support and recognition from RNs	While respectful and reciprocal informal verbal communication might facilitate staff wellbeing, verbal communication tantamount to bullying may be detrimental to the work environment and the nurses' and caregivers' wellbeing. The absence of formal staff meetings might suggest managers were indifferent to the possible legal implications of not conducting staff meetings. Moreover, poor communication and overly harsh disciplinary measures might be

Triangulated findings not directly related to the key concepts in the framework, namely staffing levels, skill mix, and staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
		and management, culminating in frustration and discontent. • The private for-profit LTCF's informal verbal communication between the manager, nurses, and caregivers in the absence of formal staff meetings was perceived as respectful and mutual. However, the state-subsidised LTCF's manager tended to avoid communication with staff, and the limited communication appeared to contain verbal threats towards the staff. For example, if the LTCF had to pay for relief staff, the staff's bonuses would be withheld, and if the staff were unhappy with this decision, they could look for other work. • The private for-profit LTCF rarely enforced formal disciplinary actions but resolved issues informally. However, the state-subsidised LTCF frequently instated disciplinary measures against staff. Most participants perceived the disciplinary measures as excessive and more severe than was warranted by the transgressions.	construed as a lack of management support, thus leading to frustration and discontent. Additionally, low staffing levels could cause burnout among nurses and caregivers, which might be detrimental to the nurses' and caregivers' wellbeing.
Theme 2: Budget constraints and lack of employee support tend to cause distress			
The scoping review did not include searching for resource allocation and employee support. However, unattractive working conditions and cost considerations might	The private for-profit LTCF's AGM minutes suggested that the employers supported the employees. For instance, condolences were extended to team	Issues that hampered the nurses' and caregivers' wellbeing related to the availability of or the way resources were allocated: • The private for-profit LTCF provided employee	Both internationally and nationally, financial constraints seemingly influenced the nurses' and caregivers' wellbeing. Work conditions may be less attractive, and cost

Triangulated findings not directly related to the key concepts in the framework, namely staffing levels, skill mix, and staff allocation			
Scoping review findings	**Document review findings**	**Interview findings**	**Triangulated findings**
have hampered RN appointments in the LTCFs.	members, and staff with lengthy service records were commended. There were no references to reflect employee support in the state-subsidised LTCF's selected documents.	benefits, while the state-subsidised LTCF's employees received no benefits. The state-subsidised LTCF receive state subsidies, but the LTCF is not state-owned. Therefore, the nurses and caregivers did not receive benefits that government employees would typically receive. The absence of benefits seemingly led to feelings of not being valued. • The private for-profit LTCF provided additional resources, such as wound care specialists, while the state-subsidised LTCF seldom provided extra services or support staff to assist the staff.	considerations might impede RN appointments in the LTCFs. A lack of employee benefits might lead to nurses and caregivers not feeling valued. Moreover, a lack of support staff and sufficient resources might influence the work environment, the staff's wellbeing, and the nurses' and caregivers' ability to provide high-quality resident care.

Summary of the triangulated findings related to staff wellbeing

Staffing practices influenced the nurses' and caregivers' wellbeing as some staff seemed to experience the work environment as stressful and felt unsupported by management. Overly harsh disciplinary measures sometimes led to discontent and frustration among the nurses and caregivers. Managers using verbal communication that suggests bullying might be detrimental to the nurses' and caregivers' wellbeing and might lower their morale. The absence of formal staff meetings suggested that managers showed indifference to the possible legal implications of not conducting staff meetings in the LTCFs. Budget constraints that led to withholding employee benefits or support staff, for example, for clerical tasks, seemingly made the staff feel they were not valued. Moreover, low staffing levels could lead to burnout among nurses and caregivers, thus further influencing their wellbeing.

7.7 SUMMARY

Chapter 7 included a background of triangulation and the inductive, deductive, abductive, and retroductive reasoning approaches followed to reach conclusions. Thereafter, the quality of the integrations was assessed. Each dataset's findings were separately summarised and then organised according to the key concepts outlined in the research framework. Themes relating to staffing levels, skill mix, and staff allocation across

the datasets were developed and used to create the final set of triangulated data. Some triangulated data did not directly relate to this study's research framework. However, the contextual factors influencing staff wellbeing were included since they might have influenced the implementation of a staffing model in LTCFs. The findings were compared across the three datasets to highlight convergence, and complementary, and divergent findings. The data triangulation provided a perspective from multiple sources to promote an understanding of the underlying realities and processes involved in implementing a staffing model in LTCFs. The next chapter includes a description of the framework developed from the findings. It also contains recommendations, study limitations, and the overall conclusion of the research.

CHAPTER 8
FRAMEWORK, RECOMMENDATIONS, AND CONCLUSIONS

8.1 INTRODUCTION

Chapter 7 included the integrated findings from the scoping review and holistic multiple-case study, including the document review, interviews, and the triangulation process. Chapter 8 concerns Phase 3 of the study and contains a discussion of the development and validation of the framework to inform staffing models for LTCFs in resource-constrained contexts, which is the final study objective. The rest of the chapter contains recommendations, study limitations, and a conclusion.

The study's framework was developed by organising data around key concepts or ideas (Partelow, 2023:510–519). The framework was also structured to enhance understanding of the social realities (Jabareen, 2009:49–62); in this instance, related to staffing models for LTCFs for older persons in resource-constrained contexts. At the same time, consideration was given to the framework's trustworthiness (see Section 8.2 and Figure 8.1). Insights from the scoping review and holistic multiple-case study were informed by literature, aligned with the research objectives, and guided by Mueller's framework (Mueller, 2000:262–267) and Bhaskar's meta-theory of critical realism (Bhaskar, 2008:4–9). Then, the framework took shape, with ideas transformed into operational concepts.

8.2 FRAMEWORK CONCEPTUALISATION AND VALIDATION PROCESS

Figure 8.1 visually illustrates the research processes followed in the study and the framework conceptualisation process. As highlighted by Venkatesh, Brown, and Sullivan (2016:435–495), the framework's validity is closely linked to the validity of the triangulated data. Therefore, careful consideration was given to the research design's appropriateness, based on the research question and objectives, the study's underpinning by the critical realist philosophy encompassing epistemological and ontological assumptions, the literature review (Chapter 2), the research framework, trustworthiness as embedded in data collection and analysis (outlined in Chapter 3), and data triangulation (Chapter 7).

Research design appropriateness: The research question posed at the beginning of the study in Chapter 1 was: "What framework could be developed to inform staffing models for LTCFs for older persons in resource-constrained contexts?" The research plan included two concurrent studies: a scoping review and a holistic multiple-case study.

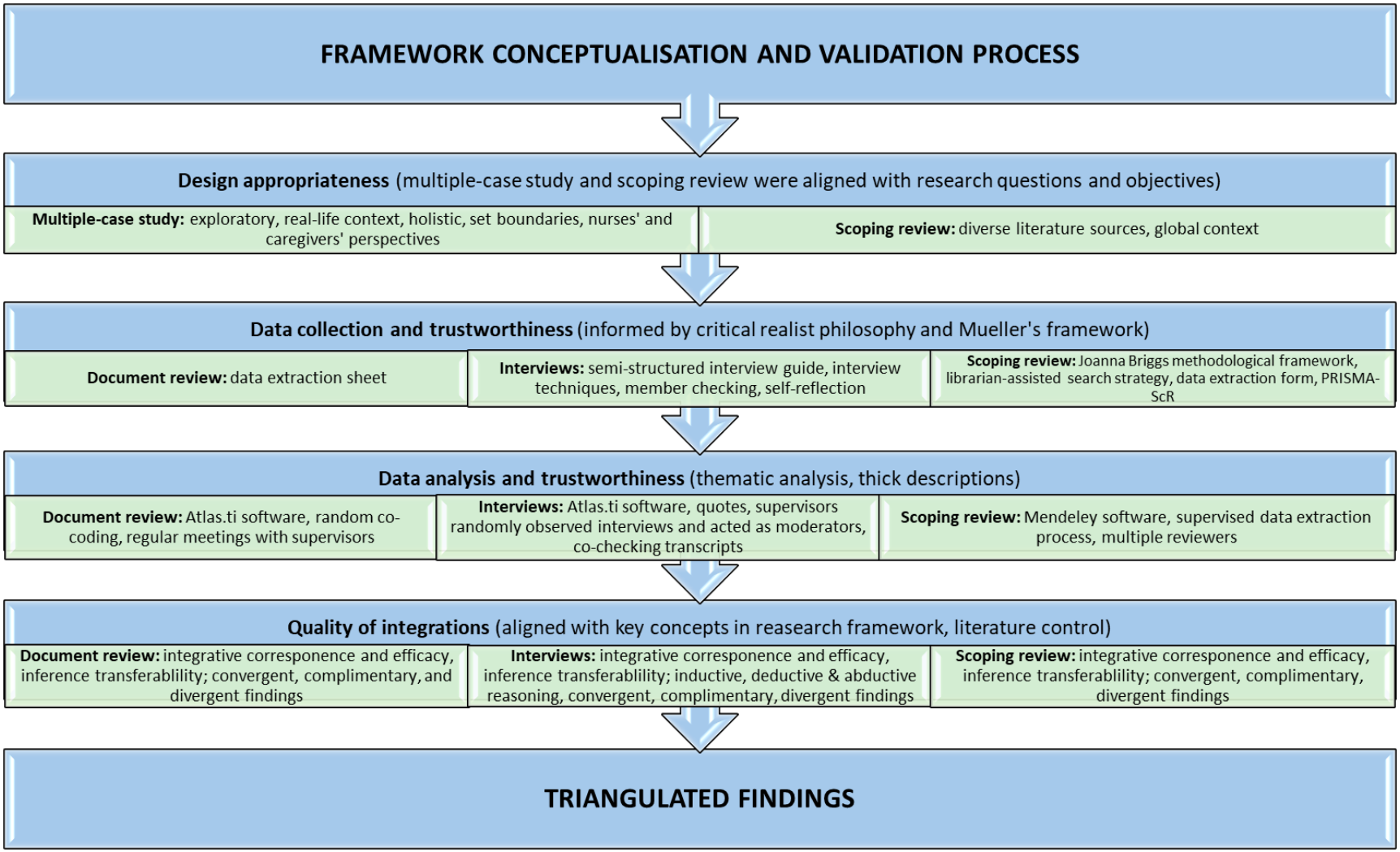

Figure 8.1: Framework conceptualisation and validation process

The preliminary literature review revealed insufficient information on implementing staffing models for LTCFs in resource-constrained contexts, especially in Africa. Alongside the scoping review, the holistic multiple-case study was conducted to gain qualitative insights into barriers and facilitators from the perspectives of nurses and caregivers in the LTCFs. The holistic multiple-case study and scoping review findings were merged and triangulated. Convergent and complementary findings were highlighted and reported, and divergent conclusions were also documented.

Design strategy: A single paradigm, critical realism, was deemed appropriate for the study because this philosophy recognises the complexity of social reality. This paradigm allowed for a comprehensive exploration of diverse viewpoints and evidence sources. Critical realism's epistemology concerns the nature of knowledge or what we know, and the empirical level was thus a starting point in this study for understanding the reality of implementing a nurse and caregiver staffing model. For example, the private for-profit LTCF's duty rosters were evidence (the empirical domain), and the researcher could observe that more caregivers were employed but fewer nurses. This employment strategy resulted in caregivers working for a few hours daily without any nurses present. However, it was not visible or apparent to the researcher *why* this decision was made or *how* the absence of nurses was managed when nurses were not on duty. A deeper understanding could only be gained by exploring invisible evidence.

Critical realism's ontological assumptions posit that an independent reality exists due to the experiences and perceptions of individuals (Bhaskar, 2008:5–7). Thus, it was deemed appropriate to probe deeper to uncover underlying realities, i.e., the participants' reality based on their beliefs and experiences. Although it was not visible to the researcher (in the *actual* domain), the findings showed that some RNs were confident that caregivers could complete nursing tasks such as medication administration and monitoring vital signs based on their years of work experience. However, caregivers expressed their frustration with completing nursing tasks but alluded that they could not refuse instructions given by superiors. This underlying belief suggested an imbalance in the power relations between the RNs and caregivers. When delving deeper to find the underlying realities that might exist in the *real* domain, the findings revealed that caregivers seemed to feel empowered to complete nursing tasks as they shared that "we are doing the RNs' jobs". However, they appeared confident in their ability to administer medication and monitor vital signs and deemed ENAs and ENs in the skill mix unnecessary. Although this belief might convey nescience on the part of the caregivers, as it seemed that they were being exploited, it appeared to be the caregivers' reality.

Social structures outside the LTCFs may also influence how staffing models are implemented in the LTCFs. Despite the South African constitution specifying that all citizens have a right to basic healthcare, a long-standing inequality in healthcare exists due to socio-economic inequalities (Omotoso & Koch, 2018). With a poverty rate of 55.5% in South Africa (World Bank, 2022), residents without access to the necessary funds

have to rely on services provided by state-subsidised LTCFs. In contrast, residents with access to funds can exercise choices and apply for accommodation in private LTCFs. Nevertheless, this study's findings showed that state-subsidised and private for-profit LTCFs implemented a low-cost nursing model. Although it is recognised that a physical shortage of nurses exists in South Africa (South African Nursing Council, 2021a), the boards, owners, and stakeholders in private LTCFs seemingly had a profit-driven business culture, focusing more on the aesthetic environment to attract wealthy residents rather than employing the minimum number of nurses in the appropriate categories. Furthermore, the policy and legislative changes in South Africa resulting in the restructuring of nursing education and the phasing out of legacy qualifications, such as the ENs as a nurse category, may increase the EN deficit (South African Nursing Council, 2016). The ensuing EN deficit and the new nurses' scope of practice seemingly made it difficult to employ enough ENs and use this nurse category cost-effectively since an RN, for example, must be on-site for medication administration in the LTCFs. Another social structure that seemingly directly influenced the implementation of a staffing model was the South African national energy supplier's decision to interrupt the power supply in areas to reduce electricity consumption. This decision resulted in LTCFs incurring costs due to the need to purchase generators and fuel for the generators. As such, human resource budgets were seemingly used for these purchases, which may have influenced staff appointments in the LTCFs.

Thus, in using the critical realism paradigm, which considers the subjective experiences of nurses and caregivers and the deeper causes in the real domain that influence the implementation of a staffing model, readers are able to understand the underlying reality of implementing staffing models in LTCFs. In addition to critical realism, the study underpinned by Mueller's framework focuses on three key concepts, i.e., staffing levels, skill mix, and staffing allocation, central to staffing management (Mueller, 2000:262–267).

Data collection and analysis strategy: Scoping review data was collected according to Joanna Briggs's methodological framework (Joanna Briggs Institute, 2015). The search strategy was developed with a research librarian from Stellenbosch University. The study selection was mapped using PRISMA-ScR (Tricco *et al.*, 2018:467–473; Lockwood, dos Santos & Pap, 2019:287–294). A data extraction form was developed, validated, and used to extract the data. Accordingly, data triangulation was achieved by collecting information from diverse sources (Lincoln & Guba, 1985:305–307).

In the holistic multiple-case study, context comprehension was promoted by thoroughly describing the research setting. The research setting included a state-subsidised and private for-profit LTCF in the Cape Metropole of the Western Cape province, South Africa. Based on the description of the setting and the research process that was followed, readers may conclude whether the findings are transferable to their own settings (Korstjens & Moser, 2018:120–124). A data extraction form was used in the document review, and a semi-structured interview guide was used to collect data during the interviews to ensure transparency.

The supervisors moderated data collection and analysis, thus further facilitating these strategies' credibility. The researcher strived to augment the data integrity through triangulation across LTCFs and participant categories, and member checking by offering participants verbatim transcripts of their interviews. The researcher also applied the technique of critical self-reflection to facilitate self-awareness of potential power imbalances during interviews (Korstjens & Moser, 2018:120–124).

Mendeley, a reference management software application, was used to manage data in the scoping review. For the holistic multiple-case study, a qualitative data analysis software program, ATLAS.ti, was used to assist with coding the data. All the data were analysed qualitatively using an inductive thematic analysis process proposed by Braun and Clarke (2006:77–101) and reported in narrative form.

Triangulation of the data: To facilitate data triangulation between all the datasets, the researcher used inductive, deductive, abductive, and retroductive reasoning methods. To enhance this study's robustness, the integrated findings were assessed regarding their quality using an Integrative Framework (Venkatesh, Brown & Sullivan, 2016:435–495). Consequently, a holistic perspective could be obtained on implementing staffing models in LTCFs.

8.3 FRAMEWORK VALIDATION THROUGH EXPERTS

Experts (see Chapter 3, Section 3.7.2) validated the framework to improve the trustworthiness of the study findings (Meleis, 2012:381–387), thus ensuring the framework's comprehensiveness and completeness and validating the scoping review and holistic multiple-case study findings. Experts were selected using purposeful sampling. The selection process, participant characteristics, and workshop method are described in Chapter 3, Section 3.7.2. An excerpt from the transcription is available in Addendum M. The following is a summary of the feedback and suggestions received from the panel members:

Staffing levels: The legal implications of inadequate staffing levels were acknowledged. Overall, the panel members suggested that LTCFs' Boards of Directors and management should adopt a more proactive approach regarding staffing. They indicated that the proposed framework with concrete suggestions could serve as a tool to inform and guide the LTCFs' Boards of Directors and managers in LTCFs regarding the legalities around staffing.

Skill mix: Panel members agreed that recruitment criteria should be defined since RNs seemed to perceive appointments in LTCFs as retirement positions and, therefore, possibly a more manageable work environment for retirees. This perception persists despite the profile of RNs in the LTCFs indicating that more younger people are applying for LTCF positions. The panel members confirmed that it was necessary to conduct skills gap analyses and compile Workplace Skills Plans as the LTCFs' budgets were being spent more

on nurse training and used less for caregiver training regarding older persons' care. Moreover, investing in training for nurses and caregivers should be prioritised despite the limited time available during the workday in the LTCFs. The members reiterated that it was also vital for management to support training efforts. Specialised training for caregivers was proposed, such as caregivers specialising in either Dementia care or palliative care. The geriatric content in curriculums at academic institutions appeared insufficient to prepare nurses for positions in LTCFs and should be reassessed. A further suggestion from the panel members was to use resident satisfaction surveys in the LTCFs' staff training programmes when addressing topics related to quality improvement. The legal implications of inadequate skill mix were acknowledged.

Staff allocation: Matching staff's skills with the acuity of the residents was more important than what the panel members initially considered. Therefore, a stronger focus was needed on task allocation in the LTCFs. The legal implications were acknowledged of inappropriate staff allocation and overusing caregivers. Panel members shared that caregivers are considered the backbone of elderly care and that management and RNs in LTCFs sometimes allocate caregivers tasks beyond their work scope. It appeared that caregivers in the LTCFs were asked to do more than they were legally allowed, which could overburden them and cause stress.

Although the nurse managers were cognisant that they sometimes overburdened the caregivers, institutional management (Board of Directors) might still, at times, be dissatisfied with the results of the caregivers' performance. The panel members suggested that regulation of the caregiver workforce should be a priority since caregivers needed to be protected from exploitation. This exploitation did not only apply to the caregivers' allocated tasks, but it appeared that financial exploitation of this workforce could occur.

The panel members suggested that more focus should be placed on allocating non-nursing tasks to other categories of staff, such as caregivers or support staff. Resident satisfaction surveys were seemingly appropriate for evaluating service delivery, but surveying satisfaction levels was not always well accepted by the LTCFs' Board of Directors. It appeared that the Board of Directors might see resident satisfaction surveys as causing unnecessary problems.

Workplace culture: Appreciation was expressed for giving caregivers "a voice" in the study since caregivers as a workforce were often excluded from discussions. Furthermore, the panel members suggested training for the LTCF's Board of Directors, management, and RNs to understand the caregivers' job scope to minimise role clouding.

The researcher and study supervisors discussed the panel members' feedback and suggestions, which were then integrated into the final version of the framework.

8.4 FRAMEWORK

The framework was developed based on Meleis's steps (2012:381–387), as discussed in Chapter 3. Despite a linear presentation of these steps, Meleis (2012:381–387) suggested that some stages could be combined, occur sequentially, or simultaneously, as was evident in this study. Through interpreting the scoping review and holistic multiple-case study's findings and integrating them, steps such as "sensing and taking in a phenomenon", "describing and labelling it", and "developing concepts and statements" occurred. For example, after repeatedly reading the integrated findings (Chapter 7, Table 7.1), a conclusion was reached that staffing levels were obtained by overemploying caregivers while employing fewer nurses. Subsequent steps followed naturally, culminating in triangulated findings.

The next step, as proposed by Meleis (2012:381–387), involved expounding assumptions. Expounding assumptions required an iterative process of reflection on the research findings and clarifying implicit and explicit assumptions by considering the researcher's views, the theoretical underpinnings of the study and the research findings. This reflective process led to the realisation that higher staffing requirements were needed in the LTCFs since the residents had complex needs and, thus, higher care demands. The LTCFs seemingly employed more caregivers and fewer nurses to meet the higher care demands of the residents. However, it appeared that the higher caregiver levels could not offset the low nurse staffing levels, thus creating an unbalanced skill mix. The unbalanced skill mix reflected fewer nurses with higher qualifications, advanced training, and skills were available. Therefore, nurses with lower qualifications apparently had to complete tasks beyond their scope of practice. It also seemed to influence the caregivers since they had to perform tasks that were beyond their expertise. These findings suggested inappropriate efforts to curb labour costs, questionable human resource planning, and the ineffective use of scarce human resources. Moreover, the triangulated findings suggested the existence of potentially harmful workplace cultures that could influence staff wellbeing. As a result, the triangulated findings led to the identification of four processes necessary to facilitate effective and efficient staffing model implementation in LTCFs in resource-constrained contexts, namely, optimising staffing levels, enhancing skill mix, sound staff allocation practices, and healthy workplace cultures (Figure 8.2).

The final step in developing this framework involved sharing and communicating the researcher's interpretation of findings and how and why the findings were used (Meleis, 2012:381–387). Table 8.1 contains a summary of the main findings guiding the selection of these four processes, and informing the framework. After interpreting the findings, the researcher shared with the supervisors during meetings and the experts during a workshop why and how the findings were used or selected to develop the framework.

Table 8.1: Summary of evidence from the findings guiding the selection of the framework processes

Optimising staffing levels
• Minimum staffing standards were not aligned with actual staffing, resident, and organisational needs. • The total staffing levels were reached by the overemployment of caregivers and employing fewer nurses. • High nurse-to-resident and lower caregiver-to-resident ratios existed. • Low nurse staffing levels led to overburdened nurses and contributed to increased workloads for caregivers, possible exploitation, and staff burnout. • Relief staff to cover absences were provided for caregivers but seldom for nurses. • No caregiver vacancies existed, but unfilled vacant nurse positions did. • Unbalanced nurse and caregiver levels seemingly led to care delays, care omissions, and adverse events. • Using agency staff did not necessarily provide relief for staff. • The findings suggested non-compliance with staffing-level legislation.
Enhancing skill mix
• Evidence suggested that the staff had years of work experience in their respective LTCFs, which might be advantageous. • Predetermined appointment criteria appeared to be lacking. • Nurse vacancies existed seemingly without attempts to fill the positions. • In-service training was not provided to staff. • It appeared that limited skills were available, especially over weekends and on night duty, which could be overcome by employing staff with higher educational levels. • Nurse-to-caregiver ratios suggested a low proportion of nurses compared to caregivers; thus, lower knowledge levels related to the scientific nursing process were evident. • A low proportion of RNs in the skill mix seemingly led to the total absence of RNs on specific shifts. • Exclusion of specific nurse categories occurred without adjusting the total nurse staffing issue. • The findings suggested non-compliance with skill mix legislation.
Sound staff allocation practices
• Residents appear to have increasingly complex needs, e.g., requiring higher levels of care, which appeared to be unmet. • The care that the residents required was seemingly more than their acuity levels indicated. For example, where residents' assessment documents indicated that they only needed help with their ADLs, they did not show that they also needed higher levels of nursing care. • Staff allocation was not documented at times or not at all, and not according to the residents' acuity levels. • The responsibility for staff allocation was assigned to less-qualified staff. • Caregivers seemed to provide most of the direct care, resulting in residents receiving the same basic care, regardless of their individual differing needs. • RNs and ENs perceived their roles as primarily medication management and staff supervision. • RNs and ENs were used interchangeably, resulting in the ENs completing tasks designated for RNs. • The interchangeable use of RNs and ENs probably led to ENs working beyond their scope of practice. • Blurred roles ostensibly led to task shifting when RN tasks were done by ENs, ENs tasks by ENAs, and ENA tasks by caregivers. • Non-nursing tasks performed by higher-qualified nurses could be delegated to caregivers. • Caregivers sometimes practised within the scope of practice of ENAs, ENs, and even RNs.
Valuing healthy workplace cultures

- Good teamwork and respectful and reciprocal informal communication seemingly facilitated staff wellbeing.
- No formal staff meetings took place.
- Staff perceived a lack of support and recognition from RNs and management.
- The evidence suggested that some managers were involved in workplace bullying.
- Overly harsh disciplinary measures seemingly influenced staff's wellbeing.
- A lack of employee benefits apparently led to feelings of not being valued.
- Limited physical resources and a lack of support staff seemed to hinder care delivery.
- Financial constraints apparently led to staffing funds being reallocated for other purposes.

Figure 8.2 contains the framework developed from the triangulated findings, based on steps proposed by Meleis (2012:381–387)

Framework to inform staffing models for LTCFs in resource-constrained contexts

Processes essential for effective implementation of staffing models

Optimising staffing levels	Enhancing skill mix	Applying sound staff allocation practices	Valuing healthy workplace cultures
• Prepare human resource budgets that reflect sound financial planning and economic and efficient use of human resources rather than budgets based only on austerity measures • Establish staffing policies, including comprehensive staffing plans • Follow a proactive approach in staff planning and staff adjustments to ensure staying within budget • Use resident assessments and acuity to determine baseline staffing • Develop protocols to manage changes in staffing components/ vacancies/ leave periods • Use quality care indicators, e.g., adverse events, to identify staffing deficiencies • Formalise staffing plans aligned with legislation • Revise staffing plans regularly, e.g., quarterly, to avoid overusing caregivers, incurring nurse staff shortages, and enhancing legislative compliance	• Assess the skills required based on residents' acuity levels and each nurse category and caregiver's legal work scope • Define appropriate recruitment criteria to acquire needed skills • Ensure the proportion of nurses and caregivers complies with legal requirements • Conduct skill gaps analyses • Foster capacity building through internal in-service training based on skill gaps analyses • Budget, plan, and provide specialised training to nurses and caregivers tailored to residents' needs and appropriate to each nurse category and caregiver's legal work scope • Protect caregivers from exploitation by not providing nursing training and expecting them to perform nursing tasks to save costs	• Use resident profiles to inform staff allocation decisions • Hold board members, facility managers, and RNs accountable for staff allocation decisions and keep records of staff allocation • Align nurses' and caregiver's skills with residents according to residents' acuity levels • Align task assignments with nurses' scope of practice • Assign tasks related to ADLs to caregivers based on their skills • Optimise resource allocation by assigning non-nursing tasks to caregivers or support staff • Support allocation decisions with resident and family satisfaction surveys • Use resident and family satisfaction surveys in quality management training for board members, facility managers, nurses, and caregivers	• Cultivate professional relationships and support nurses and caregivers by recognising their contributions in the workplace • Enhance communication skills through training initiatives • Schedule regular internal staff meetings • Educate board members, facility managers, nurses, and caregivers on disciplinary and grievance procedures and employee rights • Educate and train board members, facility managers, and nurses on SANC regulations, SANC disciplinary processes, and nurses' scope of practice • Educate and train board members, facility managers, nurses, and caregivers on the caregivers' job roles within legal frameworks • Plan and coordinate fundraising efforts to address budgetary constraints

Desired outcomes

- Optimum staffing practices
- Adequate nurse and caregiver staffing levels
- Adequate skill mix based on residents' needs
- Improved staff allocation practices and optimum use of available skills
- Healthy workplace cultures
- Improved resident care
- Compliance with staffing legislation

Figure 8.2: Framework to inform staffing models for LTCFs in resource-constrained contexts

8.5 RECOMMENDATIONS

The recommendations are grounded in Bhaskar's critical realism, Mueller's framework, the study findings, the literature, and the validated framework.

LTCFs need nurses and caregivers to provide services to older persons. Whether LTCFs operate in resource-constrained or resource-rich contexts, human resources comprise a large portion of their healthcare budgets. The private for-profit LTCF in this study also experienced staff shortages, which the participants attributed to budget constraints. However, the underlying reality is that private for-profit LTCFs generate income by commercialising services to older people, with monthly fees varying between R30 000 and R40 000 (The Association for the Elderly, 2024). Regardless of the reasons for budget deficits, the private for-profit LTCF thus also appears to have operated in a resource-constrained context.

Reflecting on the meta-theory of critical realism, elements influencing a staffing plan may be visible in the empirical domain, such as non-adherence to legislation concerning staffing. There may also be ontological aspects, such as hidden causal mechanisms and structures in the *real* domain, that influence the implementation of a nurse and caregiver staffing model (Bhaskar, 2008:5–7). For example, the researcher observed that the business culture and decision-making processes of the boards, owners, and stakeholders in LTCFs preferred a low-cost nurse staffing model that included the over-employment of caregivers instead of employing the minimum number of nurses of the appropriate categories. When more caregivers and fewer nurses are employed, the LTCFs' profit margins can increase as the labour cost associated with employing a caregiver amounts to approximately R58 248.96 per year compared to, for example, the labour costs of approximately R260 930 per year to employ an RN (Payscale, 2024; Labour Guide, 2024). However, implementing a low-cost nurse staffing model appeared to influence the residents and staff. The findings showed that the residents received the same basic care regardless of their individual needs, and the residents could sometimes become verbally aggressive towards staff when they had to wait to receive care. In addition, the caregivers appeared to be overburdened and sometimes overconfident (in the private for-profit LTCF) as they had to perform tasks legally within the nurses' scope of practice. Nurses rarely received relief staff when they took leave, overburdening the remaining staff on duty. Despite resource constraints, managers should balance cost-effective staffing against adverse resident outcomes, as the quality and quantity of staff directly influence resident care (Tabatabaee *et al*., 2016:3348–3356). Therefore, managers must follow informed decision-making processes, such as consulting all the relevant legislation regarding staffing in LTCFs when formulating staff plans and using human resources to avoid policy inadequacies (Butler *et al*., 2019:9).

In addition to critical realism, Mueller (2000:262–267) acknowledges the complexity of staff planning. Therefore, Mueller provided a theoretical framework for the study's key concepts. Developed in the United

States, a high-income country, Mueller's framework offers a comprehensive perspective of critical concepts necessary for appropriate care in LTCFs. It is a valuable tool for all nurse managers, regardless of the ownership of a LTCF. As seen in the findings of this study, private for-profit LTCFs are not exclusively resource-rich, as they may also experience a lack of nurse resources. However, it may be more difficult to implement a Westernised staffing model in an African country, specifically South Africa, due to various existing logistics and social structures, as explained in Section 8.2 under the design strategy. For instance, the United States has 15.7 nurses and midwives per 1,000 people compared to South Africa, with 1.3 nurses and midwives per 1,000 people (World Bank, 2022), which may make it more difficult for LTCFs to recruit enough nurses. Therefore, this study's framework focuses on the finer nuances of staffing in LTCFs operating in resource-constrained environments, such as recruiting knowledgeable Board members for non-profit organisations to strengthen governance oversight, reducing mismanagement of funds, and enhancing the investment opportunities for donors and funders. This framework also considers low-cost training opportunities for LTCF staff. It incorporates the more cost-effective registered general nurse category in South Africa to alleviate the pressure on scarce human resources. The study's findings suggested that it was essential to have sufficient staff with diverse skills and that using the available staff effectively was also important. These key findings were supported by the literature and considered when developing the framework and making recommendations.

Sections 8.5.1 to 8.5.5 include recommendations for further research, recommendations for using the framework, policy development, implementation and support, educational initiatives, and community engagement.

8.5.1 Recommendations for further research

The following areas are suggested for future research:

- Given the lack of available literature on staffing in Africa, it is recommended that more research be conducted on nurse and caregiver staffing in long-term care settings in Sub-Saharan African countries.
- A quantitative study is recommended to augment the qualitative data regarding the barriers and facilitators to implementing the staffing model in LTCFs for older persons.
- It is also recommended that future research should focus on exploring the influence of nurse-to-caregiver ratios on resident outcomes and satisfaction. Residents' satisfaction levels may indicate to policymakers, Boards of Directors/CEOs, and nurse managers whether frail residents and their relatives consider it sufficient to receive most of their care from caregivers rather than higher-qualified nurses. Private LTCFs can often create an image of luxury, potentially leading to a

misconception that the care the residents receive may be outstanding, especially given the monthly payment required.

- The Regulations Regarding Older Persons (Republic of South Africa, 2010a) state that residents in LTCFs must have basic care plans to address their activities of daily living needs. Additionally, residents must have individual care plans to manage, among other things, chronic diseases, pain and wound care. However, this study's evidence suggests that residents received the same basic care regardless of their differing individual needs. Therefore, further research is recommended to gain residents' insights into whether their individual needs are satisfactorily fulfilled in addition to assisting with their daily living activities.
- Future research should focus on whether adverse events are linked to staffing deficiencies in South African long-term care facilities. For example, Nhongo *et al*. (2023:343–349) found that resident falls are the most common adverse event associated with inadequate staff, and Yoon *et al*. (2022:728–737) found that a higher RN level may allow more time to address behavioural issues in residents, for example, aggression in residents with Dementia.
- The staff allocation practices followed by the facilities in this study showed that South Africa's historical context of 'Apartheid' may influence the staff and care provision to older persons. Therefore, it is recommended that further research be conducted on the influence of the finer nuances of race and gender on staff and the care of older persons.
- Further research is recommended to explore the decision-making processes in private for-profit LTCF board meetings. This will help explain why boards do not comply with legislation, such as the prescribed skill mix, but rather choose to implement a low-cost nurse staffing model while, on the other hand, requiring monthly resident fees of up to R40 000 (The Association for the Elderly, 2024).
- Further research is recommended to refine and test the validated framework to inform staffing models for LTCFs in resource-constrained contexts. This can be done by including more samples, cases, and stakeholders.

8.5.2 Recommendations regarding the use of the framework

The findings indicated that staffing levels, skill mix, staff allocation, and healthy work cultures are relevant to the South African and international context of staffing in long-term care. Without research on nurse and caregiver staffing, particularly in Africa, this framework may serve as a roadmap for role players in LTCFs to implement nurse and caregiver staffing models effectively in long-term care facilities providing services in resource-constrained contexts. The framework goes beyond a limited epistemological view of the observable minimum staffing requirements by also considering how and why various underlying mechanisms influence nursing and caregiver staffing. Therefore, the framework to inform staffing models in resource-constrained contexts is a comprehensive tool that may benefit national policymakers and assist them in making informed

decisions. Boards of Directors/CEOs and nurse managers can use the framework to inform their staffing policies and decisions and develop standard operating procedures. It may assist long-term care facilities with mitigating legal risks associated with negating the nurses' scope of practice and caregivers' job scope, lessen service risks by reducing adverse events due to staffing deficiencies, and improve resident outcomes. The framework can also help the Boards of Directors/CEOs to balance cost-effectiveness with quality resident care when implementing nurse and caregiver staffing models. Additionally, the four processes in the framework can be used in training initiatives and for quality control purposes nationally, provincially, and at the facility level.

8.5.3 Recommendations for policy development, implementation, and support

The WHO's Global Strategy and Action Plan on Ageing and Health encourages countries to plan proactively for the care needs of the increasingly growing ageing populations (World Health Organisation, 2015). Therefore, it is recommended that the National Departments of Social Development and Health work together and proactively plan to strengthen the capacity to provide older persons with dignified, equitable, safe, and sustainable care towards the end of their lives. Strengthening the capacity to care for older persons includes, for example, research collaboration and formulating policies to regulate caregivers in South Africa to promote role standardisation and recognition of this workforce and facilitate quality of resident care. Furthermore, the study findings suggest that the current funding model and subsidisation limitations disadvantage state-subsidised LTCFs. As the regulatory authority of long-term care facilities, the National Department of Social Development should explore sustainable funding models for long-term care nationally, provincially, and at the facility level. The capacity of the existing budget may increase through the application of strict governance measures, the rigorous application of means testing for beneficiaries, and the decision not to subsidise long-term unregistered facilities that do not meet national norms and standards. These measures may increase the available funds to provide subsidies to eligible LTCFs to improve care delivery. At the facility level, it is recommended that clear policies exist for electing Board members of non-profit organisations such as state-subsidised LTCFs operating in resource-constrained environments. Board members are not usually paid in non-profit organisations but are responsible for the oversight, finances, risk assessments, and overall governance processes. Therefore, it is imperative to obtain the appropriate set of skills on the Boards (i.e., financial skills, legal knowledge, and strong stakeholder relationships so that the LTCF may benefit from funding and donations) to further the organisation's goals (Republic of South Africa, 1997). It is also recommended that a human resource budget is developed in collaboration with skilled financial officers to ensure sound financial planning and economical and efficient use of human resources rather than budgets based only on austerity measures. The involvement of skilled financial officers may enhance governance and resource management in LTCFs, especially those operating in resource-constrained

environments. Their expertise may improve the alignment of limited resources more effectively, reducing mismanagement and promoting efficient use.

It is recommended that Boards of Directors/CEOs ensure that legislation and policies inform staffing decisions, including clear organisational standards, job descriptions, and delegation levels (Kim & Han, 2018:518–524). The literature indicates that various provinces and states within countries preferred to set higher staffing standards than those determined by federal or provincial governments (Harrington *et al*., 2012:88–98; Lee, Shin & Harrington, 2015:137–143). Higher than mandated minimum staffing levels might be more cost-effective than providing only the minimum number of nurses and caregivers since costs may increase when LTCFs are forced to use agency staff to compensate for staff deficiencies (Griffiths *et al*., 2021). Therefore, it is recommended that staffing plans include adequate baseline staffing, especially baseline nursing staff, based on residents' assessment forms and acuity levels. Adequate baseline nursing staff may protect the lower categories of nurses by preventing them from working beyond their scope of practice and completing non-nursing tasks. Adequate baseline staffing may also protect the caregivers by preventing them from taking on responsibilities beyond their job scope or working without nurses on duty. Furthermore, job descriptions should be regularly reviewed and aligned with the nurses' scope of practice, including the new scope of practice in South Africa (Republic of South Africa, 2022).

Furthermore, it is recommended that Boards of Directors/CEOs involve senior, experienced nurses when compiling staffing plans, as a participatory approach allows for discussing and considering additional staffing needs (Mueller, 2000:262–267). For example, nurse managers may be better equipped to provide input on the contextual factors influencing staff planning (Mueller, 2000:262–267), such as in LTCF buildings with multiple levels, which may require more nurses and caregivers and decisions which may reduce the need for higher nurse and caregiver staffing, such as the availability of support staff for administrative tasks. In resource-constrained LTCFs, where meeting nurse staffing standards may be financially difficult, appointing a ward clerk may not only be a cost-effective solution but a strategic decision to reduce the administrative workload of nurses, thereby optimising the nurses' time and skills.

Nurse managers can also provide input regarding workflow processes influencing care delivery. Furthermore, nurse managers may be more aware of the multilayers of nurse and caregiver staffing in LTCFs and the existing relationships and historical, contextual, and cultural beliefs that can influence how the model is implemented, such as assigning tea duties to black RNs as participants shared. On the other hand, involving experienced nurses in staffing plans, especially in resource-constrained LTCFs, may reduce the number of caregivers due to effective staff planning and allocation. Reducing the number of caregivers to the minimum as legislation prescribes may free a portion of the human resource budget, which could be used for nurse resources. It is also recommended that Boards of Directors/CEOs develop job-specific policies and procedures

for the LTCFs to guide the nurses and caregivers since institutional policies may provide the staff with guidelines for standardised nursing practice based on scientific evidence (Kelly, Edwards & Shapiro, 2021:217-222), thus minimising risks when providing care to residents.

Policy initiatives should include support systems for nurses and caregivers to promote staff wellbeing and prevent possible burnout and intentions to leave the workplace. Kunie *et al*. (2017:115–124) found that managers' leadership style and behaviour can sometimes harm the staff's mental health. Furthermore, Hasan and Didin (2020:207) cautioned that when management fails to provide input on employees' task performance, the employees' job satisfaction level decreases, which leads to poorer job performance. Therefore, including staff wellness programmes is recommended in policies to support staff, alleviate stress, and provide debriefing opportunities, for instance, after residents die.

8.5.4 Recommendations regarding educational initiatives

Educational initiatives are recommended to empower nurses and caregivers in long-term care facilities. For example, RNs in LTCFs often lack specific gerontological education despite their extended training (Dellefield *et al*., 2015:95–108). The SANC does not offer registration for an additional qualification in gerontology; therefore, higher education institutions are advised to explore options for post-basic courses in gerontology in South Africa. It is also recommended that training institutions explore the feasibility of presenting short courses to facilitate nurses' knowledge acquisition in gerontology.

Borsa *et al*. (2023) found that cost considerations often led to adjustments in the skill mix, such as replacing higher-qualified staff with less-qualified staff. However, each nurse category in South Africa has its designated scope of practice, which does not make provision for replacing higher-qualified staff (e.g., RNs) with less-qualified staff (e.g., ENs) (Republic of South Africa, 2022; South African Nursing Council, 1984). Nevertheless, Boards of Directors/CEOs and nurses seem to be unclear about the legal implications of not adhering to nurses' scope of practice. Therefore, it is recommended that educational initiatives include the legal parameters of each nurse category's scope of practice. Educational initiatives must also include the boundaries set by each nurse category's scope of practice and reflect how the new South African scope of practice (Republic of South Africa, 2022) materialises in organisational policies. It is also recommended that educational initiatives include the legal parameters within which caregivers may operate to promote role clarity between nurses and caregivers and prevent unauthorised task-shifting from higher-qualified to less-qualified staff. The educational initiatives must include the decision-makers who must apply the policies and ensure their compliance with legislation.

Within the LTCF context, competency development is a mandatory internal function prescribed by the Skills Development Act 97 of 1998 (Republic of South Africa, 1998). Consequently, it is recommended that

management perform a skill gap analysis to identify a lack of competencies in all nurse categories and caregivers and design a Workplace Skills Plan. Adhering to a Workplace Skills Plan may assist budget-constrained facilities in how to benefit from grants from the relevant Education and Training Authority sector for occupational-based training (Republic of South Africa, 1998). Whereas LTCFs operating in resource-rich environments may be able to afford external specialist training to enhance their staff's educational levels, knowledge, and skills, LTCFs operating in resource-constrained environments may benefit from free training resources, such as free annual Norms and Standards workshops funded by the Western Cape Department of Social Development. Regarding the new registered general nurse category in South Africa, the first group of such general nurses completed their diplomas (South African Nursing Council, 2013, 2016) and are now entering the labour market. These nurses may have limited work experience and possibly no specific geriatric or psychiatric training. However, this nursing category's training focuses on general disease conditions also found in the LTCFs' residents, making them particularly suitable for service delivery in LTCFs where on-the-job training and further educational opportunities could be provided. Also, based on the educational level of this new nurse category (diploma-qualified), one can assume that it may be more cost-effective for LTCFs operating in resource-constrained environments to employ these nurses in addition to the limited number of professional nurses in the LTCFs rather than only professional nurses. Therefore, it is essential to do a skill gap analysis and provide the necessary in-service training to use this nurse category to its full potential in the LTCFs.

8.5.5 Recommendations regarding community engagement

Community engagement is recommended to achieve national consensus on older persons' care in South Africa and to work towards equity of care. The World Health Organisation encourages community involvement, thus empowering role players to actively participate in local health structures and health issues (World Health Organisation, 2024). Empowering role players, such as community leaders, family members, and business leaders, enables them to address local issues, such as caring for older persons in LTCFs, and find solutions for the more effective use of resources. For example, LTCFs operating in resource-constrained environments may consider partnering with health facilities operating in resource-rich environments, such as private hospitals. As such, when a more affluent hospital replaces equipment like expensive hospital beds, LTCFs operating in resource-constrained environments may benefit from usable donations, allowing more available funds for human resources. This study's framework can thus be a tool which effectively empowers such role players to improve the quality of care in LTCFs.

8.6 STUDY LIMITATIONS

During this research project, valuable insights were obtained about implementing nurse and caregiver staffing models. Nonetheless, it is necessary to acknowledge the limitations of this study.

Scoping review: Regarding this study's focus, a limitation was the absence of literature on South African long-term care facilities. The researcher could also not locate literature on staffing model implementation in low- and middle-income countries or the Sub-Saharan African context. Therefore, empirical data was obtained mainly from developed countries. Moreover, the studies that could be located and answer the research question all employed a quantitative approach. Although the meta-theory of critical realism asserts that truth only partially exists on an empirical level, the findings could have been different if literature from low- and middle-income countries and Sub-Saharan African contexts was available and used. Additionally, the absence of staffing frameworks in the African context led to the decision to use Mueller's framework, although it was embedded in a high-income country. This decision might also have influenced the study's findings. The researcher endeavoured to include all relevant articles in the scoping review. However, it is possible that some studies were excluded because the researcher used specific search terms in only four databases and included only English and Afrikaans language studies published from 2010 onwards. Not assessing the included articles' methodologies may have influenced the review's robustness.

Holistic multiple-case study: Yin (2014:38) advised that a multiple-case study design using different sources of evidence in real-life situations may allow for in-depth exploration of a topic, which, in this case, was implementing staffing models in LTCFs. The author cautioned that **transferability** to other contexts might be limited despite the advantages of multiple-case studies. This concern also applies to this study because it included only two LTCFs in the Western Cape province that may further influence transferability to their provinces.

However, various attempts were made to enhance the robustness of this study. The researcher selected a holistic multiple-case study design instead of a single case study and provided a clear audit trail to assist other researchers in replicating this study, should they choose to do so. Nevertheless, the study was limited to two LTCFs in one South African province due to cost and time constraints. Some **documents** selected for the review may have lacked information since they were not intentionally generated for a research project.

The **interviews** were also limited to nineteen participants. This was due to the low number of nurses employed at the LTCFs. For example, only two RNs were employed in the state-subsidised LTCF, and there were no ENs and ENAs in the private for-profit LTCF. The researcher thought it appropriate not to include more caregiver interviews at the expense of nurses, but this decision could have limited the perspectives that were included. Also, verifying the nurses' and caregivers' self-reports on the facilitators and barriers to implementing staffing models in the LTCFs was impossible. Since the study focused on implementing a nurse and caregiver staffing model in LTCFs in resource-constrained contexts, it would have also been meaningful to obtain the perspectives of the non-nurse CEOs in the LTCFs. Insight into the CEOs' human resource budget

decisions could have added more depth to the study. In addition, all the data was analysed qualitatively. Including quantitative data might have strengthened the study's trustworthiness.

Framework: The validated framework was not tested, which could be a limitation of this study.

Potential bias: The researcher's dual role as a researcher and an auditor of LTCFs could have introduced bias into this study. As disclosed in Chapter 1, the researcher was familiar with LTCFs' operations. On the one hand, this familiarity may have benefited the research process since the researcher was more familiar with the intricacies and operations of LTCFs. On the other hand, bias might have occurred due to the researcher's influence on the researcher-participant interactions. To mitigate these limitations, the researcher provided the participants with the option to be interviewed by an independent expert, an option that all declined. Additionally, the researcher frequently discussed the study's progress with the study supervisors. The researcher also referred to the literature extensively and practised self-reflection. Conducting a study from a critical realist perspective could also have introduced bias since the researcher's understanding may have been influenced by her preconceived ideas and subjective experiences (Bhaskar, 2008:178–180; Varpio *et al*., 2017:40–50). Consequently, the researcher attempted to bracket her assumptions and practised reflexivity (Dwyer, 2009:54–63). Reflecting on preconceived ideas and discussing these ideas with the study supervisors created self-awareness to minimise bias (Korstjens & Moser, 2018:120–124).

It is thus recommended to consider the abovementioned limitations when interpreting the findings.

8.7 DISSEMINATION

This research will be disseminated through feedback to the Department of Social Development and the Western Cape LTCFs through norms and standards workshops. Study findings will be presented at related conferences nationally and internationally when the opportunity arises. The researcher foresees that five articles will flow from the study, covering the scoping review protocol, the scoping review findings, the document review findings, the interview findings, and the framework itself. Articles will be published in peer-reviewed journals.

8.8 CONCLUSION

The care of older persons is a growing concern worldwide that will affect everyone in the future. Internationally, older people comprise an increasingly more significant portion of countries' populations. People live longer for various reasons, such as better life expectancies resulting from better medical interventions that keep chronic diseases under control. Nevertheless, many older people may require care during their last stages of life. As older persons' care needs increase, more pressure is placed on the available resources, such as staff availability, infrastructure, equipment, supplies, and health systems, which already

appear to be under pressure. Despite limited resources, governments and long-term care facilities are expected to provide ethical and sustainable care to older people while protecting older persons' dignity. This study's validated framework can assist governments, Boards of Directors/CEOs, and nurse managers in long-term care facilities in making proactive, informed decisions about the care of older persons.

The study findings showed that long-term care facilities find it difficult to employ enough nurses and then overcompensate by using increasingly more caregivers to provide at least a minimum standard of care to older persons. These hiring practices then cause a ripple effect where the available nursing staff are utilised outside their scope of practice, and the caregivers consequently have to perform more nursing tasks outside their job scope. Appointing fewer nurses and relying increasingly on caregivers for service delivery exposes long-term care facilities, nurses, and caregivers to legal risks. Moreover, these practices may undermine the wellbeing of the nurses and caregivers.

It is commendable that private for-profit LTCFs are committed to providing a beautiful, pleasant and comfortable environment. However, vulnerable older persons and their significant others may assume that the luxury image as advertised by private for-profit LTCFs will include an equally high level and quality of care. The misconception that high monthly fees will ensure continuous quality care from professional staff may differ from what is found in reality. The findings of this study indicated that vulnerable older persons are sometimes deprived of quality care provided by more qualified staff. Instead, vulnerable residents primarily received care from what is considered less qualified caregivers. At times, there were seemingly few or no nurses on duty in an LTCF. This may also lead to LTCFs being exposed to legal scrutiny in the event of an adverse event investigation.

The study's framework focuses on the effective use of human resources to ensure that long-term care facilities have sufficient staffing levels with a skill mix that not only meets legal requirements, but also meets residents' needs. This study contributes to the body of scientific knowledge by providing a roadmap for role players to effectively implement nurse and caregiver staffing models in LTCFs providing services in resource-constrained contexts. The value of the study and consequent framework lies in not only exploring the visible evidence but also exploring the underlying causal mechanisms that influenced the implementation of a staffing model, such as CEOs determining staff budgets and nurse managers having limited negotiating powers and having to make do with the available human resources. Therefore, this study's findings and the developed framework can make a difference and bring about changes in long-term care facilities, the work situation and wellbeing of nurses and caregivers, and consequently, the residents' quality of life. Consequently, the framework can help users balance cost-effectiveness with quality resident care when implementing nurse and caregiver staffing models. This research also paves the way for future research on this topic, underlining the importance of this study in the field of LTCFs for older persons.

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ADDENDUMS

ADDENDUM A: ETHICS APPROVAL

Stellenbosch UNIVERSITY IYUNIVESITHI UNIVERSITEIT

forward together sonke siya phambili saam vorentoe

Approval Notice

New Application

21/11/2022

Project ID: 26697

HREC Reference No: S22/10/216 (PhD)

Student No: 20068948

Project Title: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

Dear Mrs EC Nicholson

The **response** received on 20/11/2022 was reviewed and **approved** by members of the Health Research Ethics Committee via **expedited** review procedures on 21/11/2022.

Please note the following information about your approved research protocol:

Approval date: 18 November 2022

Expiry date: 17 November 2023

Please remember to use your Project ID 26697 and Ethics Reference Number HREC reference on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review

Translation of the informed consent document(s) to the language(s) applicable to your study participants should now be submitted to the HREC. Please note you can submit your progress report through the online ethics application process, and the application should be submitted to the HREC before the year has expired. Please see *Forms and Instructions* on our HREC website (www.sun.ac.za/healthresearchethics) for guidance on how to submit a progress report.

The HREC will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit. Please note that for studies involving the use of questionnaires, the final copy should be uploaded on Infonetica.

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility, permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Please consult the Western Cape Government website for access to the online Health Research Approval Process, see: https://www.westerncape.gov.za/general-publication/health-research-approval-process. Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities. We wish you the best as you conduct your research.

For standard HREC forms and instructions, please visit: Forms and Instructions on our HREC website. If you have any questions or need further assistance, please contact the HREC office at 021 938 9677.

Yours sincerely,

Melody Shana

Coordinator: Health Research Ethics Committee1

National Health Research Ethics Council (NHREC) Registration Number:

REC-130408-012 (HREC1)•REC-230208-010 (HREC2)

Federal Wide Assurance Number: 00001372
Office of Human Research Protections (OHRP) Institutional Review Board (IRB) Number:
IRB0006240 (HREC1)•IRB0006239 (HREC2)

ADDENDUM B: ETHICS EXTENSION

Stellenbosch UNIVERSITY IYUNIVESITHI UNIVERSITEIT

forward together sonke siya phambili saam vorentoe

Approval Letter
Progress Report

03/11/2023

Project ID: 26697

Ethics Reference No: S22/10/216 (PhD)

Project Title: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

Dear Mrs EC Nicholson

We refer to your request for an extension/annual renewal of ethics approval dated 18/10/2023 14:06.

The Health Research Ethics Committee reviewed and approved the annual progress report through an expedited review process.

The approval of this project is extended for a further year.

Approval date: 18 November 2023

Expiry date: 17 November 2024

Kindly be reminded to submit progress reports two (2) months before expiry date.

Where to submit any documentation

Kindly note that the HREC uses an electronic ethics review management system, *Infonetica*, to manage ethics applications and ethics review process. To submit any documentation to HREC, please click on the following link: https://applyethics.sun.ac.za.

Please remember to use your Project Id 26697 and ethics reference number S22/10/216 (PhD) on any documents or correspondence with the HREC concerning your research protocol.

Please note that for studies involving the use of questionnaires, the final copy should be uploaded on Infonetica.

Yours sincerely,

Miss EL Rohland
Health Research Ethics Committee 1 (HREC 1)

National Health Research Ethics Council (NHREC) Registration Number:
REC-130408-012 (HREC1)•REC-230208-010 (HREC2)

Federal Wide Assurance Number: 00001372
Office of Human Research Protections (OHRP) Institutional Review Board (IRB) Number:
IRB0005240 (HREC1)•IRB0005239 (HREC2)

The Health Research Ethics Committee (HREC) complies with the SA National Health Act No. 61 of 2003 as it pertains to health research. The HREC abides by the ethical norms and principles for research, established by the World Medical Association (2013). Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects; the South African Department of Health (2006).Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa (2nd edition); as well as the Department of Health (2015). Ethics in Health Research: Principles, Processes and Structures (2nd edition).

The Health Research Ethics Committee reviews research involving human subjects conducted or supported by the Department of Health and Human Services, or other federal departments or agencies that apply the Federal Policy for the Protection of Human Subjects to such research (United States Code of Federal Regulations Title 45 Part 46); and/or clinical investigations regulated by the Food and Drug Administration (FDA) of the Department of Health and Human Services.

ADDENDUM C: INSTITUTIONAL PERMISSIONS

Private for-profit LTCF

Research at [redacted]

[redacted] <[redacted]@[redacted].co.za>

To emerentia65@gmail.com

Reply | Reply All | Forward

Thu 2022/11/24 10:42

Good morning Emerentia

We would like to thank you for choosing [redacted] as your research facility.

You are welcome to inform [redacted] when you would like to start your contact sessions.

Kind regards

[redacted]

[redacted]

Tel [redacted]
Email [redacted]
Address [redacted]

[redacted]

Please note that this e-mail is subject to the provisions of the Protection of Personal Information (POPI) Act (Act 4 of 2013), as well as the General Data Protection Regulations of the European Union (GDPR EU). The content of this e-mail (and/or attachments) must be treated with confidentiality and only in accordance with the purpose for which it is intended. If you have received this e-mail in error, please destroy it. The views and opinions in this e-mail and attachments may not necessarily be those [redacted] aforementioned do not accept any liability for any damage, loss or expense arising from this e-mail and/or from accessing any attachments. This message and any attachments are confidential and intended solely for the addressee. If you have received this message in error, please notify the office [redacted] please delete the e-mail and its attachments from your and/or any computer, as any unauthorized use, alteration or dissemination is prohibited. Stat [redacted] do not accept any liability whatsoever for any loss, whether it be direct, indirect or consequential, arising from information made available and actions resulting therefrom. Any disclosure, re-transmission, dissemination or any other use of this information is prohibited.

State-subsidised LTCF

[redacted]
Tel: [redacted]
Fax: [redacted]

[redacted]
Tel: [redacted]
Faks: [redacted]

Enquiries: [redacted]

30 November 2022

TO WHOM IT MAY CONCOERN

RE: MRS E.C. NICHOLSON: PROJECT ID: 26697
HREC REF NO: S22/10/216 (PhD) – STUDENT NO: [redacted]

The Board of Directors granted permission to Mrs E.C. Nicholson to conduct the research at our long-term Health Care Facility as stated in the protocol.

We wish her the best with her research.

Kind regards

[redacted]

MANAGER & [redacted]

ADDENDUM D: SCOPING REVIEW - PROTOCOL

Title: Skill mix, staffing levels, and staff allocation in long-term care: A scoping review protocol

ABSTRACT

Objectives: The aim of the scoping review is to explore, map, and summarise the existing literature on nurse and caregiver staffing models in long-term care facilities (LTCFs) across resource-rich and resource-constrained contexts.

Introduction: As the global population ages, there is a growing demand for planning and responding to the long-term care needs of older people residing in LTCFs. It is essential to have enough staff members with the right skill mix to deliver quality care. Proper staff allocation aligned with residents' acuity levels, nurses' scope of practice, and caregivers' job descriptions are necessary. Hence, a scoping review will be conducted to identify and summarise available literature on how LTCFs implement nurse and caregiver staffing models.

Eligibility criteria: Based on the Participants, Concept, and Context (PCC) framework, participants considered eligible for inclusion in this review are nursing service managers of LTCFs, caregivers (or their equivalents), and all categories of nurses involved in providing direct resident care in LTCFs, regardless of age, ethnicity, or sex. The key concepts of interest include staffing levels, skill mix, and staff allocation concerning residents' acuity, nurses' scope of practice, and caregivers' job descriptions. The context comprises LTCFs for older people worldwide.

Methods: This review will employ the Joanna Briggs Institute methodology to conduct the scoping review. Four online databases, namely PubMed (Medline), CINAHL, Cochrane Library–Wiley, and Sabinet African Journals, will be searched to identify relevant literature. Predefined inclusion and exclusion criteria will be used to select appropriate studies. Data extracted from the literature chosen will be synthesised to gain insights into staffing models in LTCFs.

Keywords: Long-term, staffing models, skill mix, staffing levels, staff allocation, acuity, scope of practice

INTRODUCTION

There is a need to respond to and plan for the long-term care of older people due to the worldwide exponential population ageing with corresponding care needs.

Resident needs: With increased ageing, older persons may struggle with decreased functional abilities, poor health, chronic diseases, and an increase in Dementia (World Health Organisation, 2015). Consequently, the elderly may need assistance with their activities of daily living, including eating, bathing, hygiene, toilet

needs, and mobility (Hamel, Garritty, Hersi, Butler & Esmaelisaraji *et al*., 2021; Mlinac & Feng, 2016:506–516).

Older people may also need professional medical and medication assistance (Hamel *et al*., 2021), thus seeking help from state-subsided or for-profit LTCFs. Similarly, in Africa, where the traditional culture of Black Africans embraces the provision of care within the family context (Dhemba & Dhemba, 2015:1–16), there is a slow shift towards long-term care due to an inability of extended families to provide care to their elderly (Madungwe, Mupfumira & Chindedza, 2011:1–12).

The need for staffing plans: To meet the needs of residents in LTCFs, staff plans or staffing models are established to facilitate the optimum allocation of human resources. Staffing models include staffing levels or staff quantities, i.e., the number of staff (all categories of nurses and caregivers) available to provide care to residents (Butler, Schultz, Halligan, Sheridan & Kinsman *et al*., 2019:9). In addition, staffing models may include the mix of skills, referring to the inclusion of staff with diverse skills, qualifications, experience, expertise, and scope of practice (Backhaus, Verbeek, Van Rossum, Capezuti & Hamers, 2014:383–393). In addition to employing enough staff and an adequate mix of staff, the LTCFs must organise, distribute, and allocate the staff aligned with the residents' acuity (Butler *et al*., 2019:9; Beckett, Zadvinski, Dean, Iseler & Powell *et al*., 2021:251–260). Acuity refers to residents' physical and mental status and the severity of their illness (Brennan & Daly, 2009:1114–1126).

Human resource shortages: Implementing staffing models in terms of staffing levels, skill mix, and staff allocation aligned with resident acuity, nurses' scope of practice, and caregivers' job descriptions must be done with care due to budgetary and human resource constraints. The World Health Organisation acknowledges a global shortage of registered nurses (RNs) and midwives, accounting for more than 50% of the current deficits in health workers, particularly in Africa and Southeast Asia (World Health Organisation, 2022a). For example, 36 of the 46 Sub-Saharan African countries are earmarked as having critical human health resources, such as a shortage of and unsatisfactory distribution of health workers (Van Rensburg, 2014:26). South Africa compares favourably to other Sub-Saharan African countries, with 49.74 nursing and midwifery personnel per 10,000 population, Botswana indicating 54.57, Ghana 36.2, and Kenya with only 11.66 nursing and midwifery personnel per 10 000 population. At the same time, the United States showed 156.9, and Finland 223.1 nursing and midwifery personnel per 10,000 population (World Health Organisation, 2022b). However, despite having a prescribed staffing model, the status of the South African LTCFs was reflected in an audit report in 2010 as having inadequate staffing due to financial constraints (Republic of South Africa, 2010b:34).

Nurses' scope of practice: Despite human health and financial resource constraints, LTCFs must consider the extent of the RNs' scope of practice determined by the country's regulatory authority/statutory professional council, i.e., the South African Nursing Council, abbreviated SANC. Scope of practice refers to the parameters within which a nurse category may legally practice (Republic of South Africa, 2022). Thus, allocating tasks must be within the legal parameters of the staff member's scope of practice when allocating staff to provide care to residents. In South Africa, there are three categories of nurses: RNs, enrolled nurses (ENs), and enrolled nurse assistants (ENAs), each with its own scope of practice (Republic of South Africa, 2022; South African Nursing Council, 1984).

The South African situation: Although South Africa has a staffing model for LTCFs (Republic of South Africa, 2010a:64) and the SANC regulates the nurses' scope of practice, resource constraints lead to nursing staff often being allocated to perform tasks beyond their scope of practice (Republic of South Africa, 2010b:34). Apart from the three categories of nurses in South Africa, caregivers also provide care to residents in an LTCF. However, the legislation does not regulate caregivers in South Africa since the SANC does not recognise caregivers as nurses (South African Nursing Council, 2021).

Thus, assigning nursing tasks to caregivers raises care quality concerns since using less-qualified staff can delay the detection of residents' health problems, thus decreasing the residents' quality of life (Koopmans, Damen & Wagner, 2018:988).

The rationale for this scoping review: Concerning the above, a scoping review is proposed, aiming to assess and map the extent of the available literature on implementing staffing models in LTCFs in resource-rich and resource-constrained contexts concerning skills mix, staffing levels, and staff allocation aligned with residents' acuity, nurses' scope of practice, and caregivers' job descriptions. Gaps in the literature can be identified by mapping the available evidence. A preliminary search of the Cochrane Database of Systematic Reviews, MEDLINE and *JBI Evidence Synthesis* was conducted to prepare the introduction of this protocol. Limited evidence was found of systematic or scoping reviews on this topic.

Previous systematic and scoping reviews focused on the relationships or association between staff and quality of care outcomes (Backhaus *et al*., 2014:383–393; Clemens, Wodchis, McGilton, McGrail & McMahon, 2021; Tuinman, De Greef, Finnema & Roodbol, 2021:3303–3316; Jutkowitz, Landsteiner, Ratner, Shippee & Madrigal *et al*., 2023:75–81). Choroschun and colleagues (Choroschun, Kennedy & Hoben, 2022) published a systematic review protocol in 2022, "Assessing evidence on the complex interplay among nurse staffing, other features of organisational context and resident outcomes in long-term care". In contrast to this intended scoping review, the focus of Choroschun, Kenedy and Hoben's (2022) scoping review was to synthesise quantitative evidence on statistical interactions between nurse staffing and organisational context

in long-term care homes and the effects of these interactions on long-term care resident outcomes. To heighten the search for relevant, up-to-date research evidence on the topic, the search will only include studies published since 2010.

REVIEW QUESTION

The broad research question for this scoping review is "What are the characteristics of staffing models implemented in resource-rich and resource-constrained contexts?". To capture the scope and diversity of available literature, sub-questions are formulated:

- How do LTCFs implement staffing models regarding staffing levels, skill mix, and allocation of tasks?
- Is allocating tasks aligned with the scope of practice of the nurses' categories and the caregivers' job descriptions as described in the relevant country's legislation?
- Is the allocation of nursing and caring staff aligned with the acuity of the individual residents?

KEYWORDS

Long-term, staffing models, skill mix, staffing levels, staff allocation, acuity, scope of practice

ELIGIBILITY CRITERIA

To guide the scoping review and the process of selecting sources to be considered in this review, eligibility criteria are defined based on the Participants, Concept, and Context (PCC) framework (Peters, Godfrey, McInerney, Munn & Tricco *et al*., 2020).

Participants: Eligible populations will include caregivers or their equivalents in other countries and all categories of nurses providing direct resident care in LTCFs, regardless of age, ethnicity, or sex. Nursing service managers of LTCFs will be included as key stakeholders in analysing and evaluating residents' staffing needs and allocating resources for providing quality care to residents in LTCFs (Mueller, 2000:262–267).

Concept: The central concept in this review pertains to the implementation of staffing models in LTCFs. Studies will be considered if they contain at least two of the three concepts on which this scoping review focuses: (a) staffing levels, (b) skill mix, or (c) staff allocation aligned with the residents' acuity, nurses' scope of practice, and caregivers' job descriptions.

Context: The context includes the formal LTCFs for older people in the international, Sub-Saharan and South African contexts, including resource-rich and resource-constrained contexts. International terminology for LTCFs ranges from nursing homes and residential aged care facilities in Australia (Australian Government, 2021), nursing homes or residential care homes in Canada (Canadian Institute for Health Information, 2021),

"elderly care homes" in Uganda (Mawanda, 2022), while the United States refers to "skilled nursing facilities" (Yurofsky & Ouslander, 2021). South African LTCFs for older persons provide 24-hour services and accommodation to frail older people if they need care based on their mental or physical needs (Republic of South Africa, 2006). Studies within community settings will be excluded. This decision is based on differences in staff provision expectations in community settings compared to formal long-term care settings.

TYPES OF SOURCES

Consideration will be given to studies with quantitative and qualitative designs, websites, review articles, and guidelines. Furthermore, consideration will be given to grey literature sources such as government legislation and guidelines, institutional policies, conference papers, dissertations, and theses. Only studies in English and Afrikaans will be considered for practical reasons. Due to resource constraints, studies with unobtainable full texts will be excluded. Papers published from 2010 will be considered due to the mandatory staffing model for South African LTCFs only being published in 2010, although the South African Older Persons Act was promulgated in 2006.

METHODS

This review will employ the Joanna Briggs Institute methodology to conduct the scoping review, which includes identifying relevant studies, selecting studies, data abstraction, and collating and summarising the data (Joanna Briggs Institute, 2015).

Search strategy: The three-step search process recommended by JBI will be followed (Peters *et al*., 2020). First, an initial first-level limited search will include searching text words in titles, abstracts, and indexed keyword lists in an electronic database: PubMed/MEDLINE. The initial limited search is detailed in Table 1 and will inform the development of a complete search strategy. Through the systematic review of Medical Subject Headings (MeSH) and Boolean operators (AND, OR, NOT), search strings will be developed with the assistance of a qualified librarian from Stellenbosch University. Search terms will be "long-term", "staffing models", "skill mix", "staffing levels", "staff allocation", "acuity", and "scope of practice", including additional keywords identified during the search strategy. The search strategy will be piloted to ensure the relevance of the databases and keywords.

Second, a comprehensive search will be conducted to identify all the relevant published literature on staffing models in LTCFs in the following electronic databases: PubMed/MEDLINE, CINAHL, Cochrane Database of Systematic Reviews, and Sabinet African Journals. In addition, a search in Google Scholar will follow for additional sources not included in the central databases.

Table 1: Proposed search strategy

Databases	Search terms	Propose search strategy	
PubMed/MEDLINE CINAHL Cochrane Database of Systematic Reviews Sabinet African Journals	Long-term, staffing models, skill mix, staffing levels, staff allocation, acuity, scope of practice	1	"long-term" OR "nursing home" AND "nurse staffing models" OR "staffing models" OR "staffing strategy" NOT hospital
		2	"long-term" OR "nursing home" AND "nurse staffing levels" OR "nurse staffing ratio"
		3	"Staffing levels" AND Nurse AND "long-term"
		4	"long-term" OR "nursing home" AND "skill mix" OR "staffing mix" OR "nurse skill mix")
		5	"long-term" OR "nursing home" AND "staff allocation" OR "personnel allocation" OR "nurse allocation" OR "staff scheduling"
		6	"long-term" OR "nursing home" AND "resident acuity" OR "resident acuity levels"

Third, the reference lists of the selected studies will be hand-searched for other eligible articles. The search will also include grey literature such as legislation, policies, acts, and guidelines on government websites, institutional policies on institutions' websites, and unpublished studies, e.g., conference papers, dissertations, and theses in university repositories such as ProQuest Dissertations & Theses Global for conference abstracts. The search will be considered complete when data saturation is reached; in other words, the researchers have found no new literature to include in the scoping review (Moser & Korstjens, 2017:9–18).

Study selection: Following the search, all citations will be collated and uploaded into Mendeley (reference manager software program), and duplicates will be removed. Two reviewers will independently screen the titles and abstracts of the identified studies to determine eligibility based on the inclusion and exclusion criteria. For example, studies in community settings will be excluded. A Microsoft Excel spreadsheet will be used to map the search and the review dates. The two reviewers will retrieve and independently assess the full text articles for eligibility against the inclusion criteria. Full text articles not meeting the inclusion criteria will be excluded from the review, and reasons will be provided. In addition, the reference lists of the selected studies will be hand-searched for other eligible articles. A third reviewer will randomly check the selected studies for accuracy.

Disagreements between the two reviewers regarding the inclusion or exclusion of sources would be discussed to reach a consensus. Alternatively, the reviewers will consult a third independent reviewer until an agreement is reached or by including those articles in dispute. The study selection process will be described and mapped using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR) and a modified PRISMA chart (Tricco, Lillie, Zarin, O'Brien & Colquhoun *et al.*, 2018:467–473; Lockwood, dos Santos & Pap, 2019:287–294).

Data extraction: A data extraction form will be developed in Microsoft Excel spreadsheets, allowing data charting in tabulated format (Table 2). The form will enable the recording of the study characteristics of the articles under headings according to the author(s), year of publication, country, country income level, setting, study population (nurses and caregivers), the aim of the studies, methodology, and outcomes (Peters *et al*., 2020). Priori categories will be included in the data extraction form to guide the data extraction from the abstracts, such as concepts (staffing levels, skill mix, and staff allocation aligned with residents' acuity, nurses' scope of practice and caregivers' job descriptions). The data extraction form will be piloted independently by two reviewers on three randomly selected articles with the rationale to modify and revise the form if needed. It may be necessary to develop additional categories depending on emerging information to describe the findings narratively. After that, the two reviewers will sift, map, sort, and tabulate the data from the full text articles onto the data extraction form. If appropriate and needed, the reviewers will contact the authors of papers requesting any missing or additional data. Again, should any disagreement arise between the two reviewers, the aim would be to resolve the disagreement by consensus. Alternatively, the assistance of a third independent reviewer will be obtained.

Table 2: Data extraction framework

	Article 1	Article 2	Article 3
Title			
Author(s)			
Year of publication			
Country			
Country income level			
Setting			
Study design			
Data sources			
Population			
Sample			
Aim			
Outcomes: Staffing levels			
Outcomes: Skill mix			
Outcomes: Staff allocation aligned with residents' acuity			
Outcomes: Staff allocation aligned with nurses' scope of practice			
Outcomes: Staff allocation aligned with caregivers' job descriptions			

Data analysis and presentation: Since a scoping review aims to map the existing evidence regardless of the quality, a critical appraisal of the included studies will not be performed (Peters *et al*., 2020). The review results will be reported in a narrative format to record the key information concerning the review questions and objectives (Arksey & O'Malley, 2005:19–32). Summarised recommendations from the studies will be presented in a table indicating specific recommendations regarding skill mix, staffing levels, and staff allocation aligned with residents' acuity, nurses' scope of practice, and caregivers' job descriptions.

CONCLUSION

Upon the completion of the review, a final report will be prepared. This scoping review on implementing nurse and caregiver staffing models in LTCFs will be able to identify the gaps and indicate where more in-depth research is required.

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ADDENDUM E: SCOPING REVIEW - COMPLETE SEARCH STRING

#	PubMed (Medline) search strings	Filters	# of results n=446
1	"long-term" OR "nursing home" AND "nurse staffing models" OR "staffing models" OR "staffing strategy" NOT hospital	Full text, from 2010/1/1 - 2023/12/31	116
2	"long-term" OR "nursing home" AND "nurse staffing levels" OR "nurse staffing ratio"	Full text, from 2010/1/1 - 2023/12/31	53
3	"staffing levels" AND Nurse AND "long-term"	Full text, from 2010/1/1 - 2023/12/31	44
4	"long-term" OR "nursing home" AND "skill mix" OR "staffing mix" OR "nurse skill mix"	Full text, from 2010/1/1 - 2023/12/31	115
5	"long-term" OR "nursing home" AND "staff allocation" OR "personnel allocation" OR "nurse allocation" OR "staff scheduling"	Full text, from 2010/1/1 - 2023/12/31	101
6	"long-term" OR ("nursing home") AND "resident acuity" OR "resident acuity levels"	Full text, from 2010/1/1 - 2023/12/31	17
#	**CINAHL search strings**	**Filters**	**# of results n=386**
1	(long-term OR nursing home) AND (nurse staffing models OR staffing models OR staffing strategy) NOT hospital	Linked Full Text; Published Date: 20100101-20231231	41
2	(long-term OR nursing home) AND (nurse staffing levels OR nurse staffing ratio)	Linked Full Text; Published Date: 20100101-20231231	72
3	(("Staffing levels") AND (Nurse)) AND ("long-term")	Linked Full Text; Published Date: 20100101-20231231	42
4	(long-term OR nursing home) AND (skill mix OR staffing mix OR nurse skill mix)	Linked Full Text; Published Date: 20100101-20231231	156
5	(long-term OR nursing home) AND (staff allocation OR personnel allocation OR nurse allocation OR staff scheduling)	Linked Full Text; Published Date: 20100101-20231231	40
6	(long-term OR nursing home) AND (resident acuity OR resident acuity levels)	Linked Full Text; Published Date: 20100101-20231231	35
#	**Cochrane Library-Wiley search strings**	**Filters**	**# of results n=139**
1	(long-term OR nursing home) AND (nurse staffing models OR staffing models OR staffing strategy) NOT hospital):ti,ab,kw	Cochrane Library publication date between Jan 2010 and Dec 2023, in Cochrane Reviews (Word variations have been searched).	4
2	((long-term OR nursing home) AND (nurse staffing levels OR nurse staffing ratio)):ti,ab,kw	Cochrane Library publication date between Jan 2010 and Dec 2023, in Cochrane Reviews (Word variations have been searched).	4
3	(("Staffing levels") AND (Nurse)) AND ("long-term")	Cochrane Library publication date between Jan 2010 and Dec 2023, in Cochrane Reviews (Word variations have been searched).	0
4	((long-term OR nursing home) AND (skill mix OR staffing mix OR nurse skill mix)):ti,ab,kw	Cochrane Library publication date between Jan 2010 and Dec 2023, in Cochrane Reviews (Word variations have been searched).	21
5	((long-term OR nursing home) AND (staff allocation OR personnel allocation OR nurse allocation OR staff scheduling)):ti,ab,kw	Cochrane Library publication date between Jan 2010 and Dec 2023, in Cochrane Reviews (Word variations have been searched).	109
6	((long-term OR nursing home) AND (resident acuity OR resident acuity levels)):ti,ab,kw	Cochrane Library publication date between Jan 2010 and Dec 2023, in Cochrane Reviews (Word variations have been searched).	1
#	**Sabinet African Journals search strings**	**Filters**	**# of results n=57**
1	“long-term” OR “nursing home” AND “nurse staffing models” OR “staffing models” OR “staffing strategy” NOT hospital	From Jan 2010 to Dec 2023, all content	2
2	"long-term" OR "nursing home" AND "nurse staffing levels" OR "nurse staffing ratio"	From Jan 2010 to Dec 2023, all content	1
3	"Staffing levels" AND Nurse AND "long-term"	From Jan 2010 to Dec 2023, all content	28
4	“long-term” OR “nursing home” AND “skill mix” OR “staffing mix” OR “nurse skill mix”	From Jan 2010 to Dec 2023, all content	13
5	“long-term” OR “nursing home” AND “staff allocation” OR “personnel allocation” OR “staff scheduling”	From Jan 2010 to Dec 2023, all content	13
6	“long-term” OR “nursing home” AND “resident acuity” OR “resident acuity levels”	From Jan 2010 to Dec 2023, all content	0
#	**Hand-searched**	**Filters**	**# of results n=1**
1	Articles searched in the reference list of studies	None	1

ADDENDUM F: SCOPING REVIEW - LIST OF EXCLUDED STUDIES WITH REASONS

Titles	Papers not central to at least two of the concepts: staffing levels, skills mix, or task allocation in an LTCF	Incorrect context or setting (e.g., acute care, hospital, community, assisted living)	The population were wrong, e.g., residents or other multi-disciplinary staff members	Study in progress; thus, no findings reported, such as study protocols	Inaccessible content	Commentary Periodical Systematic review Integrative review Perspective	Although published after 2010, most data was collected between 1997 and 2009
	n=35	n=10	n=2	n=1	n=2	n=17	n=11
Supplementing intensivist staffing with nurse practitioners: Literature review.						X	
Implementation of the geriatric patient-aligned care team model in the veterans health administration (VA).		X					
Creative staffing models for recruitment and retention challenges.		X					
Effectiveness of staffing models in residential, subacute, extended aged care settings on patient and staff outcomes.	X						
More than just staffing? Assessing evidence on the complex interplay among nurse staffing, other features of organisational context and resident outcomes in long-term care: a systematic review protocol.				X			
Effects of person-centered care on residents and staff in aged-care facilities: A systematic review.	X						
Staffing ratios and quality: an analysis of minimum direct care staffing requirements for nursing homes.							X
Effects of registered nurses' staffing levels, work environment and education levels on nursing home residents' quality of life and nurse outcomes.	X						
Failure to meet nurse staffing standards: a litigation case study of a Large US nursing home chain.							X
Appropriate nurse staffing levels for U.S. nursing homes.						X	
Facility characteristics and costs associated with meeting proposed minimum staffing levels in skilled nursing facilities.	X						
The influence of nurse staffing levels on quality of care in nursing homes.							X
Effects of nurse staffing on resident outcomes in nursing homes: A systematic review.						X	
The relationship of California's Medicaid reimbursement system to nurse staffing levels.							X
The impact of state nursing home staffing standards on nurse staffing levels.							X
Variation in residential care community nurse and aide staffing levels: United States, 2014.		X					
Improvement plan of nurse staffing standards in Korea.		X					
The relationship between nurse staffing and quality of care in nursing homes: a systematic review.						X	
Gaps in nurse staffing and nursing home resident needs.					X		
The relationship between quality and staffing in long-term care: A systematic review of the literature 2008-2020.						X	
An examination of quality of care in Norwegian nursing homes - a change to more activities?							X
Work autonomy of certified nursing assistants in long-term care facilities: discrepant perceptions between nursing supervisors and certified nursing assistants.	X						
Association of staffing instability with quality of nursing home care.	X						
Nurse workforce characteristics and infection risk in VA community living centers: A longitudinal analysis.		X					
Securing a sustainable and fit-for-purpose UK health and care workforce.	X						

Teaming up for long-term care: Recognizing all long-term care staff contribute to quality care.	X						
The impact of chain standardization on nursing home staffing.	X						
Factors associated with missed nursing care in nursing homes: A multicentre cross-sectional study.	X						
Intended and unintended consequences of minimum staffing standards for nursing homes.							X
The relationship between registered nurses and nursing home quality: An integrative review (2008-2014).						X	
Are health care assistants part of the long-term solution to the nursing workforce deficit in Kenya?		X					
Staff outcomes from the caring for aged dementia care resident study (CADRES): a cluster randomised trial.	X						
Does diverse staff and skill mix of teams impact quality of care in long-term elderly health care? An exploratory case study.			X				
Are nursing home survey deficiencies higher in facilities with greater staff turnover.	X						
Health care aides use of time in a residential long-term care unit: A time and motion study.	X						
Larger nursing home staff size linked to higher number of COVID-19 cases in 2020.	X						
Is medication administration in the elderly influenced by nurses' demographics in South Africa?	X						
The impact of nursing staffs' working conditions on the quality of care received by older adults in long-term residential care facilities: A systematic review of interventional and observational studies.						X	
Delivering, funding, and rating safe staffing levels and skills mix in aged care.						X	
Exploring nursing expertise in residential care for older people: a mixed method study.	X						
Increasing implicit rationing of care in nursing homes: A time-series cross-sectional analysis.	X						
Understanding unassisted falls: effects of nurse staffing level and nursing staff characteristics.		X					
Staffing levels in rural nursing homes: A mixed methods approach.							X
Turnover, staffing, skill mix, and resident outcomes in a national sample of US nursing homes.							X
A systematic review of the association between nursing staff and nursing-sensitive outcomes in long-term institutional care.						X	
Skilled nursing facility participation in bundled payments was related to small increases in nurse staffing levels.	X						
National equity of health resource allocation in China: data from 2009 to 2013.	X						
Staff scheduling for residential care under pandemic conditions: The case of COVID-19.	X						
Nurse staffing and deficiencies in the largest for-profit nursing home chains and chains owned by private equity companies.	X						
The need for higher minimum staffing standards in U.S. nursing homes.						X	
Alternative staffing structures in a clustered domestic model of residential aged care in Australia.	X						
Nurse staffing impact on quality of care in nursing homes: A systematic review of longitudinal studies.						X	
Leadership, staffing and quality of care in nursing homes.	X						
What impact does nursing care left undone have on patient outcomes? Review of the literature.	X						
Licensed practical nurse scope of practice and quality of nursing home care.	X						
Revisiting the relationship between nurse staffing and quality of care in nursing homes: an instrumental variables approach.							X
Quality and staffing: Is there a relationship in residential aged care?					X		
Are staffing, work environment, work stressors, and rationing of care related to care workers' perception of quality of care? A cross-sectional study.	X						
Person-centered care environment associated with care staff outcomes in long-term care facilities.	X						
Staff mix and nursing home quality by level of case mix in Korea.			X				

Royal Commission into Aged Care recommendations on minimum staff time standard for nursing homes.						X	
Larger nursing home staff size the people-to-people health linked to higher number of COVID-19 cases in 2020.	X						
Australian residential aged care and the quality of nursing care provision.						X	
Getting the right skill mix in Scotland must be a priority: Amid service demand pressures, clinical complexity and district nursing vacancies, delivering commitments will be challenging.						X	
The effect of state regulatory stringency on nursing home quality.							X
Nurses' perceptions of the impact of the aged care reform on services for residents in multi-purpose services and residential aged care facilities in rural Australia.		X					
The relationship between staff skill mix, costs and outcomes in intermediate care services.		X					
Workforce utilization in three continuing care facilities.		X					
Staffing policy in aged care must look beyond the numbers.						X	
Observing how RNs use clinical time in a nursing home: A pilot study.	X						
Current role challenges in New Zealand aged residential care: the potential consequences for healthcare assistant role expansion.						X	
Aged care: Proposal to remove ENs from skill mix.	X						
Cooks and cleaners cannot provide clinical care.						X	
The work pattern of personal care workers in two Australian nursing homes: a time-motion study.	X						
Patient classification systems used to classify nursing intensity and assess nursing staffing resources in home health care: A scoping review.	X						
Nurse staffing and adverse events in residential aged care: Retrospective multi-site analysis.	X						
Association of staff instability with quality of nursing home care.	X						
Institutional factors associated with residents' malnutrition in nursing homes: A cross-sectional study.	X						

ADDENDUM G: SCOPING REVIEW - RECOMMENDATIONS FROM STUDIES

Recommendations from included studies
Skill mix
–Harrington *et al*. (2012:88–98) suggested that research should focus on examining the education, skills, and expertise required by nursing staff to provide different types and levels of care. –Shin (2018:705–713) recommended that LTCFs employ nurses with advanced professional knowledge and skills to care for the growing number of residents with complex care needs. –Shin, Park and Huh (2014:788–805) proposed exploring and defining the contribution of RNs to the quality of life of LTCF residents and conducting further research to determine the staffing mix that yields the best outcomes for residents. The authors also recommended further research to determine the best skill mix to maximise resident outcomes (Shin, Park & Huh, 2014:788–805). –Shin and Hyun (2015:555–564) highlighted that Korean LTCFs need more professional nurses and need to correctly differentiate the roles and functions between RNs and CNAs. They argued that RNs are more aware of the severe outcomes of resident falls and are more committed to safety issues than other staff members. –Lee *et al*. (2022:15–25) recommended that LTCFs in South Korea have at least one RN on duty per day, with a minimum of four RNs, to ensure comprehensive coverage and services. A higher proportion of RNs among the nursing staff could reduce infection and mortality rates, especially during the COVID-19 pandemic. The Korean government should also collect more comprehensive data on LTCF staffing and infections. Furthermore, LTCFs should refrain from replacing RNs with CNAs (Lee *et al*., 2022:15–25). Shin and Shin (2019:296–301) cautioned policymakers on mandating nurse staffing in South Korea due to the acceptable practice of substituting RNs with CNAs in the LTCFs. –Within South Korea, prioritising research that examines the correlation between staffing levels and the nurse staffing mix (RNs and CNAs) is imperative. This endeavour will establish a robust basis for formulating policy choices (Lee *et al*., 2015:137–143). Shin (2019:569–579) emphasised the urgency of enacting laws regarding RN staffing as a foremost concern in South Korea. –Lerner (2013:123–128) pointed out that severe deficiencies in United States LTCFs are costly. Although employing RNs may be more expensive than LPNs or CNAs, it can prove more cost-effective for LTCFs due to the costs of receiving deficiency citations. –Yoon *et al*. (2022:728–737) recommended a higher RN skill mix in United States LTCFs to decrease the likelihood of deficiency citations for inappropriate psychotropic medication use. –Chappell, Kirkham, and Seitz (2022:1787–1792) suggest that policymakers should consider increasing the skill mix of LTCF staff to reduce the inappropriate use of antipsychotic medications in LTCFs and improve other aspects of the quality of care. –Yang *et al*. (2021:1081–1087) recommended devising strategies to determine the optimal skill mix to minimise rehospitalisation and emergency department visits among LTCF residents.
Staffing levels
–Nursing researchers and clinicians must prioritise transparency in reporting LTCF staffing data and researching staffing standards and levels, given its critical role in providing high-quality care Harrington *et al*. (2012:88–98). –To provide comprehensive guidance for policy decisions and individual nursing facility staffing, Lerner (2013:123–128) recommended conducting larger-scale studies that consider state-to-state (states within the United States) variations as the surveyors doing the surveys and issue deficiency citations in the different states may vary in survey style. Also, staffing requirements in the states vary. –Schnelle *et al*. (2016:970–977) recommended using a mathematical model, such as the discrete event simulation (DES) model, to determine appropriate staffing levels based on residents' specific care needs, the time required for each aspect of care, and the frequency of care provision. –Kim and Han (2018:518–524) urged South Korean policy-makers and regulators to differentiate between nursing staffing levels for RNs and CNAs, as the current legislation allows CNAs to replace RNs. The authors also recommended that creating supportive work environments and offering competitive wages and benefits can increase nurse staffing levels, resulting in improved patient outcomes. –Yoon *et al.* (2022:728–737) recommended higher RN and CNA staffing levels to implement non-pharmacological interventions and reduce inappropriate use of psychotropic medications, directly benefiting resident outcomes. –Accordingly, Chappell, Kirkham, and Seitz (2022:1787–1792) not only recommended a higher skill mix in LTCFs to reduce the inappropriate use of antipsychotic medications but also that policymakers should consider increasing staffing levels to enhance the overall quality of care. –LTCF leaders should encourage maximising the RN HPRD to reduce rehospitalisation and emergency department visits among LTCF residents (Yang *et al*., 2021:1081–1087).

–In German LTCFs, Zimmerman and Pfaff (2018:48–56) recommended that having additional care staff responsible for residents' nutritional care alongside RNs can help reduce the risk of weight loss, especially for residents without cognitive impairment, given the time pressures and high workload RNs face.

–Given the lessons from the COVID-19 pandemic, an increased focus on improving LTCF staffing is strongly recommended, as its importance and impact on LTCF care were highlighted during the crisis (Gorges & Konetzka, 2020:2462–2466).

Staff allocation per resident acuity

–The acuity levels and individual needs of LTCF residents should be considered along with the nursing staff's education, skills, and expertise to provide different levels and types of care (Harrington *et al*., 2012:88–98). Likewise, Shin and Shin (2019:296–301) posit that residents' acuity impacts their outcomes; thus, staffing should align with their acuity levels.

–Lee *et al*. (2015:137–143) recommended the growing care needs of residents demand establishing actual staffing standards to ensure optimal care.

–Schnelle *et al*. (2016:970–977) recommended aligning staffing levels with residents' acuity to keep the rate of care omissions below 10%, ensuring a high standard of care.

–Shin (2018:705–713) highlighted the need for nursing laws in South Korea to better address the residents' healthcare requirements.

–To reduce rehospitalisation and emergency department visits among LTCF residents, effective strategies are necessary to optimise the allocation of nursing resources and work tasks (Yang *et al*., 2021:1081–1087).

–Managers should consider the qualifications and education of nursing staff and residents' acuity levels to ensure the best use of available resources and optimise the quality of care (Tuinman *et al*., 2016:148–154).

–McCloskey *et al*. (2015:1475–1483) suggested leveraging opportunities to improve work practices and promote more quality time with residents. Staff often spend significant time on non-value-added activities, and addressing time constraints can enhance compliance with safety practices and the provision of quality care to residents.

Allocation concerning nurses' scope of practice

–Yang *et al*. (2021:1081–1087) emphasised the importance of aligning the scope of practice for RNs and LPNs with the specific clinical expectations for each nurse category.

–Shin (2013:133–143) recommended that RNs focus on holistic care to enhance residents' quality of life, such as health-related issues like pain management and prioritise dignity and autonomy care (Shin, 2013:133–143). Likewise, Shin and Shin (2019:296–301) recommended that regulations and LTCF policies include weight assessments by RNs.

–Kim and Han (2018:518–524) recommended developing clear job descriptions for RNs and CNAs in South Korea's LTCFs. When delegating tasks from RNs to CNAs, explicit delegation procedures must be established, including delegation levels, nursing care practices, and institutional standards. Furthermore, education opportunities must be provided for the nursing staff to stimulate their professional growth and improve their job ability.

–Shin and Hyun (2015:555–564) emphasised that RNs are required in long-term care as they can provide emergency treatments based on their professional judgment, especially when doctors' visits are infrequent.

–Given the overlapping roles of RNs, LPNs, and care aides, McCloskey *et al*. (2015:1475–1483) recommended that it is essential to establish role clarity and optimise resource utilisation within LTCFs.

–Zirves, Demirer, and Pfaff (2021:11300) suggested creating protocols for evaluating the proficiency of nursing staff. This is essential as the actual competence of staff members and the coordination of competence within LTCFs lack systematic measurement.

Allocation concerning caregivers' job descriptions

–Yang *et al*. (2021:1081–1087) recommend that RNs supervise CNAs to reduce rehospitalisation and emergency department visits among LTCF residents.

–Zimmerman and Pfaff (2018:48–56) recommended specialised training for CNAs in managing residents with dementia to ensure adequate care provision, considering the increasing number of residents with dementia in LTCFs.

–Lee *et al*. (2015:137–143) suggested that both South Korea and the United States should consider factors such as education levels, continuing education requirements, and supervision of care workers, given that care workers play a significant role in caring for elders in LTCFs.

–McCloskey *et al*.'s study (2015:1475–1483) showed that care aides often did not attend shift reports, document their activities in residents' charts, or engage in dialogue with other care providers. Continued research is needed to understand better the contributions of care aides within the care team and to ensure their knowledge and expertise are recognised and trusted.

Other

Further research is needed to identify specific design features of LTCFs that aid staff in providing quality resident care, e.g., the layout and the square footage of buildings, which can require more staff because of the time spent walking (McCloskey *et al*., 2015:1475–1483).

ADDENDUM H: INTERVIEWS - PARTICIPANT INFORMATION LEAFLET AND INFORMED CONSENT FOR INTERVIEWS

Participant information leaflet and declaration of consent by participant and investigator relating to interviews

TITLE OF RESEARCH PROJECT: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

REFERENCE NUMBER: S22/10/216

PRINCIPLE INVESTIGATOR: Emerentia Nicholson (student number: xxxxxxxxx)

ADDRESS: Department of Nursing and Midwifery, Faculty Medicine and Health Sciences, Francie van Zijl Drive, Tygerberg, 7505.

CONTACT NUMBER: 079xxxxxxx

Dear colleague

You are invited to take part in a research project.

Through the years of coming in close contact with long-term care facilities, I became interested in how the legally prescribed staffing model is implemented in the facilities. This study explores the barriers and facilitators to implementing the staffing model in the LTCFs regarding staffing levels, skill mix, and staff allocation aligned with residents' acuity.

We wish to interview nursing service managers, registered nurses, staff nurses, assistant nurses, and caregivers employed at the facilities providing direct care to residents to understand what hinders the implementation of the staffing model and what facilitates the process. Your input will be valuable in developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts. The study is conducted in a private-for-profit and a state-subsidised long-term care facility in the Cape Metropole, Western Cape province. The Health Research Ethics Committee at Stellenbosch University has approved this study. The study will be conducted according to the ethical guidelines and principles of the South African Guidelines for Good Clinical Practice (2006), international Declaration of Helsinki, the Medical Research Council (MRC) Ethical Guidelines for Research (2002), and the Department of Health Ethics in Health Research: Principles, Processes and Studies (2015).

Although there are no immediate direct benefits for you to partake in the study, you will contribute to a body of knowledge to develop a framework for informing staffing models for long-term care facilities in resource-constrained contexts. Consequently, nurses, caregivers, and residents will benefit from your participation.

Therefore, you are invited to partake voluntarily in this study, but you are under no obligation to consent to participation. If you decide to participate, kindly give your consent to be interviewed by signing the declaration at the bottom of this document. All the information you provide will be managed confidentially. Neither your name nor the facility you work for will be recorded. You can decline or withdraw at any point during the project without adverse consequences.

You will not receive payment for participating in this study, but there will be no costs if you agree to participate. However, you will be reimbursed for expenses if you meet the researcher at a venue other than the facility for research purposes.

If any details are not covered in this information leaflet or if you require any further information, you can contact me at xxxxxxx@gmail.com or on 079 xxxxxxx. You can also contact the Health Research Ethical Committee at the following telephone number: 021 938 xxxx.

Thank you in advance for taking the time to read this information sheet, and for participating in this study.

DECLARATION BY PARTICIPANT (CONSENT TO PARTICIPATE IN THIS STUDY)

By signing this form, I ……. agree to take part in a research study titled 'Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts'.

I declare that:

- I have read this information leaflet and consent form, and it is in a language that enables me to understand the contents of this document.
- I understand the purpose of this research project.
- I had the opportunity to ask questions, which were answered to my satisfaction.
- I understand that my participation is voluntary and that I am free to withdraw from the study at any time without any penalty, judgment, or blame.
- I am aware that a research report will contain the findings of this study without violating my right to confidentiality.

Signed at: …….(place) Date: ……

…….

Signature of participant

DECLARATION BY RESEARCHER

I declare that:

- I have fully explained the purpose of the research study to this participant.
- I have encouraged the participant to ask questions and took the time to answer them.
- I am satisfied that he/she adequately understands all the aspects of the research as set out in this document.
- I did/did not use an interpreter.

Signed at: …….(place) Date: ……

…….

Signature of researcher

ADDENDUM I: INTERVIEWS - CONSENT FOR RECORDING OF INTERVIEWS

CONSENT FOR THE RECORDING OF THE INTERVIEW

TITLE OF RESEARCH PROJECT: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

REFERENCE NUMBER: S22/10/216

PRINCIPLE INVESTIGATOR: Emerentia Nicholson (student number: xxxxxxxxx)

ADDRESS: Department of Nursing and Midwifery, Faculty Medicine and Health Sciences, Francie van Zijl Drive, Tygerberg, 7505.

CONTACT NUMBER: 079 xxxxxxxx

Dear colleague

Thank you for participating in the research project.

Your written consent is required for the recording of the interview. The information you provide will be managed confidentially. Neither your name nor the facility you work for will be recorded, but codes will be used instead on the typed audio recording version. The audio recording and the typed version will be kept in a locked safe for five years, after which they will be destroyed.

DECLARATION BY PARTICIPANT (CONSENT TO PARTICIPATE IN THIS STUDY)

By signing this form, I ……. agree that the interview between myself and Emerentia Nicholson may be recorded. The interview forms part of the research study titled 'Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts'.

Signed at: …….(place) Date: ……

…….

Signature of participant

ADDENDUM J: INTERVIEWS - SEMI-STRUCTURED INTERVIEW GUIDES

Nurses (nursing service manager, registered, enrolled, and assistant nurses)

Title: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

Introduction: Through the years of coming in close contact with long-term care facilities, I became interested in how the legally prescribed staffing model is implemented in the facilities. Literature showed that staffing shortages in LTCFs occur worldwide and may be influenced by the higher demand for health care due to the growing number of older people. Therefore, the interview guide questions will explore the barriers and facilitators to implementing the staffing model in the LTCFs regarding staffing levels, skill mix, and staff allocation aligned with residents' acuity. Your input will be valuable in developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

Questions

1. Please tell me how you experienced implementing the staffing model in your LTCF regarding the number of nurses and caregivers employed?

Probing words: balance between nurses and caregivers, decision making, resident outcomes

2. In your experience, what aspects increase the ability of your LTCF to provide/ensure enough nurses and caregivers?

3. In your experience, what aspects decrease the ability of your LTCF to provide/ensure enough nurses and caregivers?

Probing words (questions 2 and 3): recruitment, appointment practices, absenteeism, staff turnover, availability of temporary staff, efforts to adjust staff totals during sick and vacation leave periods

4. Tell me your experience/view on how the nurses and caregivers are allocated to residents or tasks and how the skill mix influences the provision of care?

Probing words: who is responsible for the allocation, type of allocation, reasons/bases for distribution, rotating between residents, residents' acuity, efforts to adjust per residents' acuity, task allocation, consideration of the scope of practice and skill mix, work left undone, pain management, health education, oral hygiene, documentation, resident rounds, end-of-life support, socialising with the residents to provide stimulation and prevent isolation

5. Tell me about your role in the facility; what tasks do you perform in a workday?

Probing words: resident care, resident documentation, resident education, meal assistance, non-nursing duties: housekeeping, cleaning, day shift and night shifts, staff supervision, staff training, scope of practice (within/below/beyond)

Thank you for your participation

Caregivers

Title: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts

Introduction: Through the years of coming in close contact with long-term care facilities, I became interested in how the legally prescribed staffing model is implemented in the facilities. Literature showed that staffing shortages in LTCFs occur worldwide and may be influenced by the higher demand for health care due to the growing number of older people. Therefore, the interview guide questions will explore what may help or not help implement the staffing model in the LTCFs. The staffing model refers to the number of nurses and caregivers and how many of each group, as well as how caregivers and nurses are assigned during a typical workday. Your input will be valuable in developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

Questions

1. Please tell me how you feel about or see the number of caregivers and nurses your LTCF has?

Probing words: balance between nurses and caregivers, decision making, resident outcomes

2. In your experience, what helps that you have enough caregivers and nurses in your LTCF?

3. In your experience, what hinders your LTCF from having enough caregivers and nurses?

Probing words (questions 2 and 3): recruitment, appointment practices, absenteeism, staff turnover, availability of temporary staff, efforts to adjust staff totals during sick and vacation leave periods

4. Tell me your experience/view on how the nurses and caregivers are allocated to residents or tasks and how the skill mix influences the provision of care?

Probing words: who is responsible for the allocation, type of allocation, reasons/bases for distribution, rotating between residents, residents' acuity, efforts to adjust per residents' acuity, task allocation,

consideration of the scope of practice and skill mix, work left undone, pain management, health education, oral hygiene, documentation, resident rounds, end-of-life support, socialising with the residents to provide stimulation and prevent isolation

5. Tell me about your work in the facility; what jobs do you do in a typical workday?

Probing words: resident care, resident documentation, resident education, meal assistance, non-care tasks: housekeeping, cleaning, day shift and night shifts, job description (within / below / beyond), skill mix

Thank you for your participation

ADDENDUM K: INTERVIEWS - EXCERPT FROM TRANSCRIPTION

Interview transcript	
Participant code	FP9
Date and time	16 March 2023 at 14:22
Audio label	AAC file/16/3a
Audio length	46:17
Transcription legend	EN: Emerentia Nicholson (researcher) P: Participant
P	If a resident needs to see a doctor, we have to write referral letters; we have to send them, we have to book them for the day hospital or their doctor, and then we have to send them. We have to write down all the medications that they usually use. Sometimes, people need new six-month scripts, so you have to send them to the day hospital for a new six-month script. You have to follow up the physiotherapists. Sometimes they, the doctor, prescribes X-rays. So, you have to phone the hospitals to make an appointment for X-rays and inform children if their parents are not well.
EN	So, it's that communication with the family as well.
P	Yes. We also have to check the medication when it comes from the day hospital. They send the pack of medication, and then you have to write it down and count it. We have to make it up again and send it off to the pharmacy that does our blister packing.
EN	OK, and how many people are on medication? I will almost say, who is not on medication?
P	Everybody's on medication. I haven't seen someone that isn't on medication.
EN	The whole 98?
P	The whole 98 is on medication. That's why we have a staff nurse [EN] in [place name redacted]. We have a staff nurse in [place name redacted], and we have a staff nurse in [place name redacted]. But I'm there to help them.
EN	Three. OK, I got it. Uhm, if I look at the number of registered nurses, for 98 people, it means like you as a registered nurse, what can I say? The breadth of your scope is 98 people; you are responsible for 98.
P	Yes, I'm responsible for everything.
EN	Can I just ask you about this medication again? How long will it take to administer it? How long does a round take?
P	If I start at eight, it usually gets done half past ten.
EN	So, it's about two and a half hours.
P	Yes, because we have to make sure they drink it.
EN	Half *past* ten…
P	But in between, you get called and…
EN	Yes. And the disturbances are a risk.
P	Yes. And you have to make sure they take the medication they, you have to stand there, and give them one tablet at a time. Like there's one resident, she doesn't want to, even if it's small, … one at a time.
EN	So, it's individually that you have to give it.
P	We hand out medication in the morning, and then at 12 again, and then at 5 [17:00] again. And then the night staff nurse come hands out again at eight. Because there's sleeping tablets and everything that needs to be given.
EN	So, it's also a long round.
P	And the night staff nurse is only, one staff nurse on night duty. She has to do hand out to *all* 98 people.
EN	That's quite a lot. And they need to be watched. Tell me, if you've got staff that is sick. I mean, I gathered now that you say the other registered nurse is on leave. Obviously, you didn't get a replacement.
P	No.
EN	Do you ever get a replacement?
P	Sometimes, if (manager's name) is generous, I can't just go and get a replacement; I must ask first.

EN	Now why would you think sometimes you can get somebody and sometimes you can't? How long has this other colleague of yours been on leave?
P	A month.
EN	So, for a whole month, you have to run this place as an RN solidly on your own. What do you think is the reason that you don't get a replacement for at least this time? A registered nurse?
P	I didn't ask. Uhm, because I know the question will be money.
EN	Is it? the answer is always money?
P	The answer is always money
EN	So, it's budget constraints. Now, give me example: when *will* they give you somebody? A replacement. Because you say sometimes they will.
P	No, they didn't really give. Like, I started the beginning of the month working 7/4s. But I had to stay until 7 [19:00]. Because the staff nurse did not come on duty in the morning. And there's no replacement in her place. So, I have to stay.
EN	When you work a 7/4 - then you stay on until 7.
P	Yes.
EN	You mentioned you are on call. What does on-call mean?
P	On-call means they can call me anytime during the night or day or when I'm not here.
EN	So, when you are off duty, you'll also do call. Is it on a roster?
P	It’s on a roster, yes.
EN	So, you…
P	But I've been doing calls for the whole month now.
EN	Every day. Every night. Every weekend.
P	Because I was the only sister here for the month.
EN	So, I'm noticing 98 people, there would obviously be a lot of paperwork that needs to be filed, the resident files that need to be…
P	We do it ourselves. We do the filing; we do the printing.
EN	And it adds up. I'm just just thinking about this workload. Taking a registered nurse, where there’s only one, to go and work with the copy machine. Its…
P	But that’s not all we do. We hand out the toiletries everything. We have to write it down, like if, if somebody, like say your mother needs now toiletries. Then you will come tell me then I will issue soap, powder, toothpaste, everything and I have to write it down. In a register.
EN	As a registered nurse.
P	We have a register where they have to write it in. The nappies also, I have to write it down. I can't just issue a nappy, I have to write it in a register.
EN	Listen, I understand that you have to do the supervision, but to have the registered nurse physically counting soap bars and…
P	And we have to order everything.

ADDENDUM L: EXPERT PANEL - PARTICIPANT INFORMATION LEAFLET AND INFORMED CONSENT

Participant information leaflet and declaration of consent by participant and investigator relating to the expert panel

TITLE OF RESEARCH PROJECT: Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts.

REFERENCE NUMBER: S22/10/216

PRINCIPLE INVESTIGATOR: Emerentia Nicholson (student number: xxxxxxx)

ADDRESS: Department of Nursing and Midwifery, Faculty Medicine and Health Sciences, Francie van Zijl Drive, Tygerberg, 7505.

CONTACT NUMBER: 079 xxxxxxx

Dear colleague

The researcher is a PhD student at Stellenbosch University conducting a study titled 'Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts'. The study was conducted in a private-for-profit and a state-subsidised long-term care facility in the Cape Metropole, Western Cape province. The objectives of the study were to:

- To describe the distinct characteristics of staffing models for LTCFs in resource-rich and resource-constrained contexts.
- To explore the barriers and facilitators to implementing the staffing model from the perspectives of nurses and caregivers in LTCFs for older persons.
- To develop a framework to inform staffing models for LTCFs for older persons in resource-constrained contexts.
- To validate the developed framework using the Expert Validation method.

Against this background and due to your expertise in nursing management, education, and experience in elderly care, you are invited to partake voluntarily in a process to validate the drafted framework. Your expert opinion regarding the credibility, relevancy, consistency, and accuracy of the framework and your suggestions for improving the framework will be valuable.

Although there are no immediate direct benefits for you to partake in the study, you will contribute to a body of knowledge to validate and refine a framework for informing staffing models for long-term care facilities in resource-constrained contexts. Consequently, nurses, caregivers, and residents will benefit from your participation.

You are under no obligation to consent to participation. If you decide to participate, kindly give your consent to partake voluntarily by signing the declaration at the bottom of this document. All the information you provide will be managed confidentially. Neither your name nor the organisation you work for will be recorded. You can decline or withdraw anytime during the project without adverse consequences. You will not receive payment for participating in this study, but there will be no costs if you agree to participate. However, you will be reimbursed for expenses if you meet the researcher at a venue other than the facility for research purposes.

The Health Research Ethics Committee at Stellenbosch University has approved this study. The study will be conducted according to the ethical guidelines and principles of the South African Guidelines for Good Clinical Practice (2006), international Declaration of Helsinki, the Medical Research Council (MRC) Ethical Guidelines for Research (2002), and the Department of Health Ethics in Health Research: Principles, Processes and Studies (2015).

If any details are not covered in this information leaflet or if you require any further information, you can contact me at xxxxxxx@gmail.com or on 079 xxxxxxx. You can also contact the Health Research Ethical Committee at the following telephone number: 021 938 xxxx.

Thank you in advance for taking the time to read this information sheet and for participating in this study.

DECLARATION BY PARTICIPANT (CONSENT TO PARTICIPATE IN THIS STUDY)

By signing this form, I ……. agree to take part in a research study titled 'Developing a framework to inform staffing models for long-term care facilities in resource-constrained contexts'.

I declare that:

- I have read this information leaflet and consent form, and it is in a language that enables me to understand the contents of this document.
- I understand the purpose of this research project.
- I had the opportunity to ask questions, which were answered to my satisfaction.
- I understand that my participation is voluntary and that I am free to withdraw from the study at any time without any penalty, judgment, or blame.
- I am aware that a research report will contain the findings of this study without violating my right to confidentiality.
- I consent to the recording of the interview.
- I agree to keep the identity of the co-experts confidential.

Signed at: …….(place) Date: ……

…….

Signature of participant

DECLARATION BY RESEARCHER

I declare that:

- I have fully explained the purpose of the research study to this participant.
- I have encouraged the participant to ask questions and took the time to answer them.
- I am satisfied that he/she adequately understands all the aspects of the research as set out in this document.
- I did/did not use an interpreter.

Signed at: …….(place) Date: ……

…….

Signature of researcher

ADDENDUM M: EXPERT PANEL DISCUSSION - EXCERPT FROM TRANSCRIPTION

Date/time	27 June 2024 at 15:00
Audio label	Recorded Microsoft Teams meeting on 27 June 2024 at 15:00
Audio length	70:26
Transcription legend	**EN**: Emerentia Nicholson (researcher); **P1, SW**: Panel member 1, Social worker; **P2, SW**: Panel member 2, Social worker; **P3, RN**: Panel member 3, Registered nurse; **P4, RN**: Panel member 4, Registered nurse; **P5, RN**: Panel member 5, Registered nurse; **P6, RN**: Panel member 6, Registered nurse; **P7, RN**: Panel member 6, Registered nurse/participant from the holistic multiple-case study
P5, RN 45:50	Yes, I would say that it definitely resonated with our environment. This is a way of formalising, you know, the picture and the scenarios that we see unfolding on a daily basis. What was good for me was that you included the voice of the caregiver. You know, in your qualitative interviews, because I don't know, you yourself have found that they felt undervalued, etc. And I don't think often they are given the time of day because they're often sessional staff. They probably have the least power in the system. So, it was good, and things that, you know, we've also heard sort of on the ground, you know, the stories about having more meetings and so forth. It's good to hear that being formalised, and it is a concrete recommendation that one can take forward, given the usual constraints and the juristical stuff like the night shift is typically like, you know, the wasteland, you don't always get access to them from the management perspective. Yeah, but I mean, there's a lot more and other people that must also give input, but that's my, but well done. I think it's great that you've written it up that you found these themes, that there's concrete, pragmatic things that can be done on each of the four quadrants of your framework.
P1, SW 47:20	Yeah, I agree, and especially for the caregivers, they do more than their scope of practice. And that's dangerous. But, where we are, we don't get professional nurses, so even if it's illegal, the facility might let the caregivers do more than their scope. And it puts pressure on them in a lot of ways. And we don’t appreciate what they do. So, that was a big thing for me in the study. And then, the legal implications and sometimes you know you don't have a choice. That's difficult.
EN 48:00	That's true. That's what also came out in the interviews when we talked to them. It seems like when an RN gives an instruction to a caregiver, they think they have to do it.
P1, SW 48:33	And sometimes I, especially at night shift, you don't have senior staff that you know that things will be cared for more, so it's, yeah.
P2, SW 48:55	Yeah. And I just, yeah, I was just thinking about, you mentioned the acuity, you know the acuity of the residents that need to match the skill set of the staff. And I think that is so important because many times we don't always look at the acuity of the residents and match that, you know, because of constraints. And I think that that's, for me, that's very important. So that you deliver a, you know, a proper service to that person depending on their needs. So, I think that just stood out for me as well.
P3, RN 49:31	Yeah. I would say the caregiver's plight is really highlighted here, where they are almost abused due to not having to pay them a lot because their training does not require that, and there's no regulation surrounding them with no formal kind of body looking after them. And I know SANC doesn't want them but how often does the facility really invest in training them? And I don't think, I mean they come in with some training, but, further on it’s neglected sometimes. And even your professional nurses and your other nurses, when you start to work in elder care, it's not to say that you have a lot of experience specific to elder care, and it's not in curriculums, and it's very often seen as general, but there are specific needs when it comes to older people and some of the diseases, specifically in older people. And there are often a lack of knowledge, and skills may be lacking in all of your

	staff. So, I think the, what you've done so far is very comprehensive. It looks at a number of things that can be used well in this study. So yeah, that's just from my side.
P7, RN 51:47	Your study has opened a lot, as far like, even as so much knowledge because as I, the caregivers are recognised as they are, they are the backbone of the care of the elderly. So really. Besides, as you have mentioned when we started, it doesn't necessarily mean being a registered nurse that you, we, are well equipped for looking after the elderly. We need also training. That you are able to train the caregivers that you are working with as well to raise the standard of our care.
EN 52:35	That's a good point. Yeah, that you, actually, what I hear you say is that you, the RNs should actually learn how to work with caregivers, how to train the caregivers.
P7, RN 52:56	Yes, and besides that, I think the owners in the private care, the thing that they are looking at, really is unfair: is to how much are we spending on staffing. Of which they find that they can't give us. As we know, they are the backbone of care of the elderly. They are not well compensated.
P6, RN 53:32	Yes, I wanted to come in on the skills gap analysis. I feel that that's a very important part that is not normally done in your government sector because I've been involved in government old age homes. Sure, they're very particular in making sure the carers have a job description, but they very seldom do the skills analysis to determine where the gaps are. And even if the carers come forward and say I want a bit of training on Dementia or Alzheimer's, there is not much formalised in terms of that. And then there's always the case of there's not enough money to train people to do first aid or to, to be proficient when it comes to, you know, evacuating the place during a disaster. Occupational health and safety training often lacks. Fire training lacks. So, there's a lot in terms of the training for the caregivers at lack, we tend to focus on the registered category. And here, I particularly refer to my experience in the government sector. So, money is spent on the RNs, but not necessarily on the caregivers.
EN 54:51	I hear what you say. So, the skill gaps analysis would be very important. Then, to see what they actually need, yes.
P6, RN 55:07	And it can also be applied, you know, for the other categories, your RNs, your ENs, because often you get an RN applying and saying, I'm looking for a retirement job. And it's just not on, because your geriatrics needs are specifically, like your paediatric babies and infants, they have specific needs, which often people, wherever they come from, wanting to work at the retirement place. They think, aach, I can lift my feet up and sit back.
P3, RN 55:44	I absolutely agree. I absolutely agree with that, and that's why I say not even in the curriculums is it really introduced that there is specific geriatric content. It's not been teached, not for the past many years, and it's not going to be in the near future because there's so much emphasis on some of the other elements. So, it has a lifespan approach, which is very general. But not specific to geriatrics.
P5, RN 56:12	If I could perhaps add, I was agreeing with some of the things that [P3, RN] was saying earlier on as well. In contrast to this original generalised profile of the retirement job, what we are seeing across our private sector facilities, in fact the candidate who's applying is very different. They are young RNs; they've done com serve and maybe a very short stint somewhere else. And as [P3, RN] was saying, it varies from university to university. But some of them have maybe done a two-week rotation in a sort of older person's facility. That is the exception. The others have never, they don't even know what you're talking about when it comes to the mini-mental. Their psych training is quite limited, and that's often the kind of thing that you need. They need a solid medical background, which they don't always have. So even in your RNs now, you often have a much bigger bridge to cross with them, because they don't even, you know, have much professional experience as yet. So that's another area where one has to do gap analysis, and the curriculum impact should come for this with the ageing population globally.

ADDENDUM N: INTERPRETATIONS FROM THE SCOPING REVIEW, DOCUMENT REVIEW, AND INTERVIEWS

Interpretations from the scoping review, document review, and interviews were categorised according to the framework concepts, i.e., staffing levels, skill mix, and staff allocation.		
Interpretations from the scoping review		
Staffing levels	**Skill mix**	**Staff allocation**
Total staffing levels: • There were variations in countries' national staffing standards for LTCFs. • Different states within countries tend to set higher standards than the federal or provincial standards. • Authors recommended that standardised reporting and research be conducted to establish appropriate staffing levels for high-quality care due to variations in staffing levels between and within countries. • The total HPRD reported ranged between 2.1 and 5.19. • Staffing levels in most countries were lower than the 4.55 HPRD recommended by an expert panel and the Centres for Medicare & Medicaid Services in the United States. • Lower total staffing levels seemed to be associated with increased workloads, staff burnout, and a compromised ability to provide adequate care. • Higher total staffing levels seemed to lead to better outcomes for residents, such as lower rates of antipsychotic prescribing, containing the number of COVID-19 cases, preventing outbreaks, and reducing deaths. **Nurse staffing levels:** • Nurse staffing levels appeared low compared to caregiver staffing levels. • Authors reported that RN HPRD varied between 0.17 and 1.10. • Authors reported that LPNs HPRD varied between 0.16 and 0.87. **Caregiver staffing levels:** • Caregiver staffing levels appeared high when compared to the lower nurse staffing levels.	**Competencies, qualifications, and work experience:** • RNs appear to have more extensive training and a comprehensive scope of practice, thus taking on a more comprehensive role in resident care. • Caregiver training appeared minimal, ranging from some caregivers receiving training from institutions that were not qualified to provide training to two-week internships. • Literature suggested that nursing staff's education, skills, and expertise should be evaluated to ensure they could provide diverse care tailored to residents' needs. • Specialised staff training is deemed essential since the actual competence of nurses and caregivers appears not to be measured in LTCFs. **Actual skill mix:** • There were variations in countries' national standards regarding the skill mix in LTCFs. • Some countries specify the skill mix; for example, the United States requires the continuous presence of at least one RN on duty for eight consecutive hours every day of the week, which includes the presence of a full-time director of nursing. • Other countries, such as England, did not have specific staffing standards but only specified that the skill mix must be appropriate for residents' needs and the purpose of the homes. • The skill mix included RNs, LPNs, CNAs, nurse assistants or care workers. • In South Korea, a CNA is similar to an LPN in the United States, with two years of training. RNs	**Allocation and resident acuity:** • Residents' acuity levels appear to rise, requiring complex nursing care. • Despite rising acuity levels of residents, LTCFs seemed disinterested in adopting acuity-adjusted staffing models. • The exception is Germany, where staffing levels are calculated based on the residents' dependency levels. • Residents received the same overall care regardless of their acuity levels. • There appeared to be a 22% risk of care omission rate in residents with higher acuity levels. • Nurses and caregivers were not allocated according to residents' acuity levels. **Allocation and nurses' scope of practice:** • Some countries, such as South Korea, seemingly use RNs and CNAs interchangeably, leading to CNAs working beyond their scope of practice. • Role blurring occurred when nurses performed overlapping tasks despite different training and scope of practice. • Cost-cutting measures sometimes led to substituting higher-qualified staff, such as RNs, with less-qualified staff, like LPNs and caregivers, possibly resulting in staff assuming responsibilities beyond their proper qualifications. • The roles between nurse categories and caregivers seem to become increasingly blurred due to a lack of differentiation in staffing requirements. • This role blurring raised questions about resource utilisation and role clarity.

• Authors reported that caregiver HPRD varied between 1.71 and 5.19. **Staff turnover:** • Consistent staffing levels, i.e., low staff turnover, may lead to better quality of care outcomes, such as lower anti-depressant medication usage in residents. • A high staff turnover, especially among RNs, can disrupt the consistent availability of staff with the necessary skills to provide care to residents in the LTCFs and might worsen resident outcomes. **Relief staff:** • Authors found that using agency staff produced mixed results.	and CNAs may be used interchangeably. **The proportion of nurses in the skill mix:** • The proportion of RNs in the total nurse and caregiver staff varied across countries. • The proportion of RNs in the total nurse and caregiver staff appeared to be low, ranging from LTCFs without RNs, such as in South Korea, or between 13.2% and 24.1%, except for Germany, where legislation mandated that RNs comprise 50% of the care staff. • Most authors reported that a higher skill mix, especially a higher proportion of RNs, may improve the quality of care and, thus, resident outcomes since having more RNs allowed more time to examine the underlying causes of behavioural symptoms. • The RNs' extensive training may better equip them to address residents' behavioural and psychological symptoms and mental health conditions and identify serious adverse events. • Higher-qualified staff, such as RNs, seems to ensure lower severity of cited deficiencies. • Better resident outcomes may be potentially cost-effective, thus making it worth employing more RNs. • It is perceived that cost considerations and unattractive working conditions may hinder the appointment of RNs. • The proportion of LPNs to the total nurse and caregiver staff was 23.4% (United States) to 40% in Canada. • Employing more less-qualified staff seems to improve organisational outcomes, ensuring better compliance with countries' legislation and fewer deficiency citations. • Some countries had a lower skill mix over weekends than weekdays, especially the	• RNs appeared to spend most of their time on indirect care activities, such as documentation, restocking, distributing linen, and shift reports. • It seems like LPNs have more task-orientated roles. • Some LPNs might operate below their scope of practice. • Literature suggests that some activities performed by higher qualified nurses could be delegated to caregivers. **Allocation and caregivers' job scope:** • Caregivers appear to provide the most direct resident care, possibly leading to overextension.

	proportion of RNs in the skill mix. **The proportion of caregivers in the skill mix:** • The proportion of caregivers in the skill mix appeared higher than that of all categories of nurses since it varied between 40% and 63.4%.	
Interpretations from the document review		
Staffing levels	**Skill mix**	**Staff allocation**
Total staffing levels: • Both facilities exceeded the prescribed minimum total staffing levels but achieved the staffing levels by increasing the caregiver numbers and lowering the nursing totals. • According to the documents, the total HPRD ranged between 2.85 and 3.59. • It appeared there were limited considerations for staffing levels during peak times. • There appeared to be minimal fluctuation in staffing levels during weekdays when operation levels were higher than the lower operations over weekends. **Nurse staffing levels:** • Both facilities employed fewer nurses than mandated in the prescribed staffing model. • The low nurse staffing levels, especially in S2, led to a high nurse-to-resident ratio between one RN for 101 residents, one EN for 33 and 101 residents, and one ENA for 50 and 101 residents. • There were no nurses (any category) for three hours daily in P1. • There were no RNs available for night duty in S2. **Caregiver staffing levels:** • The LTCFs had nearly twice to triple the minimum caregiver numbers. • The caregiver-to-resident ratios seemed lower than those of the nurse-to-resident ratios. • The caregiver-to-resident ratios ranged from one caregiver for six residents during the day	**Competencies, qualifications, and work experience:** • S2 appeared not to be choosy when appointing staff, as they had no predetermined criteria regarding competencies, qualifications, or work experience, while P1 was more stringent. • The LTCFs did not have records indicating that in-service training was provided to the staff. **Actual skill mix:** • There appeared to be discrepancies in the skill mix composition. • RNs comprised only 5.4% of the total staff in S2 versus 18.1% in P1. • P1 only employed RNs, not ENs or ENAs, while the state-subsidised LTCF employed all three nurse categories. • The nurse-to-caregiver ratio indicated one nurse for between 2,08 and 4,5 caregivers. • Despite the absence of ENs and ENAs, no nurses for three hours daily in P1, and potential role overlaps, P1 reported no adverse events, while S2 faced several, including resident falls and wounds. The higher adverse events in S2 might be due to low RN supervision. **The proportion of nurses in the skill mix:** • The proportion of nurses within the total staffing was low (between 18.1% and 32.4%). • S2 was slightly better staffed with nurses than P1, with a higher proportion of nurses in the skill mix and slightly less frail residents.	**Allocation and resident acuity:** • The residents' acuity levels were high in P1 since all were frail, while the number of frail residents in S2 was slightly lower than in P1 since S2 also had Category 1 and 2 residents. • Residents' acuity levels seemed disregarded by both facilities when allocating the staff. • P1's job descriptions outlined the RNs' responsibilities regarding staff allocation based on resident acuity and operational requirements, which was seemingly ignored. • No staff allocation was recorded in P1 despite high acuity levels (all 35 residents were frail). • S2 recorded staff allocation in duty rosters and transcribed it daily in an allocation book. However, the acuity levels of residents still seemed to be overlooked. • In S2, the staff were allocated to the same geographic areas for extended periods without mentioning resident names in the allocation book. **Allocation and nurses' scope of practice:** • The roles between the different categories of nurses and caregivers might be blurred since the job descriptions of RNs and ENs were mostly similar, and the job descriptions of ENAs and caregivers were mostly similar, except for tube feeding and vital signs monitoring (S2). • The allocation of RNs in S2 appeared vague, limiting allocation to supervision and

shifts, one caregiver for twelve residents during the night shifts (P1), one caregiver for 11 to 12 residents during the day shifts and one caregiver for 25 residents during the night shifts (S2). **Staff turnover:** • Staff turnover seems minimal in the LTCFs. • There appeared to be no caregiver vacancies. • While P1 had no nurse positions, various nursing positions were vacant in S2, seemingly without attempts to fill them or documenting the reasons for not filling them. **Relief staff:** • Management tended to provide relief staff for caregivers. • P1 did not utilise external relief staff for the RNs since the available RNs collectively cover the shifts. In contrast to P1, S2's management seemed hesitant to provide relief staff for nurses (all categories). • A lack of relief staff for RNs led to no RNs on weekends when RNs took scheduled leave (S2). • Unscheduled leave seems higher when relief staff were available for caregivers.	• The low proportion of RNs in the skill mix resulted in no RNs on night duty (S2). **The proportion of caregivers in the skill mix:** • The proportion of caregivers in the skill mix was high, ranging between 67.6% and 81.8%. • There appeared to be an overreliance on caregivers.	medication administration without mentioning residents. • ENs were allocated similarly to the RNs, thus assuming the same responsibilities as RNs in the RNs' absence. • ENAs appeared to be allocated non-nursing tasks, such as laundry. **Allocation and caregivers' job scope:** • The burden on the caregivers appeared high. • In P1, there were periods when no nurses (any category) were on-site for three hours daily, leaving caregivers responsible for the residents. • In P1, it might have been possible for caregivers to assume nursing responsibilities during the timeframes when no nurses were available.
Other perceived barriers and facilitators to implementing the staffing model: **Employee benefits and welfare:** • The provision of employee benefits appeared to be linked to the resources available to the LTCFs, as it was provided in P1 (private for-profit) and not in S2 (state-subsidised). • The wellbeing of nurses and caregivers in P1 was acknowledged but seemingly not in S2. **Job descriptions and policy manuals:** • Job descriptions seemed to refer to non-existing policies or contradicted the nurses' scope of practice. • There were no job-specific policy manuals/guidelines in the LTCFs. • While S2 had human resource policies, P1 had none. **Communication structures:** • Both LTCFs lacked minutes of staff meetings. **Disciplinary measures:** • The absence of staff meetings, job descriptions, policies, in-service training, lack of acknowledgement of staff welfare, and low RN supervision seemed to facilitate the frequent imposition of disciplinary measures against nurses and caregivers in S2. At the same time, P1 did not document any disciplinary measures against nurses and caregivers.		
Interpretations from the interviews		
Staffing levels	**Skill mix**	**Staff allocation**
Total staffing levels: • Most participants considered the total staffing levels as inadequate.	**Competencies, qualifications, and work experience:** • Nurses and caregivers had years of work experience, with one	**Allocation and resident acuity:** • In P1, all the residents were frail and seemed to need higher levels of care.

• It appeared there were limited considerations for staffing levels during peak times, such as when showering and dressing residents in the mornings. • P1 did not appear to have nurse and caregiver vacancies, but S2 had EN and ENA vacancies. • Some participants perceived that management would only fill the vacant nursing positions when emergencies occurred without qualifying what constitutes an emergency. • EN and ENA vacancies in S2 appeared to exacerbate the low nurse staffing levels and increase, specifically, the ENAs' workload. • The perceived low staffing levels led to delayed care, causing residents to become verbally abusive towards caregivers. • Participants perceived that care was omitted due to low staffing levels, such as nail care, writing residents' reports, and providing health education to residents. • While P1's participants did not report adverse events, S2's participants shared that adverse events occurred due to low staffing levels, such as residents presenting with falls, chafing wounds, blisters, septic wounds, and discoloured skin. • Perceived low staffing levels seemed to be further exacerbated by impractical work practices, such as providing care to residents outside of the frail care (P1) and time spent retrieving and distributing stock and obtaining resident files (S2), apparently impeding care delivery. **Nurse staffing levels:** • Most participants considered the nurse staffing levels (all categories of nurses) as inadequate. • In P1, the shared position of facility manager and nurse in charge (RN) seemed to increase the nurse-to-resident ratio.	newly appointed nurse four months before the interviews. In contrast, the other nurses and caregivers had up to 35 years of work experience. • Some nurses (ENAs) in S2 felt that they lacked the necessary competencies to practice safely and competently, especially regarding managing residents with Alzheimer's and Dementia. • No category of nurses or caregivers received formal in-service training in the LTCFs. **Actual skill mix:** • Both LTCFs appeared to have imbalances in their skill mix. • There were differences in the mix of skills between the LTCFs. • S2 employed RNs, ENs, and ENAs. • The management of P1 decided to use the services of RNs and forfeit the services of ENs and ENAs based on their limited scope of practice, which required the ENs and ENAs to work under an RN's supervision. • P1's participants perceived that an RN *or* EN per shift, in addition to caregivers, was sufficient to provide the necessary care to residents. • P1's caregivers perceived that ENAs in the skill mix were not essential, possibly conveying that they were oblivious to or perhaps unconcerned about the potential risks. • Although using only RNs in P1 was perceived as more costly, it was seemingly still less expensive than employing all categories of nurses. **The proportion of nurses in the skill mix:** • Most participants perceived the proportion of nurses in the skill mix as low. • Financial constraints in P1 seemed to have reduced the hours for locum RNs, with their day shifts reduced from 12 to 9 hours. • RNs working day duty had to hand over and receive handover	• In S2, participants viewed the residents' acuity levels as higher than those recorded in the residents' assessment forms, sharing that the necessary level of care exceeded merely assisting with activities of daily living. • It appeared that neither LTCF considered resident acuity or needs when allocating staff. For example, no staff members were explicitly assigned to a dying resident (S2). • In P1, no staff allocation was documented. • The responsibility for staff allocation was assigned to the ENs (S2) and the caregivers (P1). • P1's RNs seemed to give caregivers the authority to decide which residents they would attend daily, regardless of residents' acuity levels. • Staff allocation in S2 was considered more helpful in ensuring that not all staff members took breaks simultaneously than for allocation to residents. **Allocation and nurses' scope of practice:** • The RNs and ENs perceived their roles as primarily being medication management and supervising lower categories of staff. • Inadequate RN levels in S2 led to using ENs interchangeably with RNs. • With the shortage of RNs and subsequent interchangeable use of RNs and ENs, it seemed necessary to shift tasks from the RNs to the ENs, resulting in ENs assuming RN duties beyond the ENs' scope of practice. • With the ENs completing tasks that should have been done by RNs, the ENs' functions were shifted to the ENAs. • RNs and ENs were seemingly required to complete non-nursing tasks, such as serving tea on night duty (P1), copying and printing documents for the

• The shared position of facility manager and nurse in charge (RN) in P1 seemed to overburden this RN, who was also on call for three hours daily when no nurses were on duty. • The low RN level in S2 left the LTCF without RNs available for night duty and no RNs on weekends when one of the two RNs took vacation leave. **Caregivers staffing levels:** • Participants in both LTCFs perceived the caregiver staffing levels as inadequate. • The perceived inadequate caregiver staffing might have resulted from low nurse staffing levels. • The caregiver staffing levels were perceived as inadequate due to the high acuity of the residents. **Staff turnover:** • Staff turnover appeared low in both LTCFs. • Since P1 served as a practical training facility for students in caregiver training programmes, recruitment and appointments were typically made from this pool of students. The last appointment appeared to be five years ago. **Relief staff:** • Both facilities seemed to provide relief staff for caregivers. P1 had three additional caregivers to relieve the seventeen full-time caregivers, and S2 obtained the services from caregivers outside the LTCF when needed or relied on their existing staff to cover shifts when staff shortages occurred. • The practice of using existing staff to cover shifts when shortages occurred was seemingly met with resistance from the staff due to their reluctance to forfeit rest days. • While P1 used locum RNs to cover nurse absences, S2 found it difficult to find relief staff for all categories of nurses.	reports daily from caregivers due to the absence of a nurse to hand over to or receive the handover report from. • A low proportion of RNs in the skill mix resulted in the interchangeable use of the RNs and ENs in S2. • The failure to provide relief staff for nurses resulted in a lower proportion of nurses in the total staff mix (S2). • While P1's RNs' workload appeared relatively light, especially during night duty, all categories of nurses shared that their workloads were heavy. **The proportion of caregivers in the skill mix:** • In both LTCFs, caregivers comprised most of the staff mix, but noticeably more so in P1. • Most participants perceived the proportion of caregivers in the skill mix as low. • Most caregivers shared that their workloads were heavy.	staff, and issuing and distributing incontinent wear and toiletries. • Some RNs found non-nursing tasks demeaning, such as serving tea to residents. **Allocation and caregivers' job scope:** • The bulk of the resident care seemed to fall primarily to caregivers regardless of the level of care the residents needed. • An overreliance on caregivers allowed them to practice within the scope of practice of ENAs (in S2), ENs (colostomy care), and even within the scope of practice of RNs (in P1), such as allowing the caregivers to administer medication. • Participants did not appear concerned about the consequences of working outside a caregiver's job scope, such as when providing wound care. • Some less-qualified nurses and some caregivers perceived the support from RNs and management as inadequate. • The low nurse staffing levels could have increased the caregivers' responsibilities, possibly leading to task shifting and delegating more nursing responsibilities to caregivers. • In the absence of ENAs, the caregivers completed the tasks usually performed by ENAs, such as monitoring vital signs (P1).

• Financial constraints in S2 were believed to be the reason for a shortage of relief staff. • It appeared that the staff budget was used for other purposes, such as buying a generator to provide electricity during load-shedding. • Management's reluctance to provide relief staff seemingly led to RNs not even asking for relief but just accepting that the request would not be granted. • Both facilities served as practical training facilities for caregiver students and utilised these students as extra 'hands', seen as additional unpaid labour. However, due to the extra supervision needed, they seemingly also added to the workload of nurses and caregivers. • Using agency staff might relieve the remaining staff but seemingly increase their workload as more supervision might be required.		

Other perceived barriers and facilitators to implementing the staffing model:

Employee benefits and welfare:

- Providing employee benefits appeared to be linked to the resources available to the LTCFs, with P1's employees receiving various benefits and S2's none, apparently leading to feelings of not being valued.

Communication structures:

- Both LTCFs appeared to lack formal communication structures, e.g., staff meetings.
- P1's informal communication was perceived as respectful and mutual, but it appeared that S2's manager was only prepared to address the staff when he saw fit. S2's informal communication appeared to contain threats towards the staff. It seemed most participants experienced the communication as overt bullying.

Resources:

- It appeared that P1 had access to additional resources in the form of support staff beyond what the LTCF typically offered, such as services of external wound care specialists. At the same time, S2 seemed to have limited access to supplementary support staff beyond what the LTCF typically offered.
- The caregivers' frustration with a lack of physical resources, such as cot beds and restraint belts, made them perceive that the lack of physical resources diminished their ability to deliver high-quality resident care.

Workloads

- With high workloads, participants perceived a lack of support from management, culminating in frustration for the nurses and caregivers (S2).

Teamwork:

- Teamwork appeared vital in managing the workload, with participants reporting strong support from their colleagues and multidisciplinary teams.
- In S2, management appeared to give little recognition for the nurses' and caregivers' contributions to resident care, leading to stress and discontent.

Disciplinary measures:

- Both LTCFs applied disciplinary measures, although to a different degree. P1 rarely required formal disciplinary action, while in S2, disciplinary measures were more frequent. They were often perceived as

excessive, thus more severe than warranted by minor transgressions such as disrespect toward multidisciplinary team members.

ADDENDUM O: PROOFREADING AND EDITING CERTIFICATE

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PROOFREADING AND EDITING CERTIFICATE

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