Nurses' perceptions of barriers to care for patients with dysphagia and their information delivery preferences regarding dysphagia care.

by

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Abstract

The incidence and prevalence of non-communicable diseases are rising, leading to an increased occurrence of dysphagia, which can severely impact patient recovery. The goal of this study was to determine the perceived barriers to care that South African nurses experience when caring for patients with dysphagia, as well as nurses' information preferences. A cross-sectional, mixed-methods approach was followed, making use of a questionnaire and Likert scale responses, as well as a non-scheduled structured interview. A total of 81 participants were obtained from two hospitals in the Western Cape and the Free State, by means of convenience sampling. Quantitative data was analysed by means of statistical analysis, including the Mann-Whitney U test and the Kruskall-Wallis H test. Qualitative data was analysed using an interpretative phenomenological approach, which was used to identify recurrent themes. This study relied on King's Conceptual Systems (1971) to interpret findings.

Several barriers to dysphagia care were identified in this study. Work environment-related barriers include staff shortages, time constraints, and overwhelming workloads. Reported patient-related barriers include perceptions of patients being uncooperative and patients disliking their modified diets. Lastly, several barriers regarding dysphagia knowledge and training were observed, such as unfamiliarity with the role of the speech-language therapist (SLT) in dysphagia management, unfamiliarity with SLT terminology, disagreement with the SLT's recommendations, and inadequate training in dysphagia care. It was noted that barriers in various systems affect one another and often exacerbate existing problems. Various strategies to address these barriers are discussed in the study, with in-service training and more frequent interprofessional interaction and communication being the most likely solutions to these perceived barriers. A preference for written and verbal information, as well as personal contact during training was also observed in this study, which has implications for how nurses' training should be conducted. This study highlights the homogenous experience of nurses in South Africa regarding dysphagia care and emphasise the need for improved dysphagia training, as well as the organisational changes needed for improved patient care.

Key words: Dysphagia, Feeding, Non-communicable Diseases, Barriers to Care, Speech-Language Therapy, Nurses' Perceptions, South Africa, Information Preferences

Opsomming

Die insidensie en prevalensie van nie-oordraagbare siektes neem toe, wat tot ‘n toename in die gevalle van disfagie lei. Hierdie toename kan die herstel van pasiënte ernstig benadeel. Die doel van hierdie studie was om die hindernisse wat Suid-Afrikaanse verpleegsters ten opsigte van pasiënte met disfagie ervaar, te verken, sowel as om verpleegsters se inligtingsvoorkeure te bepaal. ‘n Dwarssnit-, gemengde metode-benadering is gevolg, waar ‘n vraelys met Likert response, sowel as ‘n nie-geskeduleerde, gestruktureerde onderhoud, gebruik is. ‘n Gerieflikheidsteekproef van 81 deelnemers is bekom van tersiêre hospitale in beide die Wes-Kaap en die Vrystaat. Kwantitatiewe data is geanaliseer deur middel van statistiese analise, insluitend die Mann-Whitney U toets en die Kruskall-Wallis H toets. Kwalitatiewe data is geanaliseer deur middel van ‘n interpreterende fenomenologiese benadering, wat gebruik is om herhalende temas te identifiseer. Hierdie studie het op King se Konseptuale Sisteme (1971) staatgemaak om bevindinge te interpreteer.

Verskeie hindernisse tot die sorg van pasiënte met disfagie is in hierdie studie geïdentifiseer. Werksomgewing-verwante hindernisse sluit ‘n tekort aan personeel in, sowel as ‘n tekort aan tyd en oorweldigende werksladings. Pasiënt-verwante hindernisse wat gerapporteer is sluit persepsies van disfagie pasiënte as onsamewerkend in, sowel as pasiënte wat nie van hul aangepaste diëte hou nie. Verskeie hindernisse met betrekking tot disfagie kennis en opleiding is waargeneem, insluitend onbekendheid met die rol van die spraak-taalterapeut (STT) in disfagie behandeling, onbekendheid met die STT se terminologie, meningsverskille oor die STT se aanbevelings, en onvoldoende opleiding in disfagie-sorg. Daar is opgemerk dat hindernisse in verskeie sisteme mekaar affekteer en dikwels bestaande probleme vererger. Verskeie strategieë om hierdie hindernisse aan te spreek word in hierdie studie bespreek – in-diensopleiding en meer gereelde interprofessionele interaksie en kommunikasie word as die mees waarskynlike oplossing tot hierdie hindernisse beskou. ‘n Voorkeur vir geskrewe en verbale inligting is in hierdie study opgemerk, sowel as persoonlike kontak tydens opleiding. Die voorkeure het implikasies vir die uitvoer van verpleegsters se opleidingsessies. Hierdie studie beklemtoon die homogene ervaring van verpleegsters in Suid-Afrika rakende disfagie-sorg, sowel as die behoefte aan beter disfagie-opleiding en die grootskaalse veranderinge wat nodig sal wees om pasiëntsorg te verbeter.

Sleutelwoorde: Disfagie, Voeding, Nie-oordraagbare Siektes, Hindernisse tot Sorg, Spraak-Taalterapie, Verpleegsters se persepsies, Suid-Afrika, Inligtingsvoorkeure

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CHAPTER 1: Introduction

A global increase in the prevalence and incidence of non-communicable diseases has been observed by various sources (Institute for Health Metrics and Evaluation, 2018; Msemburi et al., 2016; World Health Organisation (WHO), 2014). The Institute for Health Metrics and Evaluation (2018) reported a worldwide increase in health problems such as ischemic heart disease and cerebrovascular disease between 1990 and 2015. According to Msemburi et al. (2016), non-communicable diseases were the primary cause of death in 64.9% of South Africans older than 45 years of age in 2012, as well as the leading cause of death amongst all South Africans, as 43.4% of all deaths were due to non-communicable diseases. In 2014, non-communicable diseases accounted for 608 000 deaths in South Africa, with the probability of dying from a non-communicable disease for South Africans between 30 and 70 years of age was 27% (WHO, 2014).

This increase in non-communicable diseases is attributed to population growth and increased life expectancy, thus increasing the number of older adults, who are statistically more likely to suffer from non-communicable diseases. According to Bertram, Katzenellenbogen, Vos, Bradshaw, and Hofman (2008) South Africa is also facing an increase in the incidence of stroke. One of the reasons for this high prevalence of non-communicable diseases is the high prevalence of risk factors such as obesity (29% of South African men and 56% of South African women are overweight or obese); hypertension (24.4% of South Africans suffer from hypertension); as well as poor adherence to hypertension treatment (62% of South Africans do not take their blood pressure medication as indicated). A lack of strategies to create awareness, and reduce the prevalence of these risk factors, also contributes to an increased incidence of non-communicable diseases. The WHO (2014) also adds tobacco smoking and high rates of alcohol consumption to the risk factors that increase South Africans' prevalence of non-communicable diseases.

Many non-communicable diseases such as cerebrovascular disease, ischemic heart disease, cancer, and degenerative neurological disorders can result in neurologic fallouts, including dysphagia (Hoy, Domer, Plowman, Loch, & Belafsky, 2013; Roden & Altman, 2013). Diseases and conditions contributing to dysphagia include stroke (or cerebrovascular accidents) (Bremare, Rapin, Veber, Beuret-Blanquart, & Verin, 2016; Broz & Hammond,

2014; Hadely, Power, & O'Halloran, 2014); brain and central nervous system cancers (Pace et al., 2009); myasthenia gravis (De Swart, Padberg, & van Engelen, 2002; Hsu, Chen, & Chiu, 2013); multiple sclerosis (Alali, Ballard, Vucic, & Bogaardt, 2017; Pretorius & Joubert, 2014); motor neuron disease (Waito, Valenzano, Peladeau-Pigeon, & Steele, 2017); Guillain-Barré (Mengi et al., 2017); and traumatic brain injury (Bremare et al., 2016; Takizawa, Gemmell, Kenworthy, & Speyer, 2016).

An increase in the incidence and prevalence of non-communicable diseases and traumatic brain injury results in increased pressure on healthcare workers, who are responsible for caring for patients with dysphagia. Dysphagia can be defined as "*eating and drinking disorders which may occur in the oral, pharyngeal and oesophageal stages of deglutition. Subsumed in this definition are problems positioning food in the mouth and in oral movements, including suckling, sucking, mastication and the process of swallowing*." (Royal College of Speech and Language Therapists, 2006, as cited in Chadwick et al., 2013, p.85). Complications resulting from dysphagia include the development of aspiration pneumonia (Barnard, 2011; Broz, 2012), weight loss, dehydration, inadequate nutrition, and decreased recovery rates (Hansell & Heinemann, 1996).

Dysphagia management requires interdisciplinary intervention, with the goal of intervention being to identify and treat swallowing abnormalities, maintain adequate nutrition, and prevent medical complications. However, care for patients with dysphagia is not consistently rendered (Colodny, 2001; Chadwick, Jolliffe, Goldbart, & Burton, 2006).

CHAPTER 2: Literature review

King's Conceptual System and Theory of Goal Attainment (1971) will be used to interpret the interaction between the parties involved in dysphagia care, as discussed by Gunther (2013). According to Gunther (2013), King's conceptual system includes personal systems, interpersonal systems, and social systems. Factors in personal systems involve individual persons and their knowledge and perceptions. In dysphagia care, examples of such factors would be nurses' knowledge about dysphagia, how nurses perceive their patients with dysphagia, how nurses perceive the speech-language therapist (SLT), or how nurses perceive their role in caring for patients with dysphagia.

Factors in personal systems can affect functioning of interpersonal systems, as discussed by Gunther (2013). Interpersonal systems refer to the interaction between two or more individuals, and includes concepts such as communication and the expected roles of each party. Examples of factors in interpersonal systems include the transfer of information between an SLT and a nurse when discussing patients with dysphagia, or the interaction between a nurse and a patient when meals are fed to patients. Lastly, social systems refer to groups with common goals, such as healthcare settings. Concepts such as power, status, authority, and decision-making are involved in the functioning of this system (Gunther, 2013). Social system factors can greatly influence functioning in personal and interpersonal systems and, as such, also affect dysphagia care. For example, a lack of physical or financial resourcesin a healthcare facility, such as syringes or food thickeners, can result in nurses being unable to comprehensively follow SLT instructions – and thereby negatively affect dysphagia treatment.

Interactions between personal, interpersonal, and social systems can greatly contribute to dysphagia care. SLTs, who are involved in the assessment and management of patients with dysphagia, often rely on nurses to implement and monitor feeding recommendations. The main priorities of dysphagia treatment are the prevention of aspiration and the restoration of lost function (Ioana & Gabriela, 2014). Implementation and execution of the SLT's management plan is in most cases the responsibility of the caretaking staff (Garcia, Chambers, Clark, Helverson, & Matta, 2010). According to the South African Nursing Council (SANC) (2018) it falls within the scope of a registered nurse's practice to facilitate the maintenance of nutrition in patients, as well as to assist with the co-ordination and execution of regimens prescribed by other healthcare professionals. For enrolled nurses,

"feeding of a patient" is specifically listed as a professional responsibility. According to Hansell and Heinemann (1996), it is of great importance for nurses to be aware of the various causes of dysphagia, as well as dysphagia management – as nurses are the primary caregivers in most hospitals. When treating dysphagia, the SLTprovides a set of written guidelines for the nursing personnel to follow, in order to avoid complications resulting from swallowing impairments (Chadwick et al., 2006). According to Berry (2009), during interactions with patients, nurse practitioners spend more than 66% of that interaction time in interpersonal communication. Nurses provide constant care and are often present during mealtimes and when medication is administered. As such, they can play a very significant role in the identification of at-risk patients, as well as in the implementation of the SLT's management plan (Jiang, Fu, Wang, & Ma, 2016).

As part of dysphagia care, nurses perform several important roles, which includes monitoring and improving oral intake, ensuring that the patient follows the SLT's feeding recommendations, ensuring that the patient receives the correct modified diet, administering non-oral feeds where necessary, and taking care of patients'oral hygiene. Nurses also play an important role in communicating with patients with dysphagia, as well as providing counselling as needed.

Nurses are often involved in improving oral intake in patients with dysphagia. Momosaki et al. (2015) performed a study that investigated the effect of swallowing rehabilitation on oral intake in patients who developed aspiration pneumonia. The results of this study indicated that swallowing therapy increases the rate of total oral intake at discharge, although higher success rates were noted with patients who only experienced mild pneumonia. It was also observed that the patients who received dysphagia treatment early after onset of illness were more likely to benefit from intervention and achieve total oral intake at discharge – thus dysphagia treatment needs to start during the acute phase of illness in hospitals.

For some patients who receive their meals orally, the SLT might recommend compensatory techniques, such as posture changes or swallowing exercises (Broz, 2012; Chadwick et al., 2013; Langdon, Lee, & Binns, 2007). The goal of these postural changes and manoeuvres is to optimise the biomechanical alignment of swallowing, in order to allow the bolus to flow easily and safely (Ioana& Gabriela, 2014). During mealtimes, nurses can assist with the safe feeding process by asking patients to assume certain prescribed postures and to monitor that these postures are performed correctly (Ioana & Gabriela, 2014; Logemann, 2007).

Aside from compensatory strategies, the SLT might also recommend adaptive techniques, such as changing the consistency or characteristics of food (Broz, 2012; Chadwick et al., 2013; Langdon et al., 2007). Even though nurses are not responsible for preparing food, they are the personnel mainly involved in the feeding of the patient. It is thus necessary for nurses to be able to identify whether the food that is given is of a consistency that is appropriate for the patient (as prescribed by the SLT), and to take the necessary steps in procuring the correct meals – for example, if a liquid is too thin, the nurse must know not to present it to the patient and to ask the kitchen staff to provide a more appropriate, thicker alternative.

Nurses are not only involved in the care of patients who are receiving oral feeds, as many patients with dysphagia make use of alternative methods of feeding. Li et al. (2015) advocate for the use of enteral feeding for patients with severe dysphagia (those with a very high risk of aspiration), as these methods of feeding are often easier to perform and are less time-consuming for caregivers. Research shows that up to 25% with middle cerebral artery infarcts undergo percutaneous endoscopic gastronomy (PEG) placement (San Luis, Staff, Ollenschleger, Fortunato, & McCullough, 2013). However, the authors also mention that these alternative methods of feeding may also be uncomfortable and even dangerous for the patient (as incorrect use of these methods may lead to aspiration, regurgitation, infection, or interference with cardiac function). When compared to feeding by a nasogastric tube, feeding by means of a PEG is associated with an increased mortality rate (Carnaby, Hanky, & Pizzi, 2006). Nurses are involved in the management of enteral feeding by ensuring that feeds take place as necessary and monitoring intake and tolerance of the feeds. Nurses are further involved with the maintenance and care of the PEG insertion site, with the goal of preventing infection or displacement of the PEG tube.

Regardless of whether patients receive oral or non-oral feeds, an important duty for nurses is maintaining proper oral hygiene in patients with dysphagia – as studies have found that oral bacteria build-up can significantly increase the risk of aspiration pneumonia (Seedat & Penn, 2016). As nurses provide basic care to patient, oral hygiene should be part of their daily routine. Nurses can further assist patients with dysphagia by managing and monitoring oral intake - this refers to the amount of food of liquid consumed, the bolus size, the time taken between swallows, and observation of breathing (Li, Wang, Han, Lu, & Fang, 2015)

As patients with dysphagia may experience a wide range of co-morbidities, it is important for nurses to be aware of the fact that some patients with dysphagia may also have

communication impairments, which may negatively impact their ability to communicate their feeding difficulties. According to Sharpe and Hemsley (2016) reduced communication abilities may contribute significantly to poorer health outcomes. The authors advocate the use of augmentative and/or alternative communication systems (such as a picture-based communication board) to improve communication between nurses and patients.

Finally, nurses play a significant role in patient counselling. Oikarinen, Kääriäinen, and Kyngäs (2014) consider counselling as a "professional responsibility in nursing" and conducted an extensive literature review regarding the contents of patient counselling after stroke. The authors report that patient counselling has been proven to improve patient's quality of life and general health outcomes. The literature review indicated that patients and their families or caregivers need information on diseases, including the risk factors and potential long-term complications. Patients and their caregivers also require information on the patient's recovery and prognosis. Information on the prevention of complications and relapses, as well as lifestyle changes is considered to be very important for stroke survivors and their caregivers. The study also found that, upon discharge, patients and their caregivers experience a need for information regarding rehabilitation and home-care. Caregivers may need practical guidance on caring for the patient at home, as well as contact information of someone who can lend assistance if problems at home arise. It is recommended that counselling continues throughout the different stages of treatment.

Dysphagia thus requires involvement of interpersonal systems in the form of interdisciplinary intervention. However, South Africa faces a shortage of healthcare staff – in 2008, there were only approximately 250 000 healthcare workers (George, Gow, & Bachoo, 2013), while the entire South African population in 2008 was reported to be 48.7 million (Statistics South Africa, 2009). In this context, the term "healthcare workers" refers to medical practitioners, nurses, dental practitioners, allied health professionals, psychologists, emergency services, and pharmacists. These statistics amount to 5 healthcare professionals available to serve 974 South Africans. This staff shortage is especially prominent in public healthcare facilities, as 70% of medical doctors and 54% of professional nurses are employed in the private healthcare sector (George et al., 2013), while the public healthcare sector services 86% of the population (Steyn, Klopper, Coetzee, & van Dyk, 2015).

According to a WHO (2011) report, there are only 40.8 nurses and midwifes available for every 10 000 South Africans. Additionally, South African nurses face a high patient load,

staff shortages, and significant job dissatisfaction (Steyn et al., 2015). Speech-language therapists are also often affected by staff shortages and adverse work conditions. According to Dondorf, Fabus, and Ghassemi (2016), SLTs in general experience large caseloads and difficulty in managing multiple responsibilities. Hadely et al. (2014) further reports lack of time and inadequate resources as barriers to providing optimal service. In South Africa only 1 227 SLTs, and 3 105 speech-language therapists and audiologists, were registered with the Health Professions Council of South Africa (2017) in June 2017. A study on therapist burnout by Du Plessis, Visagie, and Mji (2014) found that 60% of SLTs experience emotional exhaustion – largely due to an overwhelming workload. As such, the necessary personnel may not be available to provide effective interdisciplinary dysphagia management. Difficulties experienced in social systems, such as financial restraints resulting in insufficient staffing, can thus also affect the functioning of personal systems and interpersonal systems. As an example, in a personal system, a nurse or SLT might experience job dissatisfaction and be less motivated to render adequate care to patients with dysphagia. In interpersonal systems, an example of this influence of social system factors might be a SLT who does not have the time to comprehensively explain feeding guidelines to inexperienced nurses, resulting in poor compliance or incorrect interpretation of feeding recommendations by nurses.

However, even in settings where the necessary personnel are present, dysphagia care is not always rendered as it should be. There is often noncompliance among nurses regarding dysphagia management. According to Colodny (2001) nurses' compliance with the SLT's mealtime recommendations was found to be less than 50%.

Research has previously been done on noncompliance of medical professionals. Noncompliance amongst doctors and nurses with standard procedures has been well documented in literature. Shin, Hanes, and Johnston (1993), as cited in Colodny (2001) reported negative attitudes amongst doctors when treating patients with hypertension, as the participating doctors indicated that they do not consider it within their scope of practice to counsel patients on lifestyle changes. Lack of time was also reported as barrier to proper treatment and education of patients suffering from hypertension. Cutter and Jordan (2012) investigated surgeons' and nurses' compliance with standard precautions in operating theatres. Poor compliance was mainly noted amongst the participating surgeons, with 47% never making use of safety devices, 6.8% never wearing double gloves, and 10.8% never wearing eye protection. Other reasons for poor compliance included unavailability of

equipment, doubting the efficacy of the equipment, lack of time, poor examples from senior staff, and indifference.

However, very little research has been done regarding compliance to SLT treatment. After noticing a lack of research in the literature, Colodny (2001) conducted the first study investigating nurses' barriers to compliance when following the SLT's recommendations and instructions. Colodny (2001) created, validated, and utilised a questionnaire titled the Mealtime and Dysphagia Questionnaire (MDQ) to assess various aspects of nurses' compliance with SLP recommendations.

This study included 43 registered nurses, 10 link professional nurses, and 131 certified nursing assistants working in a nursing home, with an average number of working experience of 11.28 years. The participants in this study had all previously undergone dysphagia training. This study by Colodny (2001) demonstrated that noncompliance with SLT recommendations is common among nurses, which may negatively influence the patient's recovery and overall health. Results from this study were summarised according to three factors – hassle, knowledge, and disagreement. "Hassle" referred to participants' feelings of dissatisfaction with added work and effort introduced by feeding guidelines, while "knowledge" included participants' knowledge regarding dysphagia and dysphagia management. Lastly, "disagreement" referred to participants' disagreement with SLT recommendations. To draw comparisons between these three factors identified in Colodny's (2001) study and King's (1971) Conceptual Systems theory, "hassle"" factors such as lack of time would be similar to social system barriers, while "knowledge" and "disagreement" barriers would correlate with personal system barriers. Colodny (2001) discovered difficulties in personal and social systems and, although not categorised under "hassle", "knowledge", or "disagreement", Colodny (2001) reports on interpersonal system barriers as well, such as poor communication between professions and a lack of positive feedback.

Social system barriers reported in Colodny's (2001) study included lack of supplies, lack of supervision, and time and financial restraints. However, in this study barriers related to personal systems were the most significant – these barriers included negative attitudes and indifference towards patients with dysphagia, lack of motivation, personal discomfort, feelings of inconvenience, and limited knowledge regarding dysphagia care. Interestingly, Colodny (2001) observed that disagreement with the SLT's recommendations was the primary cause of noncompliance among certified nursing assistants (a qualification similar to

enrolled auxiliary nurses in South Africa). Colodny (2001) argues that this might indicate a misguided concept of the certified nursing assistants' primary responsibility – which is that making the patient eat is most important, regardless of how the patient is fed or how safely and effectively food is administered. This might indicate a need for not only in-service training, but a thorough explanation of the rationale for, and importance of, feeding recommendations.

Another interesting finding in Colodny's (2001) study was the greater rate of noncompliance among more qualified (or "higher status") staff. The author attributed this finding to the possibility of higher-status staff regarding some menial tasks (such as feeding a patient) as outside their domain of responsibility.

Since Colodny's (2001) work, more research has been done on compliance with SLT recommendations. Various barriers to compliance have since been explored. Social system barriers have also been discussed in previous studies, with staff shortages being a prominent barrier to care. A lack of staff leads to a lack of time for staff to perform their expected duties – thus making it difficult to properly prepare meals, monitor patients and spend a large amount of time adequately feeding patients. Staff shortages contribute to heavy workloads and competing priorities at mealtimes, which have also been reported to be a significant barrier to care for patients with dysphagia (Parmelee, Lazlo, & Taylor, 2009; Ross, Mudge, Young, & Banks, 2011). A high staff turnover has also been reported to negatively affect dysphagia care, as it is difficult to ensure that all staff are thoroughly trained (Chadwick et al., 2006; Parmelee et al., 2009). A lack of staff can also result in limited access to other healthcare professionals, resulting in poor transfer of knowledge and skills, and ineffective referral systems (Hadely et al., 2014). Inadequate reinforcement of clinical practice guidelines can also contribute to poor care for patients with dysphagia, if these guidelines are considered to be unclear, poorly detailed, too rigid, or not appropriate for all patients (Hadely et al., 2014).

These reported barriers to care have also been observed in South Africa. Eygelaar and Stellenberg (2012) conducted a study to determine the barriers to patient care that nurses face in South African rural district hospitals. Social system barriers reported in this study included a lack of staff, resulting in inadequate supervision and poor access to other members of the multidisciplinary team. A lack of physical resources, such as equipment and consumables,

was also observed to be a barrier to care. A final social system barrier reported in this study was the absence of opportunities for further education or for continuous training.

In the South African context, significant social system barriers exist. According to Ostrofsky and Seedat (2016) public hospitals in South Africa are lacking in resources and equipment due to financial restrictions. This affects dysphagia care as equipment needed for comprehensive assessment, such as videofluoroscopic evaluations of swallowing, is often unavailable. This includes limited resources such as thickener or kitchen equipment necessary to puree meals. Mametja, Lekhuleni, and Kgole (2013) report overcrowded and under-resourced hospitals, as well as lack of specialised professionals, leading to poor staff morale, increased stress and inability to perform tasks effectively.

According to Geyer, Naude, and Sithole (2002) (as cited in Blackwell & Littlejohns, 2010) nursing training in South Africa consists of a four year diploma or degree, withtopics such as general nursing, midwifery, psychiatry, or community health nursing. There is a shortage of nursing staff in South Africa and, as South African nurses are often expected to possess a wide range of skills, it is therefore common for nurses to be unfamiliar with the diagnosis and referral process of swallowing disorders (Blackwell & Littlejohns, 2010).

On an interpersonal system level, conflict between healthcare staff and uncooperative patients with dysphagia has been reported (Chadwick et al., 2006). Interpersonal system barriers such as a lack of teamwork and shared responsibility, exclusion from communication, and a lack of respect from other staff and patients have also been discussed in literature (Parmelee et al., 2009). Poor understanding of the concept of multidisciplinary teamwork, along with poor clarity on each team member's roles and responsibilities further hinder dysphagia care (Ross et al., 2011). The administration of medication to patients has also been observed to be a barrier to dysphagia care. Many patients with dysphagia cannot receive medication in its original form, such as tablets or capsules, which results in medications being modified by being crushed or mixed with water. However, not all medications can be safely modified – for example, the bioavailability of medication that works with a controlled-release effect is compromised when the tablet is crushed or the capsule is opened. Albini, Soares, Wolf, and Gonçalves (2013) report that many nurses are not aware of the best practices to deliver medication to patients with dysphagia.

Another barrier in interpersonal systems that should be considered is communication between nurses and patients. Satisfactory communication between patients and nurses is important for

good health outcomes. A study by Park and Song (2005) found that communication barriers could be divided into nurse-related barriers, patient-related barriers, and environmental barriers. Nurse-related communication barriers include stereotyping, poor quality of speech production, overuse of medical terminology, poor body language, poor attitudes towards patients, lack of time, and excessive workload.

Patient-related communication barriers were typically described as age-related or individual difficulties, e.g. hearing and visual impairments, cognitive decline, physical or medical problems, low education levels. Finally, environmental barriers constituted factors such as high noise levels, poorly lit rooms, unfamiliar environments, and impractical work areas.

According to Park and Song (2005), training and education regarding proper patient-nurse communication can contribute to better communication outcomes. In the case of patient-related barriers, which may not be as easy to address, nurses are encouraged to develop compensating approaches to care.

Barriers to dysphagia care reported in personal systems include healthcare staff who feel inadequate to modify food consistencies, feelings of powerlessness, and difficulty with the positioning of patients for meals (Chadwick et al., 2006; Ross et al., 2011). Inadequate training has also been reported to affect dysphagia management, as well as healthcare workers' unwillingness to change familiar methods of practice. Disagreement with recommendations, as well as patient characteristics such as motivation and severity of illness, are other examples of barriers in personal systems that have been reported in literature. (Hadely et al., 2014). Another barrier that is prevalent in personal systems that has been discussed is nurses' perceptions of dysphagia. In a study done by Diendéré et al. (2016), more than 80% of nurses were aware of the higher dysphagia risk among hemiplegic patients, but only 35% reported this information to other medical professionals. This could indicate that the nurses were aware of the problem, but did not necessarily value it as important. Nurses' motivation and job dissatisfaction may also negatively influence dysphagia care (Parmelee et al., 2009).

Knowledge regarding dysphagia is observed to be a major barrier to care, which includes a lack of knowledge regarding the role of the SLT in rehabilitation (Albini et al., 2013). In a study by Wang, Lu and Chang (2014) it was observed that inadequate referrals were being made to speech-language therapists for patients who had received tracheostomies. The authors concluded that unfamiliarity with the role of the SLT led to a poor referral system,

which resulted in patients not receiving optimal care. Unfamiliarity with the concept of dysphagia has also been observed to be a knowledge-related barrier. Diendéré et al. (2016) investigated nurses' knowledge regarding dysphagia at primary health care centres in Burkina Faso (a sub-Saharan African country with little resources). According to their results, only 78.4% of nurses were familiar with the term "dysphagia". Uncertainty regarding signs and symptoms of dysphagia is thus also a common knowledge-related barrier to care (Albini et al., 2013). Rhoda and Pickel-Voight (2015) examined Namibian nurses' knowledge of the management of stroke patients with dysphagia and found that the participating nurses only had moderate awareness of the signs and symptoms of dysphagia, and only half of the nurses were aware of pneumonia as a complication of aspiration.

Inadequate knowledge about the management of dysphagia has also been described in literature. In the study by Diendéré et al. (2016), most nurses were unaware that changes in food viscosity, taste, or temperature could affect a patient's swallowing abilities. This lack of knowledge was attributed to poor training, as well as a lack of access to products such as food thickeners. A study by Garcia et al. (2010) found that a significant percentage of their participants were not able to correctly thicken liquids to a nectar or honey consistency. Barriers that were discovered in this study included inadequate preparation guidelines and insufficient information on product labels (such as the setting time required or which liquids are compatible with the thickening agent). However, even when resources are available, food modifications are not always complied with. The findings of a study by Rosenvinge and Starke (2005), as cited in Rhoda and Pickel-Voight (2015), demonstrate that 38% of nurses do not comply with SLT recommendations to change the viscosity of foods and liquids.

Continuous in-service training regarding dysphagia signs and symptoms, dysphagia management, as well as the referral process for patients with dysphagia is recommended (Hansell & Heinemann, 1996). Providing training opportunities to nurses has been proven to improve dysphagia knowledge and dysphagia management skills. For example, after the presentation of an educational program on dysphagia, Hansell and Heinemann (1996) observed increased knowledge of dysphagia among nurses one month after the program was initially presented. Mauk (2015) reported similar findings after presenting a three-day training program on basic rehabilitation principles. In a study by Tredinnick and Cocks (2013), an SLT provided training that involved both theoretical knowledge, such as the anatomy and physiology of swallowing, as well as practical activities, such as food modification tasks. Improved knowledge regarding dysphagia management was observed

after the training, with good retention of knowledge observed one month after the training was presented.

Colodny (2001) proposes that educating nurses and caregivers may increase compliance with recommendations. The SLT is responsible for communicating information to nurses, providing training, and monitoring compliance. The WHO (2010) promotes interprofessional education as a means of providing more effective, integrated healthcare. Interprofessional education, and eventually collaborative practice, may lead to improved health outcomes for patients and improved patient safety, appropriate referrals to other health professionals, and decreased length of hospital stay and fewer medical complications. Other benefits include reduced staff turnover and reduced tension between colleagues.

Interprofessional education can be promoted in personal, interpersonal, and social systems by using strategies such as staff training, supportive institutional policies, managerial support, and making training compulsory (although the training schedule is advised to be flexible to suit professionals working different shifts) (WHO, 2010). It is important to note that a significant barrier to providing training for nurses is the logistical difficulty in structuring training sessions around shifts, which requires more structural and environmental resources (Hasson, Kernohan, Waldron, Whittaker, & McLaughlin, 2008).

One goal of interprofessional learning is the establishment of a multidisciplinary team (thus addressing factors in interpersonal systems), which facilitates improved trust and communication between professionals, as well as changes in possible negative attitudes regarding other professions (Lumague et al., 2006). Making use of a multidisciplinary swallowing team has been proven to decrease the incidence of pneumonia in acute stroke patients – a study by Aoki et al. (2016) indicated that by incorporating various health professions in the management of stroke patients with dysphagia, various risk factors for aspiration pneumonia can be addressed. For example, oral care and swallowing assessments performed with patients increased significantly when making use of a multidisciplinary swallowing team (compared to various health professions treating a patient independently). In Aoki et al.'s (2016) study, before a multidisciplinary approach was taken, only 12.9% of patients received oral care. This was improved to 51.7% when a multidisciplinary team was involved. Swallowing evaluations were only performed on 12.1% of patients before using a multidisciplinary approach, and this improved to 26% when all team services were integrated.

As can be seen from the literature, interprofessional training has been reported to be an effective method of teaching, as this method promotes interprofessional teamwork. In the field of dysphagia, an interprofessional team refers to a group of various healthcare professionals, each with their own background and expertise, working together towards shared patient outcomes (Pecukonis, Doyle, & Bliss, 2008). Increased knowledge about other professions and their role in dysphagia management could result in shared decision making, collaborative treatment, and an appreciation for each member's contribution to the team. Other benefits of interprofessional teamwork are lower overall healthcare costs and the prevention of adverse events (Ford et al., 2013).

Davis and Copeland (2005) examined the efficacy of using a computer-based training system to educate nurses on swallowing safety, and found that this is an effective method of conveying new knowledge to nurses. Practical training with visual support has also been observed to be an effective method of training. Simulation training has also been explored (Freeland, Pathak, Garrett, Anderson, & Daniels, 2016; Miles, Friary, Jackson, Sekula, & Braakhuis, 2016; Potter & Allen, 2013), and is considered to be a feasible method of improving nurses' dysphagia management skills. Increased confidence and readiness for dysphagia treatment, as well as improved clinical reasoning, have been discussed as a result of simulation training. One of the benefits of simulation training is the risk-free environment in which learners can safely practice techniques and skills. Simulation training comes with practical limitations though, as sophisticated equipment is needed which might not be readily available.

The goal of dysphagia training and providing health information material is to increase the recipient's knowledge regarding the relevant illness or condition, as well as to facilitate their ability to make decisions independently. However, this is only effective when information is presented in such a way that the reader's attitude or behaviour changes (Hafsteindóttir, Vergunst, Lindeman, & Schuurmans, 2011).

Interaction on an interpersonal system level needs to occur effectively. The key aspects of adult learning include autonomy, use of personal experience, using meaningful learning contexts, making use of multimodal methods of presenting information, and enforcing a collaborative nature of learning (McNeil, Hughes, Toohey, & Dowton, 2006). Autonomy refers to the principles of self-directed learners. According to Chen (2014), learners must be active participants in learning. It is also important that learners' life experiences be utilised in

the learning process – learning experiences must reflect real-life experiences, as this adds meaning to the learning process (Ford et al., 2013; Kalhat & Khan, 2010; Taylor & Hamdy, 2013). The learning context must be relevant and problem-solving-based, in order for knowledge to be applied practically (Chen, 2014; Kalhat & Khan, 2010).

For adult learners, learning must be a transformative process (Chen, 2014). It must lead to personal development and encourage critical reflection. Long-standing beliefs must be challenged, allowing old assumptions and perspectives to be re-examined. This typically takes place in the presence of a "disorientating" event (an event that challenges the learner's current views and knowledge).

It is also important to consider the effect the learning environment has on adult learners (Knowland & Thomas, 2014). In an ideal learning environment, there must be as little noise and distraction as possible, learners must be self-motivated, various sensory modalities must be used to convey information, and random interval training (rather than block training) must be used, as this increases long-term retention of knowledge. Feedback on learning progress is also paramount to learning for adult learners (Taylor & Hamdy, 2013; Knowland & Thomas, 2014). Kalhat and Khan (2010) discuss group size and seating arrangements – according to the authors, the ideal group size for adult learners is 5-10 participants, as large groups might be less cohesive and not all learners may receive equal opportunities for participation. The authors also advocate using circular seating arrangements to facilitate discussion

The format in which information is delivered is crucial to adult learning. Research supports the use of interactive delivery styles, including hands-on training and self-management (Eames, Hoffmann, Worrall, & Read, 2011). In a review of studies examining stroke patients' and their carers' educational needs, Hafsteindóttir et al. (2011), observed that patients and caregivers have specific information delivery preferences. Patients and caregivers generally preferred information to be provided both in a written and verbal format. Written information has the benefit of being consistent and easily accessible, as the reader can refer to it as needed; while verbally presented information offers the listener the opportunity to ask questions and discuss the topic in an interactive manner. A study by Bellardie and Harris (2008) found that retention of information increased from 20% (using only a verbal presentation) to 50% (combining a verbal presentation with written materials).

Along with providing training opportunities, enforcing evidence-based practice might also help to reduce poor patient care and barriers to care. Melnyk (2002) describes strategies to

ensure evidence-based practice. Firstly, it is important to identify barriers to evidence-based practice (lack of knowledge, misperceptions, poor attitude, demanding workloads, organisational constraints, and patient expectations). These barriers can occur in personal, interpersonal, and social systems. Secondly, positive beliefs and attitudes regarding evidence-based practice must be cultivated, thereby addressing barriers on a personal system level. The basics of evidence-based practice must be taught, and it is advocated that evidence-based practice rounds are implemented to provide opportunities for discussion and reflection. Current practices must also be examined and considered. Finally, system-wide changes need to occur where evidence-based practice is valued.

As can be seen from previous literature, efforts in various regions of the world have been made to improve the care of patients with dysphagia in hospitals – these efforts include training and education, promoting interprofessional teamwork, identifying and addressing specific institution-wide barriers, and ensuring evidence-based practice. However, these strategies are not always successful, as the solutions to perceived barriers are not necessarily feasible without higher-level institutional intervention. A comprehensive literature review reveals that very little research on treating patients with dysphagia, as well as barriers to care of patients with dysphagia, has been done in Africa, specifically in sub-Saharan Africa. Blackwell and Littlejohns (2010), as cited in Rhoda and Pickel-Voight (2015), note that the care of such patients may be limited and inadequate in sub-Saharan Africa due to lack of resources, poor knowledge, and limited budget. Rhoda and Pickel-Voight (2015) argue that the great focus on social problems such as poverty and infectious diseases may lead to an under-awareness and under-appreciation of non-communicable diseases – this will have a further impact on hospital policies and training of healthcare professionals.

The study by Rhoda and Pickel-Voight (2015) is the only published study that was found regarding dysphagia care in sub-Saharan Africa – which points to the need for more local research. As the literature indicates, there is evidence of noncompliance with SLT recommendations, influenced by factors in personal, interpersonal, and social systems. However, there is a paucity of research done in a South African context.

Given the unique challenges faced by healthcare workers in the South African context, queries can be raised on the quality of care that patients with dysphagia receive and the barriers which nurses face when trying to provide optimal care. As a lack of knowledge has been shown to be a prominent barrier to care, the need for further education and training for

South African nurses may also be indicated – although this needs to occur in a format that nurses can effectively absorb and retain. With the above in mind, this study aimed to determine the following: *What are the perceived barriers to care that nurses in two different tertiary hospitals face when caring for patients with dysphagia, and what are their information delivery preferences regarding dysphagia care?*

CHAPTER 3: Methodology

3.1. Research question

This study aimed to determine the following research question: *What are nurses' perceived barriers to care for dysphagia patients in tertiary hospitals in the Western Cape and in the Free State, South Africa; and what are these nurses' information delivery preferences regarding dysphagia care?*

3.2. Research aim

The aim of this study was to determine the barriers that nurses in two different public hospitals experience when caring for patients with dysphagia, by means of a mixed-methods data collection and analysis process. Using two sites for data collection was done with the aim of firstly increasing the sample size of the study, and secondly to determine whether the barriers experienced by participants are similar in varying settings (or whether barriers are site-specific).

3.3. Research objectives

The following sub-aims were addressed:

- To determine the barriers to care that participants face regarding hospital resources and the work environment
- To determine the barriers to care that participants face regarding patient-centred difficulties
- To determine the barriers to care that participants face regarding knowledge and training
- To determine if there are any associations between perceived barriers to care and years of work experience
- To determine the nurses' preference of information delivery
- To determine whether there are differences regarding perceived barriers and information delivery preferences between the two hospitals

3.4. Study design

This study followed a mixed-methods research method, namely an explanatory sequential design. This design entails the use of both qualitative and quantitative research methods, with

the qualitative data being used to support or explain the quantitative findings, combining aspects of qualitative and quantitative research methods. When using a mixed-methods approach, the strengths and advantages of both quantitative and qualitative research methods are combined, while avoiding the disadvantages of each (Bless, Higson-Smith and Sithole, 2013). For the purposes of this study, data was obtained, analysed, and presented using both quantitative and qualitative methods.

The first component of this study consisted of the quantitative research section, which relied on measures to analyse specific variables. For this study, these variables referred to barriers to dysphagia care perceived by nurses regarding knowledge and training, the working environment, and patients (the dependent variables), as well as the nurses' years of working experience (the independent variable). A questionnaire was adapted from Colodny's (2001) Mealtime and Dysphagia Questionnaire. This questionnaire was constructed to obtain quantifiable data, which included a specific set of questions, with fixed wording, and a pre-determined sequence of presentation (Bless et al., 2013). The questionnaire was designed to be self-administered, as this allowed for an increased amount of participants that could be recruited – as participants could complete the questionnaire in their own time. This was especially valuable for the target population (nurses) who work in shifts and were not all available at the same time. However, a disadvantage of this approach was the fact that it relied on participants' literacy and their understanding of questions (Bless et al., 2013). This potential disadvantage was countered by ensuring that the questionnaire was well-formulated, and easy to read and understand – which was done by performing a pilot study and examining participant's feedback regarding the structure and formulation of the questionnaire. Obtaining qualitative data also supported the questionnaire's quantitative findings.

The second component of this study consisted of the qualitative research section, which focused on participants' actual, lived experiences. Using a qualitative research approach allowed beliefs, opinions, and experiences to be recorded (Bless et al., 2013). A non-scheduled, structured interview was used to obtain data for the qualitative section of the study – thus an interview with a fixed set of questions that were compiled prior to the interview, with the participants being free to interpret the questions independently, and being able to give their own answers and opinions.

Interpretative phenomenological analysis (IPA) was used to interpret qualitative data. IPA is a phenomenological approach to data analysis that aims to examine how participants make sense of certain phenomena. IPA acknowledges that different people experience phenomena in different ways (as all participants are unique), and aims to explore and understand these individual experiences and perceptions (Smith & Osborn, 2004). At the same time, it is crucial to bear in mind that the researcher (and his/her own beliefs and preconceptions) also plays an active role in data collection, analysis and interpretation (Smith & Osborn, 2007). Participants' views and experiences had to be communicated authentically (which was done by including quotations from participants), and the context of the research and the participants' responses were described in the results section of the study (Bless et al., 2013).

This study followed a cross-sectional approach. This was appropriate as data was collected at one point in time and no changes had to be measured over time. There was also no need to demonstrate causality between variables (Bless et al., 2013).

3.5. Research setting

Data collection took place in two tertiary hospitals in the Western Cape and in the Free State, South Africa. These hospitals were chosen based on their classification as "tertiary" and "academic" hospitals, as these hospitals not only offer specialist medical services, but also serve as training institutions for medical, nursing, and allied health students. These facilities were thus chosen based on the presence of potential participants who fit the inclusion criteria, as well as the hospitals' accessibility to the researcher. As many patients with non-communicable diseases with secondary dysphagia, are admitted in the neurological wards, these wards were selected for data collection, as the nurses in such wards would have experience in working with patients with dysphagia.

3.6. Research sample

The study population for both the quantitative and qualitative sections of the study was nurses working in the adult neurological wards in the Western Cape hospital, as well as in the Free State hospital. Convenience sampling was used to recruit participants, where potential participants were approached as they were available. This sampling method might introduce bias to the study – therefore potential participants had to meet specific inclusion criteria

before being included in the study. The following inclusion and exclusion criteria applied during the recruitment of participants:

Participants had to be over the age of 18 years to be able to give informed consent for the study. Participants also had to be proficient in either English or Afrikaans, as these were the languages in which the questionnaire was available. Given the multi-linguistic context of South Africa, participants might not have been English or Afrikaans mother-tongue speakers, but these are the academic languages in which training takes place – therefore participants would be proficient in either Afrikaans or English by the time they qualify (in a professional capacity). It was therefore not considered necessary to translate the questionnaire into other languages. Proficiency in these two languages was also required to avoid miscommunication between the researcher (who is only proficient in Afrikaans and English) and the participants – thus to ensure that the participants fully understand questions given to them, and to ensure that the researcher correctly interprets participants' responses.

Participants were required to be professionally trained, holding either a diploma or degree in nursing – this was required to ensure a true reflection of the formal training that nurses receive, rather than "common" or "traditional knowledge" upon which caretakers might act when treating patients with dysphagia. This effort to examine formally trained nurses was also the motivation for excluding participants who were not formally employed by the hospital.

Participants were also required to have at least a year of working experience with neurological fallouts to ensure that they have had sufficient exposure to various dysphagia management strategies within a population with neurogenic disorders and can therefore give reliable answers.

Table 1: Participant inclusion and exclusion criteria

Inclusion criteria	**Exclusion criteria**
Nurses had to be employed by the hospitals in the Western Cape or Free State	Participants who were not formally employed by the hospital
Participants had to be 18 years or older	Participants who were unwilling to consent to the study
Nurses had to be proficient in English or Afrikaans, at least to the level of first or second additional language	Nurses who were not proficient in English or Afrikaans
Nurses had to be professionally trained and hold a diploma or degree	Participants who were not formally trained as nurses
Nurses had to have at least one year experience working with adult neurological fallouts and dysphagia	

3.7. Sample size calculations

In order to make inferences about a certain population, a representative sample needs to be drawn from that population. For the quantitative aspect of this study, a sample size was done for analysis of variance with unequal group sizes. Power of 90%, significance level of 5% and standard deviation of .5 were assumed. Mean scores assumed over increasing age groups were based on Colodny (2001) and 2.5, 2.25 and 2.0 for relative expected group sizes of 2:1:1 were used. For this setup a sample size of 78 participants were needed for the ANOVA test. The sample size was duplicated in the two centres.

For qualitative research, the focus is less on generalisability of the sample, and more on the in-depth investigation of a certain phenomenon. Specifically, when making use of IPA, sample sizes are small, as the case-by-case data interpretation is time-consuming and labour-intensive (Smith & Osborn, 2004; Smith & Osborn, 2007). Onwuegbuzie, Jiao, and Bostick (2004) recommend having a minimum of 10 interviews when using a phenomenological approach to qualitative research (as cited in Collins, Onwuegbuzie, & Jiao, 2007).

A total of 46 participants from the Western Cape hospital consented to participate in the study and met inclusion/exclusion criteria, of which three participants were removed from the study, due to incomplete questionnaires (more than 5 statements left unanswered). Thus 43 participants from the Western Cape hospital were included in this study. Only 18 of these participants agreed to be interviewed. At the Free State hospital, a total of 38 participants consented to take part in the study. None of the Free State hospital participants agreed to be personally interviewed, although 7 participants agreed to complete the qualitative section of the questionnaire (which was administered by the researcher to the Western Cape hospital sample) by themselves, provided they be allowed to do so in their own time. A lack of time was cited as the main reason for not consenting to the interview.

3.8. Sample information

For the purposes of this study, it was not considered necessary to obtain participants' demographic details such as age or race. Participants were, however, asked to provide their years of experience and professional qualifications. Upon distribution of the questionnaire, the researcher stated to participants that only qualified nursing personnel may complete the questionnaire. As such, participants who did not meet the inclusion criteria (e.g. nursing students and care workers without formal qualifications) were omitted from the research sample. Of the participants who met the inclusion criteria at the Western Cape hospital, only 29 participants specified their professional qualifications. Of these participants, 44.8% (N=13) were registered nurses, 24.1% (N=7) were enrolled nurses, 27.6% (N=8) were auxiliary nurses, and 1 participant (3.4%) reported being a community specialist practitioner. Of the participants who met inclusion criteria in the Free State hospital group, only 10 participants specified their professional qualifications. Of these participants, 50% (N=5) were registered nurses, 10% (N=1) was an enrolled nurse, and 40% (N=4) were auxiliary nurses. The limited information given by participants regarding their qualifications was a confounder that might impact this study's scientific rigour – as concise inferences cannot be drawn regarding possible correlations between participant qualifications and their perceived barriers to dysphagia care. Although participants did not explicitly state their reasons for not providing this information, it might be surmised that lack of time or poor familiarity with the research instrument might contribute to lack of responses.

For the Western Cape hospital group, the 0-5 years of working experience group consisted of 23 participants, making this the largest sub-group in this sample. The group with 6-10 years

of working experience consisted of 8 participants, and 12 participants made up the 11-15+ years of working experience group. For the Free State Hospital sample, the 0-5 years of working experience group consisted of ten participants, while the 6-10 years of working experience group consisted of 12 participants. The largest group in the Free State Hospital sample was the 11-15+ years of working experience, with 16 participants.

Table 2: Summary of participants' years of working experience (N=81)

	Western Cape hospital	Free State hospital	Total participants
0-5 years	23	10	33
6-10 years	8	12	20
11-15+ years	12	16	28
Grand total	43	38	**81**

3.9. Materials and instrumentation

A questionnaire was constructed based on the study objectives. The majority of the questionnaire (constructed by the researcher) was an adapted version of the Mealtime and Dysphagia Questionnaire created by Colodny (2001), with the rest of the questionnaire consisting of two sections introduced by the researcher (thus not based on the questionnaire used by Colodny in 2001). The original Mealtime and Dysphagia Questionnaire by Colodny (2001) (attached as Appendix A) was created by observing intervention needs in a nursing home, as well as consulting 10 nursing professionals who generated questions to be included in the questionnaire. The questionnaire was then refined by sending it to a panel of experts in the field of nursing and dysphagia, and then pretested on a small sample of nurses. The final questionnaire consisted of 25 statements, to which the responses were rated on a Likert scale. Participants were also asked to share their nursing role and years of working experience. Validity and reliability were determined to be adequate by means of statistical analysis, including factor analysis, reliability analysis, and scale improvement.

Permission to use an adapted version of the questionnaire was granted by Dr N. Colodny on the 9th of November 2016 via email. Rather than adapting statements from the questionnaire one-by-one, themes (potential barriers) were taken from the original questionnaire and expanded on in the adapted questionnaire – these themes included "knowledge", "hassle", and "disagreement". The original questionnaire's phrasing was changed to make the language that was used more applicable to the target population (e.g. using "patient" instead of "resident"). The original questionnaire was also adapted to be more detailed, as there is very little research on this subject in a South African setting thus far. Questions from the original

questionnaire were expanded and rephrased to address all potentially relevant content. For example, instead of only mentioning thickened liquids as in the original questionnaire, other diet consistencies such as puree or soft diets were also included in the questionnaire. The questionnaire was adapted as follows:

Table 3: Adaptation of Colodny's (2001) Mealtime and Dysphagia Questionnaire

Colodny's MDQ (2001)	**Adapted questionnaire**	
Theme/barrier	Theme/barrier	Adapted question
1. Knowledge (lack of knowledge regarding dysphagia and SLT recommendations) **2. Disagreement** (with SLT recommendations)	Knowledge	• I know what the role of the SLT is in swallowing difficulties • I am not sure how to give thickened liquids to a patient • I know how to position a patient for feeding • I know which patients are on special diets • I am not familiar with the terminology used by the SLT • I know what a soft diet is • The SLT is not involved in swallowing difficulties • Swallowing difficulties are not important for me or for the patient • I have been taught how to feed a patient with swallowing difficulties • I do not agree with the SLT's recommendations • I am not sure what a puree diet is • I understand why certain diets are given to patients with swallowing difficulties • I am comfortable with feeding patients with swallowing difficulties • I am not familiar with the feeding postures that are prescribed by the SLT • Working with patients with swallowing difficulties makes me uncomfortable • It is important to follow feeding recommendations
	Training	• I have had enough training in working with patients with swallowing difficulties • I would like to receive more training in working with patients with swallowing difficulties
3. Hassle (difficulty in performing specific feeding activities due to lack of time, increased workload, effort, etc.)	Working environment	• I have enough time to sit and feed all the patients with swallowing difficulties • It is not my responsibility to take care of patients with swallowing difficulties • I have too much work to do to feed patients with swallowing difficulties • There are enough nurses to take care of all the patients • It is in my scope of practice to feed patients with swallowing difficulties • It takes too long to feed patients with swallowing difficulties

	Patients	• It is difficult to feed patients with swallowing difficulties • Patients do not like their special diets • Patients with swallowing difficulties are cooperative when I feed them • I find it easy to feed my patients with swallowing difficulties

The possible responses to the statements were rated on a Likert scale. Statements were presented on the questionnaire, followed by the following Likert scale responses: "Strongly disagree", "Disagree", "Neither agree nor disagree", "Agree", and "Strongly agree". Participants could indicate their degree of agreement by ticking the most appropriate response. The final questionnaire included six main sections, of which four were based on Colodny's (2001) questionnaire. The questionnaire took a maximum of 20 minutes to complete.

Sections A, B, C, and D were based on barriers that were previously identified in literature. Each of these sections made use of the Likert scale responses. Section A addressed perceived barriers in the work environment and included 6 statements that participants had to agree with on a Likert scale. Section B aimed to identify perceived barriers regarding the SLT's recommendations, language use, and the participants' familiarity with concepts surrounding dysphagia care. This section consisted of 16 statements. Section C intended to determine perceived barriers regarding the patients themselves and consisted of 4 statements. Section D consisted of 2 statements regarding participants' previous training and current training needs. Section E focused on participants' preferences for information delivery and consisted of 7 statements, also relying on the Likert scale for responses.

Finally, Section F, the qualitative research question, offered participants the opportunity to give any additional information that they felt might be important. A non-scheduled structured interview schedule was followed, based on the questions posed in sections A to E of the questionnaire. This allowed the interviewer to pose specific questions aimed at answering the research question (Hancock, Ockleford, &Windridge, 2007) which avoided the emergence of irrelevant topics. However, the interview schedule allowed for prompts or cues, where the researcher asked the participants to expand on a relevant statement. This was done in order to gain a richer understanding of the participants' experiences.

The content validity of the questionnaire used in this study was ensured by having another SLT review the questionnaire and interview questions that were used in March 2017. This SLT was chosen based on her qualification (Bachelors in Speech, Language and Hearing Therapy), her experience in the field of dysphagia, as well as her impartialness to the study. The reviewing SLT's feedback indicated that the questionnaire is comprehensive, with relevant topics and adequate questions. No changes to the questionnaire were recommended. The questionnaire was also constructed to allow for time sampling and member checking to increase the study's trustworthiness.

Translation of the questionnaire

The questionnaire was translated into Afrikaans by the researcher, who is an Afrikaans first-language speaker, and the translated questionnaire was translated back to English by another expert in the field (in this instance a medical doctor), in order to ensure that the reliability and validity of the questionnaire was not compromised. The questionnaires were only available in English and Afrikaans, as these are the academic languages in which training takes place. Having a medical doctor translate the questionnaire was considered to be the ideal choice, because similar to the target population in this study, medical doctors also treat patients with dysphagia, without being as familiar with specific dysphagia interventions as an SLP. Statements in the questionnaire would thus likely be interpreted in the same manner as nurses might interpret them. The phases of the translation process are attached as Appendix B. As the content and meaning of each statement remained the same after being translated by a third party, no changes were made to the original statements, and these statements were used in the final questionnaire.

3.10. Research procedure

3.10.1. Pilot study

The goal of the pilot study was to identify, and improve upon, flaws in the questionnaire (Bless, Higson-Smith, & Kagee, 2011) before it was formally administered to the study participants. The following sub-aims were addressed during the pilot study:

- To determine whether the statements in the questionnaire were clear and direct (not ambiguous)
- To determine whether the responses available on the Likert scale were adequate

- To determine whether the questionnaire covered all topics relevant to nurses' involvement in dysphagia management, such as feeding, dietary changes, and positioning
- To determine whether the questionnaire was concise in its phrasing, without redundant statements

The pilot study was conducted by approaching 10 nurses at the Western Cape hospital and 10 nurses at the Free State hospital. In order to avoid using the same nurses for both the pilot study and the main study, the pilot study was not conducted in a neurological ward, but rather in oncology wards. The purpose of the questionnaire and pilot study was explained and participants who were willing to participate were asked to examine the questionnaire. The participants then received an opportunity to comment on the questionnaire, make suggestions for improvement, and to point out any ambiguous questions or wording. None of the participants indicated dissatisfaction with the questionnaire – it was reported to be comprehensive, concise, and easily interpretable. No changes to the questionnaire were made after the pilot study.

3.10.2. Main procedures

Permission to conduct the research study was obtained from the University of Stellenbosch's Health Research Ethics Committee, as well as the Western Cape Department of Health and the Free State Department of Health. The head of each neurology unit of the Western Cape Hospital and Free State tertiary hospitals was informed of the study taking place (to be included as appendices).

In the neurological wards, potential participants were approached as they were available – during tea breaks or when nurses indicated that they had time available, for example after morning rounds or after lunch time. The study was explained and the participants who were willing to take part were asked to sign a consent form (attached as Appendices E and F). The researcher briefly explained the questionnaire, including important questions and topics, before the questionnaires were distributed to all participants across their various shifts. Participants were asked to complete the questionnaire to the best of their ability and to return it to the researcher once it is completed on the same day. Participants then completed the questionnaires without further involvement from the researcher. After the questionnaires were collected, the responses to barriers to care were analysed and the most important barriers highlighted.

Qualitative data was obtained through individual interviews. This was done by approaching the participants who completed the quantitative section of the questionnaire. A quiet, comfortable location was chosen and permission was asked to audio record the participants' responses. If permission was not granted for audio recordings to be made, comprehensive notes were taken by the researcher, with the participants' responses being written down verbatim. These responses are included as Appendix C.

3.11. Data analysis

3.11.1. Quantitative data analysis

Data collected from the questionnaires were analysed in a quantitative manner. Data was organised according to the sub-aims of the study and recorded on a spreadsheet. A qualified statistician analysed the raw data. The median for all responses was inferred, as well as the interquartile range, which is indicative of data convergence. Non-parametric tests were used, as the data is ordinal, not correlated, has independent samples, and there is no clear underlying distribution of participant responses. The Kruskal-Wallis H. test is a non-parametric alternative to ANOVA, and was used to compare results between participants in experience-related groups (e.g. within the 0-5 years of experience group), while the Mann-Whitney U. Test, a non-parametric alternative to the t-test, was used to compare results between the Western Cape hospital and Free State hospital samples. Graphical representations were constructed in the form of tables.

Descriptive statistics were used to analyse and portray the responses given by the participants. Data analysis was done by dividing the participants into three groups based on their years of working experience (0-5 years; 6-10 years; 11-15+ years). For each of the potential responses on the questionnaire, a quantitative value was given in order to make data analysis and the use of descriptive statistics simpler. The following values were given: "Strongly disagree" = 1; "Disagree" = 2; "Neither agree nor disagree" = 3; "Agree" = 4; "Strongly agree" = 5. Each quantitative value from the Likert scale amounted to a total score out of a maximum of 175. The following descriptive statistics were then made use of to describe the results: The frequency of responses, the percentages of each response, the mean, and the median of each response. Between-group comparisons were made between each of the three groups (0-5 years, 6-10 years, and 10-15+ years) using the Kruskal-Wallis H. test.

Associations were made between the amount of years working and each of the categories addressed in the questionnaire:

- The nurses' working environment
- The nurses' knowledge and training
- Patient-centred difficulties
- The nurses' information preferences

Finally, comparisons were drawn between the two hospitals by means of descriptive statistics and analysis of variance using the Mann-Whitney U. test.

3.11.2. Qualitative data analysis

Following the IPA approach, the qualitative data in this study was analysed in the following manner: Firstly, immersion in data took place – data was read and reread, and the audio recordings were listened to several times. This was done to ensure that the researcher was aware of all the data that was recorded and that no information was missed. Topics and themes also became clear (Bless et al., 2013; Pietkiewicz & Smith, 2012). Secondly, preliminary coding took place. Coding refers to categorising text according to a common characteristic. Pietkiewicz and Smith (2012) describe this step as transforming notes into emerging themes. Patterns and themes emerge as the text is read and text is classified according to the relevant code (Bless et al., 2013).

Thirdly, themes were clustered according to connections between emergent themes. A descriptive label was also given to each cluster (Pietkiewicz& Smith, 2012). Bless et al. (2013) describe this process as "defining codings". Codes are often organised hierarchically – broader codes are stated first and then broken down and narrowed into more specific, detailed codes. In this study, broad themes related to the workplace included, most prominently, a "lack of staff", "lack of time", and "increased workload"; while knowledge related themes included "discomfort" with patients with dysphagia, "speech therapy recommendations as helpful", "multidisciplinary teamwork", and "interprofessional training". Finally, themes related to patients such as "sympathy", "patients as challenging", and "communication difficulties" arose. Finally, the results were interpreted. The codes were presented as a table (attached as Appendix C).

3.12. Quantitative research: Validity and reliability

Internal validity, or the "degree to which the researcher observed and measures what is supposed to be measured" (Zohrabi, 2013, p. 258), was increased in this study by reducing sources of bias. Participants in this study had no prior exposure to the questionnaire, and thereby test effects such as fatigue, familiarity, or boredom (with being presented the same questionnaire) were eliminated. Only one instrument was used to collect data for this study, thus no changes to instrumentation during the data collection procedure could contribute to research bias.

Reactive effects (participants who are aware of being part of research, who then responding in a manner they normally wouldn't) posed a threat to internal validity, as this study required active engagement with participants, resulting in participants being aware of being tested. Simulating reality can limit reactive effects (Bless et al., 2013; Zohrabi, 2013) – in this study, data collection was conducted in the least obtrusive and most natural manner, by interacting with participants in their usual environments, and without special equipment, such as a microphone or camera to record interviews. Lastly, potential selection bias introduced by the use of convenience sampling was avoided by the strict application of inclusion and exclusion criteria when choosing participants (Bless et al., 2013).

External validity, or the generalisability of research findings, was increased by making use of an appropriate research sample, which was ensured by applying specific inclusion and exclusion criteria when recruiting participants for the study. For the study to be replicable, it is important that the research methodology be stated explicitly (Zohrabi, 2013). The participants were described as accurately and comprehensively as possible. The methods of data collection and analysis were also described comprehensively. As mentioned in the description of the study procedure, the content validity of the questionnaire was ensured by means of peer evaluation, and no changes to the instrument were recommended.

Reliability in quantitative research refers to the consistency of an instrument (Zohrabi, 2013) – whether the same results are achieved for different trials (Bless et al., 2013). Heale and Twycross (2015) mention homogeneity, or internal consistency, as an aspect of reliability in quantitative research – referring to "the extent to which all items on a scale measure one construct" (Heale and Twycross, 2015, p.67) and can be assessed with a split-halves reliability test. For this study, the data sets collected from each sample (the Western Cape

hospital and the Free State hospital, respectively), were randomly halved and the responses compared. It was observed that scores were comparable in terms of their distribution and frequency. Referencing and applying findings of other relevant studies is also advocated to increase internal reliability (Zohrabi, 2013), as these studies might provide a framework of reference. For example, the questionnaire and study by Colodny (2001) serve as a significant influence for the framework of this research study.

3.13. Qualitative research: Trustworthiness

It is important to consider trustworthiness when making use of qualitative research methods. Krefting (1991) mention four aspects of trustworthiness: namely credibility, transferability, dependability, and confirmability.

Credibility, or an accurate representation of how participants perceive phenomena, was ensured in this study by making use of methods such as peer examination, structural coherence, time sampling, and member checking.

As previously mentioned, a qualified, impartial SLT reviewed the fixed set of questions that was compiled prior to data collection. No additions or changes to the fixed set of questions were recommended. The fixed set of questions was used to provide structural coherence to the interviews. Bless et al. (2013) recommends data saturation as another method of increasing trustworthiness in qualitative research. Data saturation was ensured by a qualified, impartial SLT who evaluated the fixed set of questions beforehand (as mentioned), and by discussing the interview's range of topics and questions with the participants themselves – thus the data reflected the full range and depth of the topic.

Time sampling, which refers to collecting data in various settings, took place by collecting data in various wards, in two different hospitals, and different shifts of nurses were approached. For this study, member checking took place with those participants that consented to being recorded. This was done to ensure that the data was adequately and truthfully interpreted by the researcher. Participants' responses were read back to the participants, which provided an opportunity for participants to confirm their statements, or to rephrase or restructure their responses if necessary (Krefting, 1991). All participants were satisfied with the manner in which their responses were recorded and interpreted by the researcher.

This study's transferability, or the extent to which the research findings can be extrapolated to a larger population, was increased by increasing the representativeness of the sample group (Krefting, 1991). This was done by making use of inclusion and exclusion criteria within a convenience sampling framework, and by providing adequate background information regarding participants' characteristics, the research setting, and the research methodology and instruments. Making use of time sampling and member checking can also assisted with transferability, as it was important to determine whether the data collected was typical for the specific sample.

According to Krefting (1991), variability in qualitative research can be expected, due to the individualistic approach of qualitative studies – however, the researcher must be able to ascribe this variability to identified sources, thereby proving the study's dependability. This research study's dependability, which refers to the consistency of research findings, was increased by providing detailed descriptions of research methodology, including data collection, analysis, and interpretation. A code-recode procedure was also used, where the researcher analysed the qualitative data, then re-analysed the data after a period of one week, to ensure that consistent results were obtained.

Finally, the neutrality or confirmability of this study's data was ensured by avoiding sources of bias in the research design as much as possible (Krefting, 1991). Interviewer bias for non-scheduled structured interviews was considered, as the researcher (interviewer) was directly involved in the construction of the fixed set of questions, and in the recording of participant responses. To ensure valid and reliable qualitative data, it was paramount for the researcher to remain objective and neutral throughout the research process. To counter potential interviewer bias, interviews were audio-recorded and preserved until the study methodology and results have been accepted, which allowed for the reanalysing of data if necessary. The context in which participants describe their experiences, views, and opinions was also considered and reported in the results of the study.

3.14. Scientific rigour in mixed-methods research

Zohrabi (2013) advocates the use of various techniques to ensure the overall scientific rigour of mixed-methods research. Triangulation is an inherent aspect of the mixed-methods research approach, whereby collecting data from various sources corroborated the research findings. In this research study, a combination of quantitative data collection methods

(questionnaires) and qualitative data collection methods (interviews) were used to obtain data, which then produced convergent findings.

3.15. Ethical considerations

3.15.1. Permission

- Permission to conduct the study was obtained from the Department of Health of the Western Cape and of the Free State.
- The head of the neurology unit at the Western Cape hospital and the Free State hospital was informed that this research study will take place between May and June 2017.
- This study might contribute to more effective health care for patients with dysphagia in these specific wards.

3.15.2. Participants

- The participants had to sign a letter of consent and were informed regarding what the research is about.
- This consent letter described the rationale for the study, the procedures, and what it would require of them. Their autonomy to decline participation was also mentioned.
- No participants were harmed by participating in this study.
- In order to ensure confidentiality, no names were required when completing the questionnaires or taking part in the interviews. Each participant was given a participant number. The ward matron collected the questionnaires upon completion and returned them to the researcher – this prevented the researcher from associating specific forms with certain participants.
- No other identifiable information, such as contact details, was required. By doing so, participants could freely comment on their experiences and perceptions, with the knowledge that they will be anonymous.
- No participants were forced to take part in this study and they were allowed to withdraw at any given time.
- The results were made available to the participants if requested.

- The participants' rights, dignity, and anonymity were respected, by ensuring that no personal information needs to be shared and requesting informed consent from participants.
- If participants require counselling due to emotional topics brought up by the questionnaire or workshops, the researcher provided counselling as far as possible. If the participant required counselling outside of the researcher's scope, appropriate referrals to mental health care professionals were made.

3.15.3. Data collected

- All data was protected and only available to the researcher.
- All data that was collected was kept in a locked cabinet by the researcher.
- Data dissemination took place in the form of a published thesis, as well as a presentation at the University of Stellenbosch's Speech Therapy Research Day.

CHAPTER 4: Results

Tables of all the responses (as indicated on the Likert scale used in the questionnaire) will be presented below, as well as a comprehensive discussion of the most notable responses. The frequency and percentage of each response will be given. Since the data collected by means of a Likert scale is ordinal, the interquartile range (IQR) and median of each response will also be given. The IQR is indicative of agreement between participants – thus the smaller the IQR for a statement, the more homogenous the responses were for that statement. The median is a commonly used measure in statistical analysis of ordinal data and represents the central response tendencies of each statement. The median is also not affected by outliers in the data sample, and therefore gives a reliable indication of overall responses.

4.1. Sub-aim: Barriers related to the working environment

4.1.1 Group: 0-5 years of working experience

4.1.1.a. Western Cape hospital

Table 4: Summary of the Western Cape hospital responses regarding work environment barriers, group 0-5 years working experience (N=23)

Western Cape hospital: 0-5 years of working experience			
Working environment			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I have enough time to sit and feed all of the patients with swallowing difficulties	**SD (1):** 1 **D (2):** 8 **N (3):** 3 (mean imputation used to compensate for 1 missing response) **A (4):**9 **SA (5):** 2	**SD (1):** 4.3% **D (2):** 34.8% **N (3):** 13% (mean imputation used to compensate for 1 missing response) **A (4):**39.1% **SA (5):** 8.7%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 2
It takes too long to feed patients with swallowing difficulties	**SD (1):** 1 **D (2):** 1 **N (3):** 5 **A (4):**13 **SA (5):** 3	**SD (1):** 4.3% **D (2):** 4.3% **N (3):** 21.7% **A (4):**56.5% **SA (5):** 13%	Mdn = Agree (4) IQR = 1
I have too much work to do to feed patients with swallowing difficulties	**SD (1):** 3 **D (2):** 8 **N (3):** 3 (mean imputation used to compensate for 1 missing response) **A (4):**7 **SA (5):**2	**SD (1):** 13% **D (2):** 34.8% **N (3):** 13% (mean imputation used to compensate for 1 missing response) **A (4):**30.4% **SA (5):** 17.4%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2
There are enough nurses to take care of all the patients	**SD (1):** 12 **D (2):** 6 **N (3):** 1	**SD (1):** 52.2% **D (2):** 26.1% **N (3):** 4.3%	Mdn = Strongly disagree (1) IQR = 1

	A (4):4	**A (4):**17.4%	
It is not my responsibility to take care of patients with swallowing difficulties	**SD (1):** 10 **D (2):** 10 **A (4):**2 **SA (5):** 1	**SD (1):**43.5% **D (2):** 43.5% **A (4):**8.7% **SA (5):** 4.3%	Mdn = Disagree (2) IQR = 1
It is in my scope of practice to feed patients with feeding and swallowing difficulties	**D (2):** 3 **A (4):**13 **SA (5):** 7	**D (2):** 13% **A (4):**56.5% **SA (5):** 30.4%	Mdn = Agree (4) IQR = 1
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Participants in this group gave varying responses to the statement "I have enough time to sit and feed all of the patients with swallowing difficulties", with 34.8% (N=8) of participants disagreeing with the statement, 4.3% (N=1) strongly disagreeing, while 39.1% (N=9) of participants agreed with the statement, and another 8.7% (N=2) strongly agreed. "Neither agree nor disagree" was indicated by 13% (N=3) of the participants. An IQR of 2 for responses to this statement reflects discrepancies in participant experiences. The majority of participants agreed (56.5%; N=13) or strongly agreed (13%; N=3) that it takes too long to feed patients with dysphagia.

Mixed responses were received regarding the statement "I have too much work to do to feed patients with swallowing difficulties", with 34.8% (N=8) of participants disagreeing with the statement, and 13% (N=3) strongly disagreeing, while 30.4% (N=7) of participants agreed with the statement, and 17.4% (N=2) strongly agreed. Thirteen percent (N=3) of participants indicated that they neither agree nor disagree. These varying participant experiences are reflected in an IQR of 2 for this statement. Most participants strongly disagreed (52.2%; N=12) or disagreed (26.1%; N=6) that there are enough nurses to take care of all the patients.

Participants in this group either disagreed or strongly disagreed (43.5%; N=10 respectively) with the statement "It is not my responsibility to take care of patients with swallowing difficulties", while 56.5% (N=13) of participants agreed, and 30.4% (N=7) strongly agreed, that is falls within their scope of practice to feed patients with dysphagia.

4.1.1.b. Free State hospital

Table 5: Summary of the Free State hospital responses regarding work environment barriers, group 0-5 years working experience (N=10)

Free State hospital: 0-5 years of working experience			
Working environment			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I have enough time to sit and feed all of the patients with swallowing difficulties	**SD (1):** 6 **D (2):** 2 **N (3):** 1 **SA (5):** 1	**SD (1):** 60% **D (2):** 20% **N (3):** 10% **SA (5):** 10%	Mdn = Strongly disagree (1) IQR = 1
It takes too long to feed patients with swallowing difficulties	**SD (1):** 1 **A (4):** 4 **SA (5):** 5	**SD (1):** 10% **A (4):** 40% **SA (5):** 50%	Mdn = Strongly agree (5) IQR = 1
I have too much work to do to feed patients with swallowing difficulties	**SD (1):** 2 **D (2):** 1 **N (3):** 1 **A (4):** 5 **SA (5):** 1	**SD (1):** 20% **D (2):** 10% **N (3):** 10% **A (4):** 50% **SA (5):** 10%	Mdn = Agree (4) IQR = 1.75
There are enough nurses to take care of all the patients	**SD (1):** 7 **D (2):** 2 (mean imputation used to compensate for 1 missing response) **SA (5):** 1	**SD (1):** 70% **D (2):** 20% (mean imputation used to compensate for 1 missing response) **SA (5):** 10%	Mdn = Strongly disagree (1) IQR = 0
It is not my responsibility to take care of patients with swallowing difficulties	**SD (1):** 5 **D (2):** 3 **N (3):** 1 **A (4):** 1	**SD (1):** 50% **D (2):** 30% **N (3):** 10% **A (4):** 10%	Mdn = Strongly disagree/Disagree (1.5) IQR = 1
It is in my scope of practice to feed patients with feeding and swallowing difficulties	**SD (1):** 2 **D (2):** 1 **N (3):** 1 **A (4):** 2 **SA (5):** 4	**SD (1):** 20% **D (2):** 10% **N (3):** 10% **A (4):** 20% **SA (5):** 40%	Mdn = Agree (4) IQR = 2.75
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Most participants in this sample strongly disagreed (60%; N=6) or disagreed (20%; N=2) that they have enough time to feed all of their patients with dysphagia. This is corroborated by 50% (N=5) of participants strongly agreeing, and 40% (N=4) agreeing, that it takes too long to feed patients with swallowing difficulties. Fifty percent (N=5) of participants agreed that they have too much work to do to feed patients with dysphagia, with another 10% (N=1) strongly agreeing. Only 20% (N=2) of participants strongly disagreed, and 10% (N=1) disagreed, with the statement. The majority of participants strongly disagreed (70%; N=7) or disagreed (20%; N=2) with the statement "There are enough nurses to take care of all the patients".

When given the statement "It is not my responsibility to take care of patients with swallowing difficulties", 50% (N=5) of participants strongly disagreed with the statement, and a further 30% (N=3) disagreed. However, only 40% (N=4) of participants strongly agreed, and 20% (N=2) agreed, that it falls within their scope of practice to feed patients with dysphagia. "Strongly disagree" was indicated by 20% (N=2) of the participants, "Disagree" by a further 10%, (N=1) and "Neither agree nor disagree" by another 10% (N=1) of participants. These varying responses resulted in an IQR of 2.75 for this statement.

Comparison: Work environment barriers

Western Cape hospital and Free State hospital

0-5 years of working experience groups

Using the Mann-Whitney U. test, a statistically significant difference was observed between the participants from the Western Cape hospital and the Free State hospital regarding their perception of time available to feed patients with dysphagia (p=0.00782), with participants from the Western Cape hospital feeling that they have more time available to feed patients with dysphagia. No other statistically significant differences were observed.

4.1.2. Group: 6-10 years of working experience

4.1.2.a. Western Cape hospital

Table 6: Summary of the Western Cape hospital responses regarding work environment barriers, group 6-10 years working experience (N=8)

Western Cape hospital: 6-10 years of working experience			
Working environment			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I have enough time to sit and feed all of the patients with swallowing difficulties	**SD (1):** 1 **D (2):** 2 **N (3):** 1 **A (4):**3 **SA (5):** 1	**SD (1):** 12.5% **D (2):** 25% **N (3):** 12.5% **A (4):**37.5% **SA (5):** 12.5%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 2
It takes too long to feed patients with swallowing difficulties	**SD (1):** 1 **A (4):**7	**SD (1):** 12.5% **A (4):**87.5%	Mdn = Agree (4) IQR = 0
I have too much work to do to feed patients with swallowing difficulties	**SD (1):** 1 **N (3):** 3 **A (4):**2 **SA (5):**2	**SD (1):** 12.5% **N (3):**37.5% **A (4):**25% **SA (5):** 25%	$\bar{X}$ = Agree (4) Mdn = Neither agree nor disagree/Agree (3.5) IQR = 1.25

There are enough nurses to take care of all the patients	**SD (1):** 5 **D (2):** 3	**SD (1):** 62.5% **D (2):** 37.5%	Mdn = Strongly disagree (1) IQR = 1
It is not my responsibility to take care of patients with swallowing difficulties	**SD (1):** 4 **D (2):** 2 **A (4):**1 **SA (5):** 1	**SD (1):** 50% **D (2):** 25% **A (4):**12.5% **SA (5):** 12.5%	Mdn = Strongly disagree/Disagree (1.5) IQR = 1.5
It is in my scope of practice to feed patients with feeding and swallowing difficulties	**SD (1):** 1 **D (2):** 2 **A (4):**4 **SA (5):** 1	**SD (1):** 12.5% **D (2):** 25% **A (4):**50% **SA (5):** 12.5%	Mdn = Agree (4) IQR = 2
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Participants in this group gave differing responses when given the statement "I have enough time to sit and feed all of the patients with swallowing difficulties", with 25% (N=2) of participants disagreeing with the statement, and 12.5% (N=1) strongly disagreeing; while 37.5% (N=3) of participants indicated that they agree, and 12.5% (N=1) that they strongly agree, with the statement. "Neither agree nor disagree" was indicated by 12.5% (N=1) of participants. An IQR of 2 reflects these mixed participant experiences. The majority of participants agreed (87.5%; N=7) that it takes too long to feed patients with dysphagia.

Twenty-five percent (N=2) of participants agreed that they have too much work to do to feed all of the patients with dysphagia, with another 25% (N=2) of participants strongly agreeing with this statement. "Neither agree nor disagree" was indicated by 37.5% (N=3) of participants. All participants either strongly disagreed (62.5%; N=5) or disagreed (37.5%; N=3) that there are enough nurses to take care of all of the patients.

Fifty percent (N=4) of participants strongly disagreed with the statement "It is not my responsibility to take care of patients with swallowing difficulties", with another 25% (N=2) of participants also disagreeing with the statement. However, 12.5% (N=1) of participants agreed and strongly agreed with the statement respectively. Lastly, only 50% (N=4) of participants agreed, and 12.5% (N=1) strongly agreed, that it falls within their scope of practice to take care of patients with dysphagia – 25% (N=2) of participants disagreed with this statement, and 12.5% (N=1) strongly disagreed. These varying responses resulted in an IQR of 2 for this statement.

4.1.2.b. Free State hospital

Table 7: Summary of the Free State hospital responses regarding work environment barriers, group 6-10 years working experience (N=12)

Free State hospital: 6-10 years of working experience			
Working environment			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I have enough time to sit and feed all of the patients with swallowing difficulties	**SD (1):** 4 **D (2):** 4 **N (3):** 3 **A (4):** 1	**SD (1):** 33.3% **D (2):** 33.3% **N (3):** 25% **A (4):** 8.3%	Mdn = Disagree (2) IQR = 2
It takes too long to feed patients with swallowing difficulties	**SD (1):** 1 **N (3):** 2 **A (4):** 2 **SA (5):** 7	**SD (1):** 8.3% **N (3):** 16.7% **A (4):** 16.7% **SA (5):** 58.3%	Mdn = Strongly agree (5) IQR = 1.25
I have too much work to do to feed patients with swallowing difficulties	**SD (1):** 1 **D (2):** 1 **N (3):** 3 **A (4):** 3 **SA (5):** 4	**SD (1):** 8.3% **D (2):** 8.3% **N (3):** 25% **A (4):** 25% **SA (5):** 33.3%	Mdn = Agree (4) IQR = 2
There are enough nurses to take care of all the patients	**SD (1):** 9 **D (2):** 1 **N (3):** 2	**SD (1):** 75% **D (2):** 8.3% **N (3):** 16.7%	Mdn = Strongly disagree (1) IQR = 0.25
It is not my responsibility to take care of patients with swallowing difficulties	**SD (1):** 6 **D (2):** 4 **A (4):** 1 **SA (5):** 1	**SD (1):** 50% **D (2):** 33.3% **A (4):** 8.3% **SA (5):** 8.3%	Mdn = Strongly disagree/Disagree (1.5) IQR = 1
It is in my scope of practice to feed patients with feeding and swallowing difficulties	**SD (1):** 1 **N (3):** 3 **A (4):** 4 **SA (5):** 4	**SD (1):** 8.3% **N (3):** 25% **A (4):** 33.3% **SA (5):** 33.3%	Mdn = Agree (4) IQR = 2
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this group, 33.3% (N=4) of participants strongly disagreed or disagreed (respectively) with the statement "I have enough time to sit and feed all of the patients with swallowing difficulties". "Neither agree nor disagree" was indicated by 25% (N=3) of participants, with only 8.3% (N=1) of participants agreeing that they have enough time to feed patients with dysphagia. These varying responses are reflected in an IQR of 2 for this statement. The majority of participants strongly agreed (58.3%; N=7) or agreed (16.7%; N=2) that it takes too long to feed patients with dysphagia.

Twenty-five percent (N=3) of participants agreed, and 33.3% (N=4) strongly agreed, that they have too much work to do to feed all of their patients with dysphagia. Only 8.3% (N=1) of participants disagreed and strongly disagreed respectively, with 25% (N=3) of

participants indicating that they neither agree nor disagree. An IQR of 2 for this statement reveals differing participant experiences. Seventy-five percent (N=9) of participants strongly disagreed that there are enough nurses to take care of all the patients.

Fifty percent (N=6) of participants strongly disagreed, and 33.3% (N=4) of participants disagreed, with the statement "It is not my responsibility to take care of patients with swallowing difficulties". However, only 33.3% (N=4) of participants agreed, or strongly agreed, respectively, that it falls within their scope of practice to feed patients with dysphagia. An IQR of 2 for this statement is caused by 25% (N=3) of participants indicating that they neither agree nor disagree, and 8.3% (N=1) of participants strongly disagreeing with the statement.

Comparison: Work environment barriers

Western Cape hospital and Free State hospital

6-10 years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the groups from the Western Cape hospital and the Free State hospital.

4.1.3. Group: 11-15+ years of working experience

4.1.3.a. Western Cape hospital

Table 8: Summary of the Western Cape hospital responses regarding work environment barriers, group 11-15+ years working experience (N=12)

Western Cape hospital: 11-15+ years of working experience			
Working environment			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I have enough time to sit and feed all of the patients with swallowing difficulties	**SD (1):** 1 **D (2):** 9 **A (4):**2	**SD (1):** 8.3% **D (2):** 75% **A (4):**16.7%	Mdn = Disagree (2) IQR = 0
It takes too long to feed patients with swallowing difficulties	**N (3):** 1 **A (4):**9 **SA (5):** 2	**N (3):** 8.3% **A (4):** 75% **SA (5):** 16.7%	Mdn = Agree (4) IQR = 0
I have too much work to do to feed patients with swallowing difficulties	**SD (1):** 2 **D (2):** 2 **N (3):** 2	**SD (1):** 16.7% **D (2):** 16.7% **N (3):** 16.7%	Mdn = Neither agree nor disagree/Agree

	A (4):5 **SA (5):**1	**A (4):**41.7% **SA (5):**8.3%	(3.5) IQR = 2
There are enough nurses to take care of all the patients	**SD (1):** 8 **D (2):** 2 **N (3):** 1 **A (4):** 1	**SD (1):** 66.7% **D (2):** 16.7% **N (3):** 8.3% **A (4):** 8.3%	Mdn = Strongly disagree (1) IQR = 1
It is not my responsibility to take care of patients with swallowing difficulties	**SD (1):** 5 **D (2):** 6 **A (4):**1	**SD (1):** 41.7% **D (2):** 50% **A (4):**8.3%	Mdn = Disagree (2) IQR = 1
It is in my scope of practice to feed patients with feeding and swallowing difficulties	**N (3):** 1 **A (4):**9 **SA (5):** 2	**N (3):** 8.3% **A (4):** 75% **SA (5):** 16.7%	Mdn = Agree (4) IQR = 0
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this sample, 75% (N=9) of participants disagreed with the statement "I have enough time to sit and feed all of the patients with swallowing difficulties", and 75% (N=9) of participants agreed that it takes too long to feed patients with dysphagia, with another 16.7% (N=2) of participants strongly agreeing with the statement. Participants gave differing responses to the statement "I have too much work to do to feed patients with swallowing difficulties", with 41.7% (N=5) of participants agreeing with the statement, and 8.3% (N=1) strongly agreeing; while 16.7% (N=2) of participants disagreed and strongly disagreed respectively, and a final 16.7% (N=2) of participants indicated that they neither agree nor disagree. These mixed responses resulted in an IQR of 2 for this statement. Most participants in this sample indicated that they strongly disagree (66.7%; N=8) or disagree (16.7%; N=2) with the statement "There are enough nurses to take care of all the patients".

The majority of participants disagreed (50%; N=6) with the statement "It is not my responsibility to take care of patients with swallowing difficulties", with another 41.7% (N=5) of participants strongly disagreeing with the statement. Nearly all participants either agreed (75%; N=9) or strongly agreed (16.7%; N=2) that it falls within their scope of practice to feed patients with dysphagia.

4.1.3.b. Free State hospital

Table 9: Summary of the Free State hospital responses regarding work environment barriers, group 11-15+ years working experience (N=16)

Free State hospital: 11-15+ years of working experience			
Working environment			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I have enough time to sit and feed all of the patients with swallowing difficulties	**SD (1):** 7 **D (2):** 5 **N (3):** 3 **SA (5):** 1	**SD (1):** 43.8% **D (2):** 31.3% **N (3):** 18.8% **SA (5):** 6.3%	Mdn = Disagree (2) IQR = 0
It takes too long to feed patients with swallowing difficulties	**SD (1):** 1 **A (4):** 10 **SA (5):** 5	**SD (1):** 6.3% **A (4):** 62.5% **SA (5):** 31.3%	Mdn = Agree (4) IQR = 0
I have too much work to do to feed patients with swallowing difficulties	**D (2):** 7 **A (4):** 3 **SA (5):** 6	**D (2):** 43.8% **A (4):** 18.8% **SA (5):** 37.5%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 2
There are enough nurses to take care of all the patients	**SD (1):** 10 **D (2):** 4 **N (3):** 1 **A (4):** 1	**SD (1):** 62.5% **D (2):** 25% **N (3):** 6.3% **A (4):** 6.3%	Mdn = Strongly disagree (1) IQR = 1
It is not my responsibility to take care of patients with swallowing difficulties	**SD (1):** 6 **D (2):** 5 **N (3):** 1 **A (4):** 3 **SA (5):** 1	**SD (1):** 37.5% **D (2):** 31.3% **N (3):** 6.3% **A (4):** 18.8% **SA (5):** 6.3%	Mdn = Disagree (2) IQR = 1
It is in my scope of practice to feed patients with feeding and swallowing difficulties	**N (3):** 1 **A (4):** 12 **SA (5):** 3	**N (3):** 6.3% **A (4):** 75% **SA (5):** 18.8%	Mdn = Agree (4) IQR = 0
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this group, 43.8% (N=7) of participants strongly disagreed that they have enough time to feed all of their patients with dysphagia, with another 31.3% (N=5) of participants also disagreeing with the statement. The majority of participants agreed (62.5%; N=10) or strongly agreed (31.3%; N=5) that it takes too long to feed patients with dysphagia.

Participants gave varying responses to the statement "I have too much work to do to feed patients with swallowing difficulties", with 37.5% (N=6) of participants strongly agreeing with the statement, 18.8% (N=3) of participants agreeing, and 43.8% (N=7) of participants disagreeing with the statement. These mixed participant experiences resulted in an IQR of 2 for this statement. The majority of participants strongly disagreed (62.5%;

N=10) or disagreed (25%; N=4) that there are enough nurses to take care of all the patients in their wards.

When given the statement "It is not my responsibility to take care of patients with swallowing difficulties", 37.5% (N=6) of participants strongly disagreed, and 31.3% (N=5) also disagreed. The majority of participants agreed (75%; N=12) or strongly agreed (18.8%; N=3) that it falls within their scope of practice to feed patients with dysphagia.

Comparison: Work environment barriers

Western Cape hospital and Free State hospital

11-15+ years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the groups from the Western Cape hospital and the Free State hospital.

Working experience-group comparisons: Work environment

Western Cape hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding perceived working environment barriers. It can thus be interpreted that the Western Cape hospital sample as a whole experience the same barriers to dysphagia care. The most prominent perceived barriers reported were lack of time, overwhelming workload, and staff shortages.

Working experience-group comparisons: Work environment

Free State hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding perceived working environment barriers. The Free State hospital group as a whole is thus homogenous in their experience of perceived barriers in the working environment. The most frequently reported barriers were staff shortages, lack of time, and overwhelming workload.

In summary, several social system barriers were reported by the majority of participants in both hospital samples – including lack of time to perform necessary duties, shortage of staff, and unmanageable, heavy workloads.

4.2. Sub-aim: Barriers related to the patients

4.2.1 Group: 0-5 years of working experience

4.2.1.a. Western Cape hospital

Table 10: Summary of the Western Cape hospital responses regarding patient barriers, group 0-5 years working experience (N=23)

Western Cape hospital: 0-5 years of working experience			
Patients			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
It is difficult to feed patients with swallowing difficulties	**D (2):** 4 **N (3):** 5 (mean imputation used to compensate for 1 missing response) **A (4):**14	**D (2):** 17.4% **N (3):** 21.7%(mean imputation used to compensate for 1 missing response) **A (4):**60.9%	Mdn = Agree (4) IQR = 1
I find it easy to feed my patients with swallowing difficulties	**SD (1):** 2 **D (2):** 15 **N (3):** 3 **A (4):** 3	**SD (1):** 8.7% **D (2):** 65.2% **N (3):** 13% **A (4):** 13%	Mdn = Disagree (2) IQR = 0.5
Patients do not like their special diets	**D (2):** 1 **N (3):** 5 **A (4):**16 **SA (5):**1	**D (2):** 4.3% **N (3):** 21.7% **A (4):**69.6% **SA (5):**4.3%	Mdn = Agree (4) IQR = 0.5
Patients with swallowing difficulties are cooperative when I feed them	**SD (1):** 1 **D (2):** 6 **N (3):** 9 **A (4):**6 **SA (5):**1	**SD (1):** 4.3% **D (2):** 26.1% **N (3):** 39.1% **A (4):**26.1% **SA (5):**4.3%	Mdn = Neither agree nor disagree (3) IQR = 2
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

The majority of participants agreed (60.9%; N=14) that they find it difficult to feed patients with dysphagia. This is corroborated by 65.2% (N=15) of participants disagreeing with the statement "I find it easy to feed my patients with swallowing difficulties". The majority of participants also agreed (69.6%; N=16) that patients with dysphagia do not like their special, modified diets. Participants gave mixed responses to the statement "Patients with swallowing difficulties are cooperative when I feed them", with 26.1% (N=6) of participants disagreeing, 4.3% (N=1) strongly disagreeing; 39.1% (N=9) indicating that they neither agree nor disagree, and 26.1% (N=6) of participants agreeing with the statement, with the final 4.3%

(N=1) strongly agreeing with the statement. These mixed results are reflected in an IQR of 2 for this statement, indicated differing participant experiences.

4.2.1.b. Free State hospital

Table 11: Summary of the Free State hospital responses regarding patient barriers, group 0-5 years working experience (N=10)

Free State hospital: 0-5 years of working experience			
Patients			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
It is difficult to feed patients with swallowing difficulties	**SD (1):** 3 **D (2):** 1 **N (3):** 2 **A (4):**1 **SA (5):**3	**SD (1):** 30% **D (2):** 10% **N (3):** 20% **A (4):**10% **SA (5):**30%	Mdn = Agree (4) IQR = 1
I find it easy to feed my patients with swallowing difficulties	**SD (1):** 4 **D (2):** 3 **N (3):** 3	**SD (1):** 40% **D (2):** 30% **N (3):** 30%	Mdn = Disagree (2) IQR = 0.5
Patients do not like their special diets	**N (3):** 2 **A (4):**5 **SA (5):**3	**N (3):** 20% **A (4):**50% **SA (5):**30%	Mdn = Agree (4) IQR = 0.5
Patients with swallowing difficulties are cooperative when I feed them	**SD (1):** 2 **D (2):** 2 (mean imputation used to compensate for 1 missing response) **N (3):** 5 **SA (5):**1	**SD (1):** 20% **D (2):** 20% (mean imputation used to compensate for 1 missing response) **N (3):** 50% **SA (5):**10%	Mdn = Neither agree nor disagree (3) IQR = 1.5
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Participants in this group gave varying responses to the statement "It is difficult to feed patients with swallowing difficulties", with 30% (N=3) of participants strongly agreeing, and 10% (N=1) of participants agreeing, with the statement, while 30% (N=3) of participants strongly disagreed, and another 10% (N=1) disagreed, with the statement. A final 20% (N=2) indicated that they neither agree nor disagree. Despite these varying opinions, this statement had an IQR of 1, likely due to the small sample size of this specific group (N=10). The majority of participants either strongly disagreed (40%; N=4) or disagreed (30%; N=3) that they find it easy to feed patients with dysphagia. The majority of participants also agreed (50%; N=5) or strongly agreed (30%; N=3) that patients with dysphagia do not like special, modified diets. Fifty percent (N=5) of participants indicated that they neither agree nor disagree with the statement "Patients with swallowing difficulties are cooperative when I feed them", with another 20% (N=2)

of participants strongly disagreeing with the statement, 20% (N=2) of participants further disagreeing, and only 10% (N=1) of participants strongly agreeing with the statement.

Comparison: Patient-related barriers

Western Cape hospital and Free State hospital

0-5 years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the groups from the Western Cape hospital and the Free State hospital.

4.2.2 Group: 6-10 years of working experience

4.2.2.a. Western Cape hospital

Table 12: Summary of the Western Cape hospital responses regarding patient barriers, group 6-10 years working experience (N=8)

Western Cape hospital: 6-10 years of working experience			
Patients			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
It is difficult to feed patients with swallowing difficulties	**D (2):** 1 **A (4):**6 **SA (5):**1	**D (2):** 12.5% **A (4):**75% **SA (5):**12.5%	Mdn = Agree (4) IQR = 0
I find it easy to feed my patients with swallowing difficulties	**SD (1):** 2 **D (2):** 2 **N (3):** 1 **A (4):** 2 **SA (5):** 1	**SD (1):** 25% **D (2):** 25% **N (3):** 12.5% **A (4):** 25% **SA (5):** 12.5%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2.25
Patients do not like their special diets	**D (2):** 1 **A (4):**5 **SA (5):**2	**D (2):** 12.5% **A (4):**62.5% **SA (5):**25%	Mdn = Agree (4) IQR = 0.25
Patients with swallowing difficulties are cooperative when I feed them	**SD (1):** 1 **D (2):** 4 **N (3):** 1 **SA (5):**2	**SD (1):** 12.5% **D (2):** 50% **N (3):** 12.5% **SA (5):**25%	Mdn = Disagree (2) IQR = 1.5
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

The majority of participants in this group agreed (75%; N=6) that they find it difficult to feed patients with dysphagia, with another 12.5% (N=1) of participants strongly agreeing. Participants gave mixed responses to the statement "I find it easy to feed my patients with swallowing difficulties", with 25% (N=2) of participants respectively strongly disagreeing and disagreeing, while 25% (N=2) of participants agreed with the

statement, and a further 12.5% (N=1) strongly agreed. "Neither agree nor disagree" was indicated by 12.5% (N=1) of participants. An IQR of 2.25 for this statement reflects participants' differing experiences. Most participants in this group also agreed (62.5%; N=5) or strongly agreed (25%; N=2) that patients with dysphagia do not like their special, modified diets. Fifty percent (N=4) of participants disagreed with the statement "Patients with swallowing difficulties are cooperative when I feed them", with another 12.5% (N=1) of participants strongly agreeing. Only 25% (N=2) of participants strongly agreed with the statement.

4.2.2.b. Free State hospital

Table 13: Summary of the Free State hospital responses regarding patient barriers, group 6-10 years working experience (N=12)

Free State hospital: 6-10 years of working experience			
Patients			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
It is difficult to feed patients with swallowing difficulties	**SD (1):** 3 **A (4):**6 **SA (5):**3	**SD (1):** 25% **A (4):**50% **SA (5):**25%	Mdn = Agree (4) IQR = 0
I find it easy to feed my patients with swallowing difficulties	**SD (1):** 5 **D (2):** 3 (mean imputation used to compensate for 1 missing response) **N (3):** 4	**SD (1):** 41.7% **D (2):** 25% (mean imputation used to compensate for 1 missing response) **N (3):** 33.3%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2.25
Patients do not like their special diets	**SD (1):** 2 **N (3):** 1 **A (4):**5 (mean imputation used to compensate for 1 missing response) **SA (5):**4	**SD (1):** 16.7% **N (3):** 8.3% **A (4):**41.7% (mean imputation used to compensate for 1 missing response) **SA (5):**33.3%	Mdn = Agree (4) IQR = 0.25
Patients with swallowing difficulties are cooperative when I feed them	**SD (1):** 3 **D (2):** 5 (mean imputation used to compensate for 1 missing response) **N (3):** 2 **A (4):** 1 **SA (5):** 1	**SD (1):** 25% **D (2):** 41.7% (mean imputation used to compensate for 1 missing response) **N (3):** 16.7% **A (4):** 8.3% **SA (5):** 8.3%	Mdn = Disagree (2) IQR = 1.5
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Fifty percent (N=6) of participants in this group agreed that they find it difficult to feed patients with dysphagia, with another 25% (N=3) of participants strongly agreeing with the statement. "Strongly disagree" was indicated by 41.7% (N=5) of participants

regarding the statement "I find it easy to feed my patients with swallowing difficulties", while another 25% (N=3) of participants also disagreed with the statement. "Neither agree nor disagree" was indicated by 33.3% (N=4) of participants. Responses to this statement resulted in an IQR of 2.25, likely due to the small sample size for this group (N=12).The majority of participants agreed (41.7%; N=5) or strongly agreed (33.3%; N=4) that patients with dysphagia do not like their special diets. Most participants in this group disagreed (41.7%; N=5) or strongly disagreed (25%; N=2) with the statement "Patients with swallowing difficulties are cooperative when I feed them".

Comparison: Patient-related barriers

Western Capehospital and Free State hospital

6-10 years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the groups from the Western Cape hospital and the Free State hospital.

4.2.3. Group: 11-15+ years of working experience

4.2.3.a. Western Cape hospital

Table 14: Summary of the Western Cape hospital responses regarding patient barriers, group 11-15+ years working experience (N=12)

Western Cape hospital: 11-15+ years of working experience			
Patients			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
It is difficult to feed patients with swallowing difficulties	**D (2):** 3 **A (4):**8 **SA (5): 1**	**D (2):** 25% **A (4):**66.7% **SA (5):**8.3%	Mdn = Agree (4) IQR = 0.5
I find it easy to feed my patients with swallowing difficulties	**SD (1):** 1 **D (2):** 9 **N (3):** 1 **SA (5):** 1	**SD (1):** 8.3% **D (2):** 75% **N (3):** 8.3% **SA (5):** 8.3%	Mdn = Disagree (2) IQR = 0
Patients do not like their special diets	**D (2):** 1 **A (4):**8 **SA (5):**3	**D (2):** 8.3% **A (4):**66.7% **SA (5):**25%	Mdn = Agree (4) IQR = 0.25
Patients with swallowing difficulties are cooperative when I feed them	**D (2):** 5 **N (3):** 5 **A (4):** 1 **SA (5):**1	**D (2):** 41.7% **N (3):** 41.7% **A (4):** 8.3% **SA (5):**8.3%	Mdn = Neither agree nor disagree (3) IQR = 1
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

The majority of participants in this group agreed (66.7%; N=8) that they find it difficult to feed patients with dysphagia, with another 8.3% (N=1) of participants strongly agreeing with the statement. Only 25% (N=3) of participants disagreed with the statement. This is corroborated by 75% (N=9) of participants disagreeing with the statement "I find it easy to feed my patients with swallowing difficulties". Most participants in this group either agreed (66.7%; N=8) or strongly agreed (25%; N=3) that patients with dysphagia do not like their special, modified diets. "Disagree" was indicated by 41.7% (N=5) of participants regarding the statement "Patients with swallowing difficulties are cooperative when I feed them", with another 41.7% (N=5) of participants indicating that they neither agree nor disagree. Only 8.3% (N=1) of participants agreed, and strongly agreed (respectively), with the statement.

4.2.3.b. Free State hospital

Table 15: Summary of the Free State hospital responses regarding patient barriers, group 11-15+ years working experience (N=16)

Free State hospital: 11-15+ years of working experience			
Patients			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
It is difficult to feed patients with swallowing difficulties	**D (2):** 1 **N (3):** 1 **A (4):**11 **SA (5):**3	**D (2):** 6.3% **N (3):** 6.3% **A (4):**68.8% **SA (5):**18.8%	Mdn =Agree (4) IQR = 0.5
I find it easy to feed my patients with swallowing difficulties	**SD (1):** 2 **D (2):** 10 **N (3):** 2 **SA (5):** 2	**SD (1):** 12.5% **D (2):** 62.5% **N (3):** 12.5% **SA (5):** 12.5%	Mdn = Disagree (2) IQR = 0
Patients do not like their special diets	**D (2):** 3 **N (3):** 2 **A (4):**9 **SA (5):**2	**D (2):** 18.8% **N (3):** 12.5% **A (4):**56.3% **SA (5):**12.5%	Mdn = Agree (4) IQR = 0.25
Patients with swallowing difficulties are cooperative when I feed them	**SD (1):** 2 **D (2):** 9 **N (3):** 3 **A (4):** 2	**SD (1):** 12.5% **D (2):** 56.3% **N (3):** 18.8% **A (4):** 12.5%	Mdn = Neither agree nor disagree (3) IQR = 1
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this group, most participants agreed (68.8%; N=11) or strongly agreed (18.8%; N=3) that they find it difficult to feed patients with dysphagia. These results were supported by participants' responses to the statement "I find it easy to feed my patients with swallowing difficulties", as 62.5% (N=10) of participants indicated that they disagree

with the statement, and a further 12.5% (N=2) strongly disagreed. Only 12.5% (N=2) of participants strongly agreed with the statement, and 12.5% (N=2) of participants indicated that they neither agree nor disagree. Regarding the statement "Patients do not like their special diets", 56.3% (N=9) of participants agreed, and 12.5% (N=2) strongly agreed. Only 18.8% (N=3) of participants disagreed with the statement, and 12.5% (N=2) neither agreed not disagreed. "Disagree" was indicated by 56.3% (N=9) of participants when given the statement "Patients with swallowing difficulties are cooperative when I feed them", with another 12.5% (N=2) of participants strongly disagreeing. "Agree" was indicated by only 12.5% (N=2) of participants, and 18.8% (N=3) of participants indicated that they neither agree nor disagree.

Comparison: Patient-related barriers

Western Capehospital and Free State hospital

11-15+ years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the groups from the Western Cape hospital and Free State hospital.

Working experience-group comparisons: Patient-related barriers

Western Cape hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding perceived patient-related barriers. The Western Cape hospital sample is thus homogenous in their perceptions of patient-related barriers to care. The most frequently reported barriers to care in this group were uncooperative patients, patients who dislike their modified diets, and the perception that patients with dysphagia are difficult to feed.

Working experience-group comparisons: Patient-related barriers

Free State hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding perceived patient-related barriers. It can thus be inferred that all participants in this group perceive the same patient-related barriers. The most prominent barriers reported by this group were patients who dislike their modified diets, uncooperative patients, and the perception that it is difficult to feed patients with dysphagia.

In summary, similar personal and interpersonal system barriers were reported across all groups in this study. Uncooperative patients, the perception that patients with dysphagia are difficult to feed, and patients with dysphagia who dislike modified diets were the most commonly noted barriers.

4.3. Sub-aim: Barriers related to knowledge and training

4.3.1. Group: 0-5 years of working experience

4.3.1.a. Western Cape hospital

Table 16: Summary of the Western Cape hospital responses regarding knowledge and training barriers, group 0-5 years working experience (N=23)

Western Cape hospital: 0-5 years of working experience			
Knowledge and training			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I know what the role of the speech-language therapist is in swallowing difficulties	**D (2):** 1 **N (3):** 6 **A (4):**13 **SA (5)** : 3	**D (2):** 4.3% **N (3):** 26.1% **A (4):**56.5% **SA (5)** : 13%	Mdn = Agree (4) IQR = 1
The speech-language therapist is not involved in swallowing difficulties	**SD (1):**9 **D (2):**9 **N (3):**1 **A (4):**1 **SA (5):** 3	**SD (1):**39.1% **D (2):**39.1% **N (3):**4.3% **A (4):**4.3% **SA (5):** 13%	Mdn = Disagree (2) IQR = 1
I do not agree with the speech-language therapists' recommendations	**SD (1):**6 **D (2):**9 **N (3):**5 **A (4):**3	**SD (1):**26.1% **D (2):**39.1% **N (3):**21.7% **A (4):**13%	Mdn = Disagree (2) IQR = 1.5
I am not familiar with the terminology used by the speech-language therapist	**D (2):** 3 **N (3):** 8 (mean imputation used to compensate for 1 missing response) **A (4):**11 **SA (5)** : 1	**D (2):** 13% **N (3):** 34.8% (mean imputation used to compensate for 1 missing response) **A (4):**47.8% **SA (5)** : 4.8%	Mdn = Agree (4) IQR = 1
I am not sure how to	**SD (1):** 3	**SD (1):** 13%	Mdn = Disagree

give thickened liquids to a patient	**D (2):** 17 **N (3):** 1 **A (4):**2	**D (2):** 73.9% **N (3):** 4.3% **A (4):**8.7%	(2) IQR = 0
I know what a soft diet is	**A (4):**15 **SA (5):** 8	**A (4):**62.5% **SA (5):** 34.8%	Mdn = Agree (4) IQR = 1
I am not sure what a puree diet is	**SD (1):**9 **D (2):**7 (mean imputation used to compensate for 1 missing response) **N (3):**2 **A (4):**4 **SA (5):** 1	**SD (1):**39.1% **D (2):**30.4% (mean imputation used to compensate for 1 missing response) **N (3):**8,7% **A (4):**17.4% **SA (5):** 4.3%	Mdn = Disagree (2) IQR = 2
I know which patients are on special diets	**N (3):** 1 **A (4):**18 **SA (5)** : 4	**N (3):** 4.3% **A (4):**78.3% **SA (5)** : 17.4%	Mdn = Agree (4) IQR = 0
I know how to position a patient for feeding	**A (4):**18 **SA (5)** : 5	**A (4):**78.3% **SA (5)** : 21.7%	Mdn = Agree (4) IQR = 0
I am not familiar with the feeding postures that are prescribed by the speech-language therapist	**SD (1):2** **D (2):**5 **N (3):**8 **A (4):**8	**SD (1):**8.7% **D (2):**21.7% **N (3):**34.8% **A (4):**34.8%	Mdn = Neither agree nor disagree (3) IQR = 2
Swallowing difficulties are not important for me or for the patient	**SD (1):**9 **D (2):**13 **A (4):**1	**] SD (1):**39.1% **D (2):**56.5% **A (4):**4.3%	Mdn = Disagree (2) IQR = 1
It is important to follow feeding recommendations	**A (4):**15 (mean imputation used to compensate for 1 missing response) **SA (5):** 8	**A (4):**65.2% (mean imputation used to compensate for 1 missing response) **SA (5):** 34.8%	Mdn = Agree (4) IQR = 1
I am comfortable with feeding patients with swallowing difficulties	**D (2):**5 **N (3):**2 **A (4):**14 **SA (5):** 2	**D (2):**21.7% **N (3):**8,7% **A (4):**60.9% **SA (5):** 8.7%	Mdn = Agree (4) IQR = 1
Working with patients with swallowing difficulties makes me uncomfortable	**SD (1):**8 **D (2):**7 **N (3):**2 **A (4):**6	**SD (1):**34.8% **D (2):**30.4% **N (3):**8,7% **A (4):**21.6%	Mdn = Disagree (2) IQR = 2.5
I have been taught how to feed a patient with swallowing difficulties	**SD (1):**1 **D (2):**4 **N (3):**2 **A (4):**14 **SA (5):** 2	**SD (1):**4.3% **D (2):**17.4% **N (3):**8,7% **A (4):**60.9% **SA (5):** 8.7%	Mdn = Agree (4) IQR = 1
I understand why certain diets are given to patients with swallowing difficulties	**D (2):**1 **N (3):**1 **A (4):**14 **SA (5):** 7	**D (2):**4.3% **N (3):**4.3% **A (4):**60.9% **SA (5):** 30.4%	Mdn = Agree (4) IQR = 1
I have had enough training in working with patients with swallowing difficulties	**SD (1):**1 **D (2):**14 **N (3):**2 **A (4):**5 **SA (5):** 1	**SD (1):**4.3% **D (2):**60.9% **N (3):**8,7% **A (4):**21.7% **SA (5):** 4.3%	Mdn = Disagree (2) IQR = 1.5

I would like to receive more training in working with patients with swallowing difficulties	**D (2):**1 **N (3):**1 **A (4):**16 **SA (5):** 5	**D (2):**4.3% **N (3):**4.3% **A (4):**69.6% **SA (5):** 21.7%	Mdn = Agree (4) IQR = 0
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this sample, 56.5% (N=13) of participants agreed that they know the role of the SLT in dysphagia, while another 13% (N=5) strongly agreed. Most participants strongly disagreed (39.1%; N=9) or disagreed (39.1%; N=9) that the SLT is not involved in swallowing difficulties. However, a large group of participants (47.8%; N=11) agreed that they are not familiar with the terminology used by the SLT. Despite this unfamiliarity, most participants strongly disagreed (26.1%; N=6) or disagreed (39.1%; N=9) with the statement "I do not agree with the SLT's recommendations."

With regards to diet modifications, the participants in this group largely disagreed (73.9%; N=17) with the statement "I am not sure how to give thickened liquids to a patient". All participants either strongly agreed (34.8%; N=8) or agreed (62.5%; N=15) that they know what a soft diet is, while 39.1% (N=9) of participants strongly disagreed, and a further 30.4% (N=7) of participants disagreed, that they do not know what a puree diet is. An IQR of 2 for the statement "I am not sure what a puree diet is" indicated less homogenous and more varied responses to this statement. The majority of participants agreed (78.3%; N=18) or strongly agreed (17.4%; N=4) that they know which patients are on special diets.

Regarding positioning during meals, all participants in this group either agreed (78.3%; N=18) of strongly agreed (21.7%: N=5) that they know how to position a patient for feeding. However, mixed responses were received regarding the statement "I am not familiar with the feeding postures that are prescribed by the SLT", with 34.8% (N=8) of participants agreeing with this statement, 21.7% (N=5) disagreeing, 8.7% (N=2) strongly disagreeing, and a further 34.8% (N=8) indicated that they neither agree nor disagree with the statement. These mixed responses are reflected in an IQR of 2.

In this group, 56.5% (N=13) of participants disagreed that swallowing difficulties are not important in patient care, with another 39.1% (N=9) strongly disagreeing with this statement. All participants also agreed (65.2%; N=15) or strongly agreed (34.8%; N=8) that it is important to follow feeding recommendations. Most participants in this group agreed (60.9%; N=14) that they are comfortable with feeding patients with dysphagia. Regarding the

statement "Working with patients with swallowing difficulties makes me uncomfortable", 34.8% (N=8) of participants indicated that they strongly disagree, and a further 30.4% (N=7) of participants disagreeing with the statement. An IQR of 2.5 for these responses to this statement reveals a disparity in participant experiences.

With regards to training, 60.9% (N=14) of participants agreed that they have been taught how to feed a patient with dysphagia. The same amount of participants agreed (60.9%; N=14) that they understand why certain patients receive special diets, with another 30.4% (N=7) of participants strongly agreeing with the statement. However, 60.9% (N=14) of participants also disagreed that they have had enough dysphagia training and 69.6% (N=16) of participants agreed that they would like more training in caring for patients with dysphagia.

4.3.1.b. Free State hospital

Table 17: Summary of the Free State hospital responses regarding knowledge and training barriers, group 0-5 years working experience (N=10)

Free State hospital: 0-5 years of working experience			
Knowledge and training			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I know what the role of the speech-language therapist is in swallowing difficulties	**SD (1):** 5 **D (2):** 1 **N (3):** 1 **A (4):** 1 **SA (5)** : 2	**SD (1):** 50% **D (2):** 10% **N (3):** 10% **A (4):** 10% **SA (5)** : 20%	Mdn = Strongly disagree/Disagree (1.5) IQR = 2.75
The speech-language therapist is not involved in swallowing difficulties	**SD (1):** 2 **N (3):** 6 (mean imputation used to compensate for 3 missing responses) **SA (5):** 2	**SD (1):** 20% **N (3):** 60% (mean imputation used to compensate for 3 missing responses) **SA (5):** 20%	Mdn = Neither agree nor disagree 3) IQR = 2
I do not agree with the speech language therapists' recommendations	**SD (1):** 3 **D (2):** 1 **N (3):** 5 **SA (5):** 1	**SD (1):** 30% **D (2):** 10% **N (3):** 50% **SA (5):** 10%	Mdn = Neither agree nor disagree (3) IQR = 1.75
I am not familiar with the terminology used by the speech-language therapist	**SD (1):** 1 **N (3):** 2 **A (4):** 3 (mean imputation used to compensate for 1 missing response) **SA (5)** : 4	**D (2):** 10% **N (3):** 20% **A (4):** 30% (mean imputation used to compensate for 1 missing response) **SA (5)** : 40%	Mdn = Agree (4) IQR = 2
I am not sure how to give thickened liquids to a patient	**SD (1):** 5 **D (2):** 3 **N (3):** 1 **SA (5):** 1	**SD (1):** 50% **D (2):** 30% **N (3):** 10% **SA (5):** 10%	Mdn = Strongly disagree/Disagree (1.5) IQR = 1
I know what a soft diet is	**N (3):** 1 **A (4):** 3 **SA (5):** 6	**N (3):** 10% **A (4):** 30% **SA (5):** 60%	Mdn = Strongly agree (5) IQR = 1

I am not sure what a puree diet is	**SD (1):** 5 **D (2):** 2 **A (4):** 1 **SA (5):** 2	**SD (1):** 50% **D (2):** 20% **A (4):** 10% **SA (5):** 20%	Mdn = Strongly disagree/Disagree (1.5) IQR = 2.5
I know which patients are on special diets	**N (3):** 1 **A (4):** 3 **SA (5)** : 5	**N (3):** 10% **A (4):** 40% **SA (5)** : 50%	Mdn = Agree/Strongly agree (4.5) IQR = 1
I know how to position a patient for feeding	**A (4):** 4 **SA (5)** : 6 (mean imputation used to compensate for 1 missing response)	**A (4):** 40% **SA (5)** : 60% (mean imputation used to compensate for 1 missing response)	Mdn = Strongly agree (5) IQR = 1
I am not familiar with the feeding postures that are prescribed by the speech-language therapist	**SD (1):** 2 **D (2):** 2 **N (3):** 3 **A (4):** 1 **SA (5):** 2	**SD (1):** 20% **D (2):** 20% **N (3):** 30% **A (4):** 10% **SA (5):** 20%	Mdn = Neither agree nor disagree (3) IQR = 1.75
Swallowing difficulties are not important for me or for the patient	**SD (1):** 7 **D (2):** 1 **N (3):** 1 **SA (5):** 1	**SD (1):** 70% **D (2):** 10% **N (3):** 10% **SA (5):** 10%	Mdn = Strongly disagree (1) IQR = 0.75
It is important to follow feeding recommendations	**SD (1):** 1 **A (4):** 2 (mean imputation used to compensate for 1 missing response) **SA (5):** 7	**SD (1):** 10% **A (4):** 20% (mean imputation used to compensate for 1 missing response) **SA (5):** 70%	Mdn = Strongly agree (5) IQR = 0
I am comfortable with feeding patients with swallowing difficulties	**SD (1):** 1 **D (2):** 3 **N (3):** 1 **SA (5):** 5	**SD (1):** 10% **D (2):** 30% **N (3):** 10% **SA (5):** 50%	Mdn = Agree (4) IQR = 3
Working with patients with swallowing difficulties makes me uncomfortable	**SD (1):** 3 **D (2):** 1 **N (3):** 1 **A (4):** 3 **SA (5):** 2	**SD (1):** 30% **D (2):** 10% **N (3):** 10% **A (4):** 30% **SA (5):** 20%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 3
I have been taught how to feed a patient with swallowing difficulties	**D (2):** 3 **N (3):** 1 **A (4):** 1 **SA (5):** 5	**D (2):** 30% **N (3):** 10% **A (4):** 10% **SA (5):** 50%	Mdn = Agree/Strongly agree (4.5) IQR = 2.75
I understand why certain diets are given to patients with swallowing difficulties	**N (3):** 1 **A (4):** 4 (mean imputation used to compensate for 1 missing response) **SA (5):** 5	**N (3):** 10% **A (4):** 40% (mean imputation used to compensate for 1 missing response) **SA (5):** 50%	Mdn = Strongly agree (5) IQR = 1
I have had enough training in working with patients with swallowing difficulties	**SD (1):** 4 **D (2):** 2 **N (3):** 1 **A (4):** 1 **SA (5):** 2	**SD (1):** 40% **D (2):** 20% **N (3):** 10% **A (4):** 10% **SA (5):** 20%	Mdn = Disagree (2) IQR = 2.75
I would like to receive more training in	**SD (1):** 2 **N (3):** 2	**SD (1):** 20% **N (3):** 20%	Mdn = Agree (4) IQR = 2

working with patients with swallowing difficulties	**A (4):** 2 **SA (5):** 4	**A (4):** 20% **SA (5):** 40%	
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Fifty percent (N=5) of participants in this group strongly disagreed that they know what the role of the SLT is in dysphagia management. Only 10% of participants agreed, and 20% (N=2) strongly agreed, with this statement. These varying answers resulted in an IQR of 2.75 for responses to this statement, indicated heterogeneous participant experiences. The majority of participants (60%; N=6) indicated that they neither agree nor disagree with the statement "The SLT is not involved in swallowing difficulties", with an IQR of 2 indicating varying responses. Fifty percent of participants gave a "neither agree nor disagree" response to the statement "I do not agree with the SLT's recommendations". Forty percent (N=4) of participants strongly agreed that they are not familiar with the terminology used by the SLT, with another 30% (N=3) of participants also agreeing with this statement.

In this group, 50% (N=5) of participants strongly disagreed with the statement "I am not sure how to give thickened liquids to a patient", while another 30% (N=3) also disagreed with the statement. The majority of participants (60%; N=6) strongly agreed that they know what a soft diet is, with another 30% (N=3) of participants agreeing with this statement. Fifty percent (N=5) of participants strongly disagreed that they are unsure of what a puree diet is. However, an IQR of 2.5 for responses to this statement indicates varying participant experiences – 20% (N=2) of participants strongly agreed, and 10% (N=1) agreed, that they do not know what a puree diet is. Nearly all participants either strongly agreed (50%; N=5) or agreed (40%; N=4) that they know which patients are on special diets.

All participants in this group either strongly agreed (60%; N=6) or agreed (40%; N=4) that they know how to position a patient for feeding. However, mixed responses were received regarding the statement "I am not familiar with the feeding postures that are prescribed by the SLT", with 20% (N=2) of participants strongly disagreeing with this statement, another 20% (N=2) of participants disagreeing, 10% (N=1) of participants agreeing with the statement, 20% (N=2) of participants strongly agreeing with the statement, and 30% (N=3) of participants indicating that they neither agree nor disagree.

Seventy percent (N=7) of participants strongly disagreed that swallowing difficulties are unimportant, and 70% (N=7) of participants strongly agreed that it is important to follow

feeding recommendations. An IQR of 3 regarding the statement "I am comfortable with feeding patients with swallowing difficulties" reveals varying participant experiences – 50% (N=5) of participants strongly agreed with this statement, while 30% (N=3) disagreed, 10% (N=1) strongly disagreed, and 10% (N=1) of participants neither agreed nor disagreed. These results were corroborated by responses to the statement "Working with patients with swallowing difficulties makes me uncomfortable", with 30% (N=3) of participants strongly disagreeing with this statement, 10% (N=1) disagreeing, 30% (N=3) of participants agreeing with the statement, 20% (N=2) strongly agreeing, and 10% (N=1) of participants indicating that they neither agree nor disagree. Responses to this statement also had an IQR of 3.

Fifty percent (N=5) of participants in this sample strongly agreed that they had been taught how to feed a patient with dysphagia. However, an IQR of 2.75 for responses to this statement indicates discrepancies in participant experiences, as 30% (N=3) of participants disagreed with the statement. The majority of participants either strongly agreed (50%; N=5), or agreed (40%; N=4), that they understand why certain patients receive special diets. Mixed responses were received regarding the statement "I have had enough training in working with patients with swallowing difficulties", with 40% (N=4) of participants strongly disagreeing with the statement, and a further 20% (N=2) of participants disagreeing, while 20% (N=2) of participants strongly agreed, and 10% (N=1) agreed, that they have had enough training. Ten percent (N=1) of participants indicated that they neither agree nor disagree, resulting in an IQR of 2.75 for responses to this statement. Lastly, 40% (N=4) of participants strongly agreed that they would like to receive more training in working with patients with dysphagia, while another 20% (N=2) of participants also agreed. An IQR of 2 for responses to this statement, however, indicates differing participant responses, as 20% (N=2) of participants strongly disagreed that they would like more dysphagia training, and 20% (N=2) of participants neither agreeing nor disagreeing.

Comparison: Knowledge and training barriers

Western Capehospital and Free State hospital

0-5 years of working experience groups

Using the Mann-Whitney U. test, it can be observed that there are significant statistical differences between the participants from the Western Capehospital and the Free Statehospital regarding their knowledge of the role of the SLT in dysphagia management (p=0,035), with the participants from the Western Capehospital being more familiar with the SLT's role in dysphagia treatment. No other statistically significant differences were observed.

4.3.2 Group: 6-10 years of working experience

4.3.2.a. Western Cape hospital

Table 18: Summary of the Western Cape hospital responses regarding knowledge and training barriers, group 6-10 years working experience (N=8)

Western Cape hospital: 6-10 years of working experience			
Knowledge and training			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I know what the role of the speech-language therapist is in swallowing difficulties	**SD (1):** 1 **N (3):** 2 **A (4):**3 **SA (5)** : 2	**SD (1):** 12.5% **N (3):** 25% **A (4):**37.5% **SA (5)** : 25%	Mdn = Agree (4) IQR = 1.25
The speech-language therapist is not involved in swallowing difficulties	**SD (1):**5 **D (2):**3	**SD (1):**62.5% **D (2):**37.5%	Mdn = Strongly disagree (1) IQR = 1
I do not agree with the speech-language therapists' recommendations	**SD (1):**3 **D (2):**2 **N (3):**2 **A (4):**1	**SD (1):**37.5% **D (2):**25% **N (3):**25% **A (4):**12.5%	Mdn = Disagree (2) IQR = 2
I am not familiar with the terminology used by the speech-language therapist	**SD (1):** 3 **D (2):** 1 **N (3):** 3 **A (4):**1	**SD (1):** 37.5% **D (2):** 12.5% **N (3):** 37.5% **A (4):**12.5%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2
I am not sure how to give thickened liquids to a patient	**SD (1):** 2 **D (2):** 3 **N (3):** 1 **A (4):**2	**SD (1):** 25% **D (2):** 37.5% **N (3):** 12.5% **A (4):**25%	Mdn = Disagree (2) IQR = 1.5
I know what a soft diet is	**A (4):**5 **SA (5):** 3	**A (4):**62.5% **SA (5):** 37.5%	Mdn = Agree (4) IQR = 1
I am not sure what a puree diet is	**SD (1):**3 **D (2):**4 (mean imputation used to compensate for 1 missing response) **A (4):**1	**SD (1):**37.5% **D (2):**50% (mean imputation used to compensate for 1 missing response) **A (4):**12.5%	Mdn = Disagree (2) IQR = 1
I know which patients are on special diets	**N (3):** 1 **A (4):**5 **SA (5)** : 2	**N (3):** 12.5% **A (4):**62.5% **SA (5):** 25%	Mdn = Agree (4) IQR = 0.25
I know how to position a patient for feeding	**N (3):** 1 **A (4):**4 **SA (5)** : 3 (mean imputation used to compensate for 1 missing response)	**N (3):** 12.5% **A (4):**50% **SA (5)** : 37.5% (mean imputation used to compensate for 1 missing response)	Mdn = Agree (4) IQR = 0.5
I am not familiar with the feeding postures that are prescribed by the speech-language therapist	**SD (1):** 2 **D (2):**1 **N (3):**1 **A (4):**3 **SA (5):** 1	**SD (1):**25% **D (2):**12.5% **N (3):**12.5% **A (4):**37.5% **SA (5):** 12.5%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 2.25
Swallowing difficulties	**SD (1):**4	**SD (1):**50%	Mdn = Strongly

are not important for me or for the patient	**D (2):**4	**D (2):**50%	disagree/Disagree (1.5) IQR = 1
It is important to follow feeding recommendations	**A (4):**4 **SA (5):** 4	**A (4):**50% **SA (5):** 50%	Mdn = Agree/Strongly agree (4.5) IQR = 1
I am comfortable with feeding patients with swallowing difficulties	**D (2):**4 **N (3):**1 **A (4):**1 **SA (5):** 2	**D (2):**50% **N (3):**12.5% **A (4):**12.5% **SA (5):** 25%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2.25
Working with patients with swallowing difficulties makes me uncomfortable	**SD (1):**2 **N (3):**1 **A (4):**5	**SD (1):**25% **N (3):**12.5% **A (4):**62.5%	Mdn = Agree (4) IQR = 1.5
I have been taught how to feed a patient with swallowing difficulties	**D (2):**3 **N (3):**1 **A (4):**2 **SA (5):** 2	**D (2):**37.5% **N (3):**12.5% **A (4):**25% **SA (5):** 25%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 2.25
I understand why certain diets are given to patients with swallowing difficulties	**N (3):**1 **A (4):**5 **SA (5):** 2	**N (3):**12.5% **A (4):**62.5% **SA (5):** 25%	Mdn = Agree (4) IQR = 0.25
I have had enough training in working with patients with swallowing difficulties	**D (2):**6 **SA (5):** 2	**D (2):**75% **SA (5):** 25%	Mdn = Disagree (2) IQR = 0.75
I would like to receive more training in working with patients with swallowing difficulties	**A (4):**4 **SA (5):** 4	**A (4):**50% **SA (5):** 50%	Mdn = Agree/Strongly agree (4.5) IQR = 1
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this group, only 37.5% (N=3) of participants agreed, and 25% (N=2) strongly agreed, that they know what the role of the SLT in dysphagia management is. All participants either strongly disagreed (62.5%; N=5) or disagreed (37.5%; N=3) that the SLT is not involved in treating dysphagia. Mixed responses were received regarding the statement "I do not agree with the SLT's recommendations", with 37.5% (N=3) of participants strongly disagreeing, 25% (N=2) disagreeing, 12.5% (N=1) agreeing, and 25% (N=2) of participants indicating that they neither agree nor disagree. Responses to this statement had an IQR of 2, indicating varying participant experiences. The statement "I am not familiar with the terminology used by the SLT" also received mixed responses, as well as an IQR of 2 (revealing discrepancies in experience) – 37.5% (N=3) of participants strongly disagreed with the statement, 25%

(N=2) disagreed, 12.5% (N=1) agreed, and 37.5% (N=3) of participants neither agreed nor disagreed.

Twenty-five percent (N=2) of participants strongly disagreed that they are unsure of how to give thickened liquids to a patient, while another 37.5% (N=3) of participants also disagreed. However, 25% (N=2) of participants agreed that they are not sure how to give thickened liquids to a patient. All participants either agreed (62.5%; N=5) or strongly agreed (37.5%; N=3) that they know what a soft diet is. The majority of participants either disagreed (50%; N=4) or strongly disagreed (37.5%; N=3) with the statement "I am not sure what a puree diet is". Nearly all participants agreed (62.5%; N=5) or strongly agreed (25%; N=2) that they know which patients are receiving special diets.

The majority of participants either agreed (50%; N=4) or strongly agreed (37.5%; N=3) that they know how to position a patient for feeding. However, mixed results were received regarding the statement "I am not familiar with the feeding postures that are prescribed by the SLT", with an IQR of 2.25 for responses to this statement. Twenty-five percent of participants (N=2) strongly disagreed with this statement and 12.5% (N=1) disagreed, while 37.5% (N=3) of participants agreed with the statement and 12.5% (N=1) strongly agreed. Lastly, 12.5% (N=1) of participants indicated that they neither agree nor disagree.

All participants either strongly disagreed (50%; N=4) or disagreed (50%; N=4) that swallowing difficulties are unimportant, and all participants either strongly agreed (50%; N=4) or agreed (50%; N=4) that it is important to follow feeding recommendations. Fifty percent of participants (N=4) disagreed that they are comfortable in working with patients with dysphagia, while 25% (N=2) strongly agreed that they are comfortable feeding these patients. An IQR of 2.25 for responses to this statement indicates differing participant experiences. However, 62.5% (N=5) of participants agreed with the statement "Working with patients with swallowing difficulties makes me uncomfortable".

Participants gave mixed responses to the statement "I have been taught how to feed a patient with swallowing difficulties", with 25% (N=2) of participants strongly agreeing, and 25% (N=2) agreeing, with the statement, while 37.5% (N=3) of participants disagreed with the statement, and 12.5% (N=1) indicated that they neither agreed nor disagreed. These varying responses resulted in an IQR of 2.25 for this statement. Nearly all participants agreed (62.5%; N=5) or strongly agreed (25%; N=2) that they understand why certain diets are given to patients with dysphagia. The majority of participants disagreed (75%; N=6) that they have

had enough dysphagia training, with only 25% (N=2) of participants strongly agreeing with this statement. All participants either agreed (50%; N=4) or strongly agreed (50%; N=4) that they would like to receive more dysphagia training.

4.3.2.b. Free State hospital

Table 19: Summary of the Free State hospital responses regarding knowledge and training barriers, group 6-10 years working experience (N=12)

Free State hospital: 6-10 years of working experience			
Knowledge and training			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I know what the role of the speech-language therapist is in swallowing difficulties	**SD (1):** 6 **D (2):** 3 (mean imputation used to compensate for 1 missing response) **N (3):** 1 **A (4):** 1 **SA (5)** : 1	**SD (1):** 50% **D (2):** 25% (mean imputation used to compensate for 1 missing response) **N (3):** 8.3% **A (4):** 8.3% **SA (5)** : 8.3%	Mdn = Strongly disagree (1) IQR = 1.5
The speech-language therapist is not involved in swallowing difficulties	**SD (1):** 4 **D (2):** 3 **N (3):** 2 **A (4):** 2 **SA (5):** 1	**SD (1):** 33.3% **D (2):** 25% **N (3):** 16.7% **A (4):** 16.7% **SA (5):** 8.3%	Mdn = Disagree (2) IQR = 2.25
I do not agree with the speech-language therapists' recommendations	**SD (1):** 2 **D (2):** 3 **N (3):** 3 (mean imputation used to compensate for 1 missing response) **A (4):** 2 **SA (5):** 2	**SD (1):** 16.7% **D (2):** 25% **N (3):** 25% (mean imputation used to compensate for 1 missing response) **A (4):** 16.7% **SA (5):** 16.7%	Mdn = Neither agree nor disagree (3) IQR = 2
I am not familiar with the terminology used by the speech-language therapist	**SD (1):** 1 **D (2):** 2 **N (3):** 1 **A (4):** 3 **SA (5):** 5	**SD (1):** 8.3% **D (2):** 16.7% **N (3):** 8.3% **A (4):** 25% **SA (5):** 41.7%	Mdn = Agree (4) IQR = 2.25
I am not sure how to give thickened liquids to a patient	**SD (1):** 3 **D (2):** 3 **N (3):** 1 **A (4):** 2 **SA (5):** 3	**SD (1):** 25% **D (2):** 25% **N (3):** 8.3% **A (4):** 16.7% **SA (5):** 25%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2.5
I know what a soft diet is	**A (4):** 5 **SA (5):** 7 (mean imputation used to compensate for 1 missing response)	**A (4):** 41.7% **SA (5):** 58.3% (mean imputation used to compensate for 1 missing response)	Mdn = Strongly agree (5) IQR = 1
I am not sure what a puree diet is	**SD (1):** 6 **D (2):** 4 **A (4):** 1 **SA (5):** 1	**SD (1):** 50% **D (2):** 33.3% **A (4):** 8.3% **SA (5):** 8.3%	Mdn = Strongly disagree/Disagree (1.5) IQR = 1
I know which patients	**D (2):** 2	**D (2):** 16.7%	Mdn = Agree (4)

are on special diets	**A (4):** 5 **SA (5)** : 5	**A (4):** 41.7% **SA (5):** 41.7%	IQR = 1
I know how to position a patient for feeding	**SD (1):** 1 **N (3):** 2 **A (4):** 5 **SA (5)** : 4	**SD (1):** 8.3% **N (3):** 16.7% **A (4):** 41.7% **SA (5)** : 33.3%	Mdn =Agree (4) IQR = 1.25
I am not familiar with the feeding postures that are prescribed by the speech-language therapist	**SD (1):** 1 **D (2):** 4 **N (3):** 2 **A (4):** 2 **SA (5):** 3	**SD (1):** 8.3% **D (2):** 33.3% **N (3):** 16.7% **A (4):** 16.7% **SA (5):** 25%	Mdn = Neither agree nor disagree (3) IQR = 2.25
Swallowing difficulties are not important for me or for the patient	**SD (1):** 4 **D (2):** 4 **N (3):** 2 **A (4):** 1 **SA (5):** 1	**SD (1):** 33.3% **D (2):** 33.3% **N (3):** 16.7% **A (4):** 8.3% **SA (5):** 8.3%	Mdn = Disagree (2) IQR = 2
It is important to follow feeding recommendations	**N (3):** 1 **A (4):** 6 **SA (5):** 5	**N (3):** 8.3% **A (4):** 50% **SA (5):** 41.7%	Mdn = Agree (4) IQR = 1
I am comfortable with feeding patients with swallowing difficulties	**SD (1):** 2 **D (2):** 1 **N (3):** 2 **A (4):** 2 **SA (5):** 5	**SD (1):** 16.7% **D (2):** 8.3% **N (3):** 16.7% **A (4):** 16.7% **SA (5):** 41.7%	Mdn = Agree (4) IQR = 2.25
Working with patients with swallowing difficulties makes me uncomfortable	**SD (1):** 4 **D (2):** 4 **N (3):** 1 **A (4):** 2 **SA (5):** 1	**SD (1):** 33.3% **D (2):** 33.3% **N (3):** 8.3% **A (4):** 16.7% **SA (5):** 8.3%	Mdn = Disagree (2) IQR = 2.25
I have been taught how to feed a patient with swallowing difficulties	**SD (1):** 2 **D (2):** 3 **N (3):** 1 **A (4):** 2 **SA (5):** 4	**SD (1):** 16.7% **D (2):** 25% **N (3):** 8.3% **A (4):** 16.7% **SA (5):** 33.3%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 3
I understand why certain diets are given to patients with swallowing difficulties	**D (2):** 3 **N (3):** 2 **A (4):** 3 **SA (5):** 4	**D (2):** 25% **N (3):** 16.7% **A (4):** 25% **SA (5):** 33.3%	Mdn = Agree (4) IQR = 2.25
I have had enough training in working with patients with swallowing difficulties	**SD (1):** 3 **D (2):** 5 **N (3):** 1 **A (4):** 3	**SD (1):** 25% **D (2):** 41.7% **N (3):** 8.3% **A (4):** 25%	Mdn = Disagree (2) IQR = 2.75
I would like to receive more training in working with patients with swallowing difficulties	**SD (1):** 2 **D (2):** 1 **A (4):** 5 **SA (5):** 4	**SD (1):** 16.7% **D (2):** 8.3% **A (4):** 41.7% **SA (5):** 33.3%	Mdn = Agree (4) IQR = 1.5
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this group, the majority of participants either strongly disagreed (50%; N=6) or disagreed (25%; N=3) that they know what the role of SLT in dysphagia management is. Participants

gave varying responses to the statement "The SLT is not involved in swallowing difficulties", resulting in an IQR of 2.25, which reflects the mixed responses received – with 33.3% (N=4) of participants strongly disagreeing with the statement, 25% (N=3) disagreeing, 16.7% (N=2) agreeing with the statement and 8.3% (N=1) strongly agreeing, and 16.7% (N=2) of participants neither agreeing nor disagreeing. An IQR of 2 was also received for responses to the statement "I do not agree with the SLT's recommendations", which indicates differing participant experiences. Twenty-five percent (N=3) of participants disagreed with the statement and 16.7% (N=2) strongly disagreed, while 16.7% (N=2) agreed and strongly agreed respectively. Twenty-five percent (N=3) of participants indicated that they neither agree nor disagree with this statement. In this sample, 41.7% (N=5) of participants strongly agreeing that they are not familiar with SLT terminology, and a further 25% (N=3) also agreed with the statement. However, an IQR of 2.25 for responses to this statement indicates discrepancies in participant experiences.

Mixed responses were received regarding the statement "I am not sure how to give thickened liquids to a patient", resulting in an IQR of 2.5 – 25% (N=3) of participants disagreed and strongly disagreed with the statement respectively, while 25% (N=3) strongly agreed, and a further 16.7% (N=2) of participants agreed. A final 8.3% (N=1) of participants indicated that they neither agree nor disagree. All participants either agreed (41.7%; N=5) or strongly agreed (58.3%; N=7) that they know what a soft diet is, while the majority of participants strongly disagreed (50%; N=6) or disagreed (33.3%; N=4) that they do not know what a puree diet is. Nearly all participants also agreed (41.7%; N=5) or strongly agreed (41.7%; N=5) that they know which patients are on special diets.

In this group, 41.7% (N=5) of participants agreed that they know how to position a patient for feeding, with another 33.3% (N=4) of participants strongly agreeing with the statement. However, participants gave mixed responses to the statement "I am not familiar with the feeding postures that are prescribed by the SLT" – as 33.3% (N=4) of participants disagreed with the statement, while 25% (N=3) of participants strongly agreed, and a further 16.7% (N=2) of participants agreed with the statement. An IQR of 2.25 for responses to this statement indicate differing participant experiences.

Participants also gave varying responses to the statement "Swallowing difficulties are not important for me or for the patient", as 33.3% (N=4) of participants strongly disagreed and disagreed respectively, and another 16.7% (N=2) of participants indicated that they neither

agree nor disagree. “Agree” and “Strongly agree” was indicated by 8.3% (N=1) of participants respectively. Responses to this statement resulted in an IQR of 2, revealing discrepancies in participant experiences. However, nearly all participants agreed (50%; N=6) or strongly agreed (41.7%; N=5) that it is important to follow feeding recommendations.

Participants gave mixed responses to the statement “I am comfortable with feeding patients with swallowing difficulties”, resulting in an IQR of 2.25. “Strongly agreed” was indicated by 41.7% (N=5) of participants and “agreed” by 16.7% (N=2) of participants, while 16.7% (N=2) of participants strongly disagreed with the statement. A further 16.7% (N=2) of participants indicated that they neither agree nor disagree, and a final 8.3% (N=1) disagreed with the statement. These results were corroborated by responses to the statement “Working with patients with swallowing difficulties makes me uncomfortable”, which also resulted in an IQR of 2.25, with 33.3% (N=4) of participants strongly disagreeing and disagreeing with the statement respectively. A further 16.7% (N=2) of participants agreed with the statement, with 8.3% (N=1) strongly agreeing, and another 8.3% (N=1) of participants indicating that they neither agree nor disagree.

Participants in this group gave differing responses to the statement “I have been taught how to feed a patient with swallowing difficulties”, with 33.3% (N=4) of participants strongly agreeing, and a further 16.7% (N=2) of participants agreeing with the statement. Twenty-five percent (N=3) of participants disagreed with the statement, while another 16.7% (N=2) of participants strongly disagreed. These mixed responses are reflected in an IQR of 3 for this statement. Only 25% (N=3) of participants agreed that they understand why certain diets are given to patients with dysphagia, with another 33.3% (N=4) of participants strongly agreeing. An IQR of 2.25 for this statement is a result of 25% (N=3) of participants disagreeing with the statement, and 16.7% (N=2) of participants indicating that they neither agree nor disagree. The majority of participants either disagreed (41.7%; N=5) or strongly disagreed (25%; N=3) that they have had enough dysphagia training. However, “Agree” was indicated by 25% (N=3) of participants in response to this statement, resulting in an IQR of 2.75. Lastly, the majority of participants either agreed (41.7%; N=5) or strongly agreed (33.3%; N=4) that they would like to receive more training regarding the care of patients with dysphagia.

Comparison: Knowledge and training barriers

Western Capehospital and Free State hospital

6-10 years of working experience groups

Using the Mann-Whitney U. test, a statistically significant difference between the participants from the Western Capehospital and the Free State hospital was observed regarding their knowledge of the role of the SLT in dysphagia management (p=0,0394), with the participants from the Western Capehospital being more familiar with the SLT's role in dysphagia treatment. A statistically significant difference was also observed between the participants from the Western Cape hospital and the Free State hospital regarding participants' familiarity with SLT terminology (p=0,03), with participants from the Western Cape hospital being more familiar with SLT terminology. No other statistically significant differences were observed.

4.3.3 Group: 11-15+ years of working experience

4.3.3.a. Western Cape hospital

Table 20: Summary of the Western Cape hospital responses regarding knowledge and training barriers, group 11-15+ years working experience (N=12)

Western Cape hospital: 11-15+ years of working experience			
Knowledge and training			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I know what the role of the speech-language therapist is in swallowing difficulties	**A (4):**11 **SA (5)** : 1	**A (4):** 91.7% **SA (5)** : 8.3%	Mdn = Agree (4) IQR = 0
The speech-language therapist is not involved in swallowing difficulties	**SD (1):**7 **D (2):**4 **N (3):** 1	**SD (1):**58.3% **D (2):**33.3% **N (3):** 8.3%	Mdn = Strongly disagree (1) IQR = 1
I do not agree with the speech-language therapists' recommendations	**SD (1):**6 **D (2):**3 **N (3):**1 **A (4):**1 **SA (5):** 1	**SD (1):**50% **D (2):**25% **N (3):**8.3% **A (4):**8.3% **SA (5):** 8.3%	Mdn = Strongly disagree/Disagree (1.5) IQR = 1.25
I am not familiar with the terminology used by the speech-language therapist	**SD (1):** 1 **D (2):** 4 **N (3):** 3 **A (4):**2 **SA (5):** 2	**SD (1):** 8.3% **D (2):** 33.3% **N (3):** 25% **A (4):**16.7% **SA (5):** 16.7%	Mdn = Neither agree nor disagree (3) IQR = 2
I am not sure how to give thickened liquids to a patient	**SD (1):** 1 **D (2):** 6 **N (3):** 1 **A (4):**4	**SD (1):** 8.3% **D (2):** 50% **N (3):** 8.3% **A (4):**33%	Mdn = Disagree (2) IQR = 2
I know what a soft diet is	**SD (1):** 1 **A (4):**7 **SA (5):** 4	**SD (1):** 8.3% **A (4):**58.3% **SA (5):** 33.3%	Mdn = Agree (4) IQR = 1
I am not sure what a	**SD (1):**5	**SD (1):**41.2%	Mdn = Disagree

puree diet is	**D (2):**6 **A (4):**1	**D (2):**50% **A (4):**8.3%	(2) IQR = 1
I know which patients are on special diets	**D (2):** 1 **A (4):**10 (mean imputation used to compensate for 1 missing response) **SA (5)** : 1	**D (2):** 8.3% **A (4):**83.3% (mean imputation used to compensate for 1 missing response) **SA (5):** 8.3%	Mdn = Agree (4) IQR = 0
I know how to position a patient for feeding	**A (4):**10 **SA (5)** : 2	**A (4):**83.3% **SA (5)** : 16.7%	Mdn = Agree (4) IQR = 0
I am not familiar with the feeding postures that are prescribed by the speech-language therapist	**SD (1):** 1 **D (2):**5 **N (3):**4 (mean imputation used to compensate for 1 missing response) **A (4):**1 **SA (5):1**	**SD (1):**8.3% **D (2):**41.2% **N (3):**33.3% (mean imputation used to compensate for 1 missing response) **A (4):**8.3% **SA (5):** 8.3%	Mdn = Disagree (2) IQR = 1
Swallowing difficulties are not important for me or for the patient	**SD (1):**7 **D (2):**4 **SA (5):** 1	**SD (1):**58.3% **D (2):**33.3% **SA (5):** 8.3%	Mdn = Strongly disagree (1) IQR = 1
It is important to follow feeding recommendations	**A (4):**8 **SA (5):** 4	**A (4):**66.7% **SA (5):** 33.3%	Mdn = Agree (4) IQR = 1
I am comfortable with feeding patients with swallowing difficulties	**SD (1):** 1 **D (2):**2 **A (4):**8 **SA (5):** 1	**SD (1):** 8.3% **D (2):**16.7% **A (4):**66.7% **SA (5):** 8.3%	Mdn = Agree IQR = 0.5
Working with patients with swallowing difficulties makes me uncomfortable	**SD (1):**4 **D (2):**7 **SA (5):**1	**SD (1):**33.3% **D (2):**58.3% **SA (5):**8.3%	Mdn = Disagree (2) IQR = 1
I have been taught how to feed a patient with swallowing difficulties	**SD (1):** 1 **D (2):**1 **N (3):**1 **A (4):**7 **SA (5):** 2	**SD (1):** 8.3% **D (2):**8.3% **N (3):**8.3% **A (4):**58.3% **SA (5):** 16.7%	Mdn = Agree (4) IQR = 0.25
I understand why certain diets are given to patients with swallowing difficulties	**D (2):**1 **A (4):**9 **SA (5):** 2	**D (2):**8.3% **A (4):**75% **SA (5):** 16.7%	Mdn = Agree (4) IQR = 0
I have had enough training in working with patients with swallowing difficulties	**SD (1):** 1 **D (2):**6 **N (3):** 2 (mean imputation used to compensate for 1 missing response) **A (4):** 3	**SD (1):** 8.3% **D (2):**50% **N (3):** 16.7% (mean imputation used to compensate for 1 missing response) **A (4):** 25%	Mdn = Disagree (2) IQR = 1.5
I would like to receive more training in working with patients with swallowing difficulties	**A (4):**11 **SA (5):** 1	**A (4):**91.7% **SA (5):** 8.3%	Mdn = Agree (4) IQR = 0
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

All participants in this group either agreed (91.7%; N=11) or strongly agreed (8.3%; N=1) that they know what the role of the SLT in dysphagia management is. The majority of participants also strongly disagreed (58.3%; N=7) or disagreed (33.3%; N=4) that the SLT is not involved in treating swallowing difficulties. Fifty percent (N=6) of participants strongly disagreed, and a further 25% (N=3) disagreed, with the statement "I do not agree with the SLT's recommendations." However, participants gave differing responses when given the statement "I am not familiar with the terminology used by the SLT" – with 33.3% (N=4) of participants disagreeing with the statement, 8.3% (N=1) strongly disagreeing, and 16.7% (N=2) of participants agreeing and strongly agreeing respectively. Twenty-five percent (N=3) of participants indicated that they neither agree nor disagree. Responses to this statement resulted in an IQR of 2, indicating participants' varying experiences.

Fifty percent (N=6) of participants in this sample disagreed that they are unsure of how to give thickened liquids to a patient, while 33.3% (N=4) of participants agreed with the statement. "Strongly disagree" was indicated by 8.3% (N=1) of participants, and "Neither agree nor disagree" by another 8.3% (N=1). An IQR of 2 reflects the discrepancies in participant responses. The majority of participants either agreed (58.3%; N=7) or strongly agreed (33.3%; N=4) that they know what a soft diet is. Fifty percent (N=6) of participants disagreed, and 41.2% (N=5) strongly disagreed, with the statement "I am not sure what a puree diet is". In this group, 83.3% (N=10) of participants agreed that they know which patients are on special diet.

All participants either agreed (83.3%; N=10) or strongly agreed (16.7%; N=2) that they know how to position a patient for feeding. However, only 41.2% (N=5) of participants disagreed with the statement "I am not familiar with the feeding postures that are prescribed by the SLT", with a further 8.3% (N=1) of participants strongly disagreeing. "Neither agree nor disagree" was indicated by 33.3% (N=4) of participants in response to this statement. The majority of participants either strongly disagreed (58.3%; N=7) or disagreed (33.3%; N=1) that dysphagia is unimportant in patient care, and all participants either agreed (66.7%; N=8) or strongly agreed (33.3%; N=4) that it is important to follow feeding recommendations.

The majority of participants in this group agreed (66.7%; N=8) that they are comfortable with feeding patients with dysphagia, with only 16.7% (N=2) of participants disagreeing

with the statement. This is supported by participants responses to the statement "Working with patients with swallowing difficulties makes me uncomfortable" – as 58.3% (N=7) of participants disagreed with the statement, and 33.3% (N=4) of participants strongly disagreed.

The majority of participants agreed (58.3%; N=7) or strongly agreed (16.7%; N=2) that they had been taught how to feed a patient with dysphagia. Seventy-five percent (N=9) of participants also agreed that they understand why certain diets are given to patients with dysphagia, with a further 16.7% (N=2) of participants strongly agreeing with the statement. Fifty percent (N=6) of participants disagreed that they have had enough dysphagia training, with another 8.3% (N=1) of participants strongly disagreeing. Only 25% (N=3) of participants agreed that they have had enough dysphagia training. Lastly, all participants either agreed (91.7%; N=11) or strongly agreed (8.3%; N=1) that they would like to receive more training in working with patients with dysphagia.

4.3.3.b. Free State hospital

Table 21: Summary of the Free State hospital responses regarding knowledge and training barriers, group 11-15+ years working experience (N=16)

Free State hospital: 11-15+ years of working experience			
Knowledge and training			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
I know what the role of the speech-language therapist is in swallowing difficulties	**SD (1):** 2 **D (2):** 4 **N (3):** 4 **A (4):** 4 **SA (5)** : 2	**SD (1):** 12.5% **D (2):** 25% **N (3):** 25% **A (4):** 25% **SA (5)** : 12.5%	Mdn = Neither agree nor disagree (3) IQR = 2
The speech-language therapist is not involved in swallowing difficulties	**SD (1):** 4 **D (2):** 6 **N (3):** 3 **A (4):** 2 **SA (5):** 1	**SD (1):** 25% **D (2):** 37.5% **N (3):** 18.8% **A (4):** 12.5% **SA (5):** 6.3%	Mdn = Disagree (2) IQR = 1.25
I do not agree with the speech-language therapists' recommendations	**SD (1):** 4 **D (2):** 3 **N (3):** 5 **A (4):** 3 **SA (5):** 1	**SD (1):** 25% **D (2):** 18.8% **N (3):** 31.3% **A (4):** 18.8% **SA (5):** 6.3%	Mdn = Neither agree nor disagree (3) IQR = 1.5
I am not familiar with the terminology used by the speech-language therapist	**SD (1):** 1 **D (2):** 6 **N (3):** 3 **A (4):** 6	**SD (1):** 6.3% **D (2):** 37.5% **N (3):** 18.8% **A (4):** 37.5%	Mdn = Neither agree nor disagree (3) IQR = 2
I am not sure how to give thickened liquids to a patient	**SD (1):** 3 **D (2):** 12 **A (4):** 1	**SD (1):** 18.8% **D (2):** 75% **A (4):** 6.3%	Mdn = Disagree (2) IQR = 0
I know what a soft diet	**N (3):** 1	**N (3):** 6.3%	Mdn = Agree (4)

is	**A (4):** 10 (mean imputation used to compensate for 1 missing response) **SA (5):** 5	**A (4):** 62.5% (mean imputation used to compensate for 1 missing response) **SA (5):** 31.3%	IQR = 0.5
I am not sure what a puree diet is	**SD (1):** 6 **D (2):** 8 **A (4):** 1 **SA (5):** 1	**SD (1):** 37.5% **D (2):** 50% **A (4):** 6.3% **SA (5):** 6.3%	Mdn = Disagree (2) IQR = 1
I know which patients are on special diets	**D (2):** 2 **A (4):** 8 **SA (5)** : 6	**D (2):** 12.5% **A (4):** 50% **SA (5)** : 37.5%	Mdn = Agree (4) IQR = 1
I know how to position a patient for feeding	**N (3):** 2 **A (4):** 11 **SA (5)** : 3	**N (3):** 12.5% **A (4):** 68.8% **SA (5)** : 18.8%	Mdn = Agree (4) IQR = 0
I am not familiar with the feeding postures that are prescribed by the speech-language therapist	**SD (1):** 1 **D (2):** 5 **N (3):** 1 **A (4):** 6 **SA (5):** 3	**SD (1):** 6.3% **D (2):** 31.3% **N (3):** 6.3% **A (4):** 37.5% **SA (5):** 18.8%	Mdn = Agree (4) IQR = 2
Swallowing difficulties are not important for me or for the patient	**SD (1):** 9 **D (2):** 5 **A (4):** 1 **SA (5):** 1	**SD (1):** 56.3% **D (2):** 31.3% **A (4):** 6.3% **SA (5):** 6.3%	Mdn = Strongly disagree (1) IQR = 1
It is important to follow feeding recommendations	**A (4):** 12 **SA (5):** 4	**A (4):** 75% **SA (5):** 25%	Mdn = Agree (4) IQR = 0.5
I am comfortable with feeding patients with swallowing difficulties	**SD (1):** 1 **D (2):** 2 **N (3):** 2 **A (4):** 9 **SA (5):** 2	**SD (1):** 6.3% **D (2):** 12.5% **N (3):** 12.5% **A (4):** 56.3% **SA (5):** 12.5%	Mdn = Agree (4) IQR = 1
Working with patients with swallowing difficulties makes me uncomfortable	**SD (1):** 3 **D (2):** 6 **A (4):** 7	**SD (1):** 18.8% **D (2):** 37.5% **A (4):** 43.8%	Mdn = Disagree (2) IQR = 2
I have been taught how to feed a patient with swallowing difficulties	**D (2):** 3 **N (3):** 2 **A (4):** 8 **SA (5):** 3	**D (2):** 18.8% **N (3):** 12.5% **A (4):** 50% **SA (5):** 18.8%	$\bar{X}$ = Agree (4) Mdn = Agree (4) IQR = 1
I understand why certain diets are given to patients with swallowing difficulties	**D (2):** 2 **N (3):** 1 **A (4):** 8 **SA (5):** 5	**D (2):** 12.5% **N (3):** 6.3% **A (4):** 50% **SA (5):** 31.3%	Mdn = Agree (4) IQR = 1
I have had enough training in working with patients with swallowing difficulties	**SD (1):** 2 **D (2):** 9 **A (4):** 5	**SD (1):** 12.5% **D (2):** 56.3% **A (4):** 31.3%	Mdn = Disagree (2) IQR = 0.25
I would like to receive more training in working with patients with swallowing difficulties	**A (4):** 11 **SA (5):** 5	**A (4):** 68.8% **SA (5):** 31.3%	Mdn = Agree (4) IQR = 1
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Participants in this group gave mixed responses to the statement "I know what the role of the SLT is in swallowing difficulties", with 25% (N=4) of participants disagreeing, and 12.5% (N=2) strongly disagreeing, with the statement, while 25% (N=4) of participants agreed, and another 12.5% (N=2) strongly agreed, with the statement. Twenty-five percent (N=4) of participants indicated that they neither agree nor disagree. These varying responses led to an IQR of 2 for this statement. Only 37.5% (N=6) of participants disagreed, and 25% (N=4) strongly disagreed, that the SLT is not involved in treating dysphagia. Participants also gave mixed responses to the statement "I do not agree with the SLT's recommendations", with 18.8% (N=3) of participants disagreeing and agreeing respectively, and with 25% (N=4) of participants strongly disagreeing. "Neither agree nor disagree" was indicated by 31.3% (N=5) of participants for this statement. Participants also gave differing responses to the statement "I am not familiar with the terminology used by the SLT", as 37.5% (N=6) of participants disagreed with the statement, and 6.3% (N=1) strongly disagreed; while 37.5% (N=6) of participants agreed with the statement, and 18.8% (N=3) of participants indicated that they neither agree nor disagree. An IQR of 2 for this statement reflects discrepancies in participant experiences.

The majority of participants either disagreed (75%; N=12) or strongly disagreed (18.8%; N=3) that they are unsure of how to give thickened liquids to a patient with dysphagia. Most participants in this group also either agreed (62.5%; N=10) or strongly agreed (31.3%; N=5) that they know what a soft diet is. Fifty percent (N=8) of participants disagreed with the statement "I am not sure what a puree diet is", with another 37.5% (N=6) of participants strongly disagreeing with the statement. The majority of participants either agreed (50%; N=8) or strongly agreed (37.5%; N=6) that they know which patients are receiving special diets.

Most participants in this group agreed (68.8%; N=11) or strongly agreed (18.8%; N=3) that they know how to position a patient for feeding. However, participants gave mixed responses to the statement "I am not familiar with the feeding postures that are prescribed by the SLT", with only 31.3% (N=5) of participants disagreeing with the statement, and 6.3% (N=1) strongly disagreeing. "Agree" was indicated by 37.5% (N=6) of participants, and "Strongly agree" by 18.8% (N=3) of participants. "Neither agree nor disagree" was reported by 6.3% (N=1) of participants. These varying participant experiences were reflected in an IQR of 2 for this statement.

The majority of participants strongly disagreed (56.3%; N=9) or disagreed (31.3%; N=5) that swallowing difficulties are unimportant for patient care, and all participants either agreed (75%; N=12) or strongly agreed (25%; N=4) that it is important to follow feeding recommendations. Only 56.3% (N=9) of participants agreed that they are comfortable with feeding patients with dysphagia, with another 12.5% (N=2) of participants strongly agreeing with the statement. "Disagree" was indicated by 12.5% (N=2) of participants, and "Strongly disagree" by another 6.3% (N=1) of participants, while 12.5% (N=2) of participants indicated that they neither agree nor disagree. When given the statement "Working with patients with swallowing difficulties makes me uncomfortable", "Agree" was indicated by 43.8% (N=7) of participants, with 37.5% (N=6) of participants disagreeing with the statement, and a further 18.8% (N=3) of participants strongly disagreeing.

Fifty percent (N=8) of participants agreed that they had been taught how to feed a patient with dysphagia, with another 18.8% (N=3) of participants strongly agreeing with the statement. Most participants also agreed (50%; N=8) or strongly agreed (31.3%; N=5) that they understand why patients with dysphagia receive special diets. However, only 31.3% (N=5) of participants agreed that they have had enough dysphagia training, with 56.3% (N=9) of participants disagreeing, and 12.5% (N=2) strongly disagreeing, with the statement. Finally, all participants either agreed (68.8%; N=11) or strongly agreed (31.3%; N=5) that they would like to receive more dysphagia training.

Comparison: Knowledge and training barriers

Western Capehospital and Free State hospital

11-15+ years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed in the responses between the groups from the Western Cape hospital and the Free State hospital.

Working experience-group comparisons: Knowledge and training barriers

Western Cape hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding perceived knowledge and training barriers. It can therefore be assumed that the Western Cape hospital sample as a whole is homogenous regarding their perceived barriers to dysphagia care. The most prominent perceived barriers for this group were reported to be insufficient dysphagia training, poor familiarity with feeding postures prescribed by the SLT, and poor familiarity with the terminology used by the SLT.

Working experience-group comparisons: Knowledge and training barriers

Free State Hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding perceived knowledge and training barriers. The whole Free State hospital group is thus homogenous in their experience of knowledge and training barriers. The most prominent perceived barriers reported by this group were being unfamiliar with the SLT and the role of the SLT in dysphagia care, not agreeing with the SLT's recommendations, not being familiar with SLT terminology, and insufficient dysphagia training.

In summary, personal system barriers observed across all groups in this study included unfamiliarity with the role of the SLT in dysphagia care, poor familiarity with the terminology used by the SLT, unfamiliarity with feeding postures, disagreement with SLT recommendations, and insufficient training in dysphagia care.

4.4. Sub-aim: Participants' information preferences

4.4.1 Group: 0-5 years of working experience

4.4.1.a. Western Cape hospital

Table 22: Summary of the Western Cape hospital responses regarding information preferences, group 0-5 years working experience (N=23)

Western Cape hospital: 0-5 years of working experience			
Information preferences			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
When being trained, I prefer written information	**SD (1):** 1 **A (4):**18 **SA (5):**4	**SD (1):** 4,3% **A (4):**78,3% **SA (5):**17,4%	Mdn =Agree (4) IQR = 0
When being trained, I prefer verbal information	**D (2):** 2 **N (3):** 2 **A (4):** 17 **SA (5):** 2	**D (2):** 8,7% **N (3):** 8,7% **A (4):** 73,9% **SA (5):** 8,7%	Mdn = Agree (4) IQR = 0
When being trained, I prefer written and verbal information together	**SD (1):** 1 **N (3):** 1 **A (4):** 17 **SA (5):** 4	**SD (1):** 4,3% **N (3):** 4,3% **A (4):** 73,9% **SA (5):** 17,4%	Mdn = Agree (4) IQR = 0
When being trained, I prefer using a computer	**D (2):** 9 **N (3):** 6 **A (4):**6 **SA (5):**2	**D (2):** 39,1% **N (3):** 26,1% **A (4):**26,1% **SA (5):**8,7%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I prefer a Powerpoint presentation	**D (2):** 9 **N (3):** 5 **A (4):** 8 **SA (5):** 1	**D (2):** 39,1% **N (3):** 21,7% **A (4):** 34,8% **SA (5):** 4,3%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I prefer face-to-face contact	**N (3):** 1 **A (4):**19 **SA (5):**3	**N (3):** 4,3% **A (4):**82,6% **SA (5):**13%	Mdn = Agree (4) IQR = 0
When being trained, I prefer role-play and examples	**D (2):** 4 **N (3):** 2 **A (4):** 13 **SA (5):** 4	**D (2):** 17,4% **N (3):** 8,7% **A (4):** 56,5% **SA (5):** 17,4%	Mdn = Agree (4) IQR = 0.75
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

The majority of participants in this group agreed (78.3%; N=18) that they prefer to receive written information when being trained. Most participants in this group also agreed (73.9%; N=17) that they like receiving verbal information during training. A combination of written and verbal information was also observed to be popular, as 73.9% (N=17) of participants agreed (and a further 17.4% (N=4) strongly agreed) that they prefer to receive both written and verbal information simultaneously when receiving training.

Participants gave mixed responses to the statement "When being trained, I prefer using a computer", with 39.1% (N=9) of participants disagreeing with the statement, 26.1% (N=6) agreeing, 8.7% (N=2) strongly agreeing, and 26.1% (N=6) indicating that they neither agree nor disagree. An IQR of 2 for this statement reflects participants' varying preferences. When given the statement "When being trained, I prefer a Powerpoint presentation", participants also gave differing responses – with 39.1% (N=9) of participants disagreeing with the statement, 34.8% (N=8) agreeing, 4.3% (N=1) strongly agreeing, and 21.7% (N=5) of participants neither agreeing nor disagreeing. This statement also had an IQR of 2, revealing discrepancies in participant preferences.

The majority of participants agreed (82.6%; N=19) or strongly agreed (13%; N=3) that they prefer face-to-face contact during training, while 56.5% (N=13) of participants agreed, and 17.4% (N=4) strongly agreed, that they prefer role-play and examples when being trained.

4.4.1.b. Free State hospital

Table 23: Summary of the Free State hospital responses regarding information preferences, group 0-5 years working experience (N=10)

Free State hospital: 0-5 years of working experience			
Information preferences			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
When being trained, I prefer written information	**SD (1):** 2 **N (3):**2 **SA (5):**6	**SD (1):** 20% **N (3):**20% **SA (5):**60%	Mdn =Strongly agree (5) IQR = 2
When being trained, I prefer verbal information	**SD (1):** 2 **D (2):** 1 **N (3):** 3 **A (4):** 3 **SA (5):** 1	**SD (1):** 20% **D (2):** 10% **N (3):** 30% **A (4):** 30% **SA (5):** 10%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I prefer written and verbal information together	**SD (1):** 2 **N (3):** 1 **A (4):** 4 **SA (5):** 3	**SD (1):** 20% **N (3):** 10% **A (4):** 40% **SA (5):** 30%	Mdn = Agree (4) IQR = 2
When being trained, I prefer using a computer	**SD (1):** 1 **D (2):** 2 **N (3):** 4 **A (4):** 2 **SA (5):** 1	**SD (1):** 10% **D (2):** 20% **N (3):** 40% **A (4):** 20% **SA (5):** 10%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I prefer a Powerpoint presentation	**SD (1):** 2 **D (2):** 3 **N (3):** 1 **A (4):** 3 **SA (5):** 1	**SD (1):** 20% **D (2):** 30% **N (3):** 10% **A (4):** 30% **SA (5):** 10%	Mdn = Disagree (2) IQR = 2
When being trained, I	**D (2):** 1	**D (2):** 10%	Mdn = Agree (4)

prefer face-to-face contact	**N (3):** 1 **A (4):** 5 **SA (5):** 3	**N (3):** 10% **A (4):** 50% **SA (5):** 30%	IQR = 1.25
When being trained, I prefer role-play and examples	**SD (1):** 3 **A (4):** 3 **SA (5):** 4	**SD (1):** 30% **A (4):** 30% **SA (5):** 40%	Mdn = Agree (4) IQR = 3.25
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

Sixty percent (N=6) of participants strongly agreed that they prefer written information when being trained – however, an IQR of 2 for this statement reveals that participants have varying preferences, as 20% (N=2) of participants strongly disagreed with the statement, and another 20% (N=2) indicated that they neither agree nor disagree. Participants gave mixed responses to the statement "When being trained, I prefer verbal information", with 20% (N=2) of participants strongly disagreeing with the statement, 10% (N=1) disagreeing; and 30% (N=3) of participants agreeing with the statement, and another 10% (N=1) strongly agreeing. "Neither agree nor disagree" was indicated by 30% (N=3) of participants. These mixed responses resulted in an IQR of 2 for this statement, reflecting varying participant preferences. The majority of participants agreed (40%; N=4) or strongly agreed (30%; N=3) that they prefer a combination of written and verbal information during training. However, an IQR of 2 for this statement indicates discrepancies in participant preferences, as 20% (N=2) of participants strongly disagreed with the statement, and 10% (N=1) indicated that they neither agree nor disagree.

The statement "When being trained, I prefer using a computer" received an IQR of 2, revealing differing participant preferences – with 10% (N=1) of participants strongly disagreeing with the statement, 20% (N=2) disagreeing, 20% (N=2) of participants agreeing with the statement, 10% (N=1) strongly agreeing, and 40% (N=4) of participants indicating that they neither agree nor disagree. When given the statement "When being trained, I prefer a Powerpoint presentation", 20% (N=2) of participants strongly disagreed with the statement, and 30% (N=3) disagreed; while 30% (N=3) of participants agreed with the statement, and a further 10% (N=1) strongly agreed. "Neither agree nor disagree" was indicated by 10% (N=1) of participants. These varying responses resulted in an IQR of 2 for this statement, reflecting participants' various preferences.

The majority of participants agreed (50%; N=5) or strongly agreed (30%; N=3) that they prefer to have face-to-face contact during training; and 40% (N=4) of participants strongly agreed, and a further 30% (N=3) agreed, that they prefer role-play and examples as an aid to learning. However, 30% (N=3) of participants strongly disagreed with the statement, resulting in an IQR of 3.25, which indicates discrepancies in participants' information preferences.

Comparison: Information preferences

Western Capehospital and Free State hospital

0-5 years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the participants from the Western Cape hospital and the Free State hospital regarding their information preferences.

4.4.2 Group: 6-10 years of working experience

4.4.2.a. Western Cape hospital

Table 24: Summary of the Western Cape hospital responses regarding information preferences, group 6-10 years working experience (N=8)

Western Cape hospital: 6-10 years of working experience			
Information preferences			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
When being trained, I prefer written information	**N (3):** 1 **A (4):**3 **SA (5):**4	**N (3):** 12,5% **A (4):**37,5% **SA (5):**50%	Mdn =Agree/Strongly Agree (4.5) IQR = 0
When being trained, I prefer verbal information	**D (2):** 1 **N (3):** 1 **A (4):** 3 **SA (5):** 3	**D (2):** 12,5% **N (3):** 12,5% **A (4):** 37,5% **SA (5):** 37,5%	Mdn = Agree (4) IQR = 1.25
When being trained, I prefer written and verbal information together	**N (3):** 1 **A (4):** 4 **SA (5):** 3	**N (3):** 12,5% **A (4):** 50% **SA (5):** 37,5%	Mdn = Agree (4) IQR = 1
When being trained, I prefer using a computer	**SD (1):** 3 **D (2):** 3 **N (3):** 2	**SD (1):** 37,5% **D (2):** 37,5% **N (3):** 25%	Mdn = Disagree (2) IQR = 1.25
When being trained, I prefer a Powerpoint presentation	**D (2):** 1 **N (3):** 1 **A (4):** 4 **SA (5):** 2	**D (2):** 12,5% **N (3):** 12,5% **A (4):** 50% **SA (5):** 25%	Mdn = Agree (4) IQR = 0.5
When being trained, I prefer face-to-face	**N (3):** 1 **A (4):**3	**N (3):** 12,5% **A (4):**37,5%	Mdn = Agree/Strongly

contact	**SA (5):**4	**SA (5):**50%	agree (4.5) IQR = 1
When being trained, I prefer role-play and examples	**N (3):** 1 **A (4):** 5 **SA (5):** 2	**N (3):** 12,5% **A (4):** 62,5% **SA (5):** 25%	Mdn = Agree (4) IQR = 0.25
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

In this group, the majority of participants strongly agreed (50%; N=4) or agreed (37.5%: N=3) that they prefer to receive written information during training. Most participants also agreed or strongly agreed (37.5%; N=3 respectively) that they prefer receiving verbal information when being trained. Participants indicated a preference for a combination of written and verbal information, with 50% (N=4) of participants agreeing with this preference, and a further 37.5% (N=3) strongly agreeing.

Participants strongly disagreed or disagreed (37.5%; N=3 respectively) with the statement "When being trained, I prefer using a computer", with 25% (N=2) of participants indicating that they neither agree nor disagree. Most participants agreed (50%; N=4) or strongly agreed (25%; N=2) that they prefer Powerpoint presentations as part of training.

Fifty percent (N=4) of participants strongly agreed that they prefer face-to-face contact during draining, with another 37.5% (N=3) of participants also agreeing with the statement. The majority of participants agreed (62.5%; N=5) or strongly agreed (25%; N=2) that they prefer role-play and examples as part of training.

4.4.2.b. Free State hospital

Table 25: Summary of the Free State hospital responses regarding information preferences, group 6-10 years working experience (N=12)

Free State hospital: 6-10 years of working experience			
Information preferences			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
When being trained, I prefer written information	**SD (1):** 1 **D (2):** 1 **A (4):** 7 **SA (5):**3	**SD (1):** 8,3% **D (2):** 8,3% **A (4):** 58,3% **SA (5):**25%	Mdn = Agree (4) IQR = 0.25
When being trained, I prefer verbal information	**SD (1):** 1 **D (2):** 2 **N (3):** 1 **A (4):** 3 **SA (5):** 5	**SD (1):** 8,3% **D (2):** 16,7% **N (3):** 8,3% **A (4):** 25% **SA (5):** 41,7%	Mdn = Agree (4) IQR = 2.25
When being trained, I	**SD (1):** 1	**SD (1):** 8,3%	Mdn = Agree (4)

prefer written and verbal information together	**D (2):** 2 **A (4):** 5 **SA (5):** 4	**D (2):** 16,7% **A (4):** 41,7% **SA (5):** 33,3%	IQR = 1.5
When being trained, I prefer using a computer	**SD (1):** 3 **D (2):** 2 **N (3):** 1 **A (4):** 4 **SA (5):** 2	**SD (1):** 25% **D (2):** 16,7% **N (3):** 8,3% **A (4):** 33,3% **SA (5):** 16,7%	Mdn = Neither agree nor disagree/Agree (3.5) IQR = 2.25
When being trained, I prefer a Powerpoint presentation	**SD (1):** 2 **D (2):** 3 **N (3):** 2 **A (4):** 5	**SD (1):** 16,7% **D (2):** 25% **N (3):** 16,7% **A (4):** 41,7%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I prefer face-to-face contact	**SD (1):** 1 **D (2):** 2 **A (4):** 5 **SA (5):** 4	**SD (1):** 8,3% **D (2):** 16,7% **A (4):** 41,7% **SA (5):** 33,3%	Mdn = Agree (4) IQR = 1.5
When being trained, I prefer role-play and examples	**SD (1):** 1 **D (2):** 2 **A (4):** 6 **SA (5):** 3	**SD (1):** 8,3% **D (2):** 16,7% **A (4):** 50% **SA (5):** 25%	Mdn = Agree (4) IQR = 0.75
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

The majority of participants in this sample agreed (58.3%; N=7) or strongly agreed (25%; N=3) that they prefer written information when being trained. When given the statement "When being trained, I prefer verbal information", 41.7% (N=5) of participants strongly agreed, and 25% (N=3) agreed, with the statement. However, 16.7% (N=2) of participants disagreed, 8.3% (N=1) strongly disagreed, and 8.3% (N=1) neither agreed nor disagreed. An IQR of 2.25 for this statement reveals varying participant preferences. However, the majority of participants agreed (41.7%; N=5) or strongly agreed (33.3%; N=4) that they prefer to receive written and verbal information simultaneously during training.

Participants also gave mixed responses to the statement "When being trained, I prefer using a computer", as 25% (N=3) of participants strongly disagreed, 16.7% (N=2) disagreed; 8.3% (N=1) neither agreed nor disagreed, 33.3% (N=4) agreed, and 16.7% (N=2) of participants strongly agreed with the statement. These discrepancies in participant preferences resulted in an IQR of 2.25 for this statement. "Agree" was indicated by 41.7% (N=5) of participants when given the statement "When being trained, I prefer a Powerpoint presentation". However, 25% (N=3) of participants disagreed with the statement, and 16.7% (N=2) of participants strongly disagreed. "Neither agree nor

disagree" was indicated by 16.7% (N=2) of participants. An IQR of 2 for this statement reflects differing participant preferences.

Most participants in this group agreed (41.7%; N=5) or strongly agreed (33.3%; N=4) that they prefer face-to-face contact when being trained, and the majority of participants also agreed (50%; N=6) or strongly agreed (25%; N=3) that they prefer role-play and examples during training.

Comparison: Information preferences

Western Cape hospital and Free State hospital

6-10 years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the participants from the Western Cape hospital and the Free State hospital regarding their information preferences.

4.4.3 Group: 11-15+ years of working experience

4.4.3.a. Western Cape hospital

Table 26: Summary of the Western Cape hospital responses regarding information preferences, group 11-15+ years working experience (N=12)

Western Cape hospital: 11-15+ years of working experience			
Information preferences			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
When being trained, I prefer written information	**A (4):**11 **SA (5):**1	**A (4):**91,7% **SA (5):**8,3%	Mdn =Agree (4) IQR = 0
When being trained, I prefer verbal information	**D (2):**3 **A (4):**7 **SA (5):** 2	**D (2):** 25% **A (4):** 58,3% **SA (5):** 16,7%	Mdn = Agree (4) IQR = 0.5
When being trained, I prefer written and verbal information together	**A (4):**10 **SA (5):** 2	**A (4):** 83,3% **SA (5):** 16,7%	Mdn = Agree (4) IQR = 1
When being trained, I prefer using a computer	**SD (1):** 1 D (2): 8 **N (3):**1 **A (4):**2	**SD (1):** 8,3% D (2): 66,7% **N (3):** 8,3% **A (4):** 16,7%	Mdn = Disagree (2) IQR = 0.25
When being trained, I prefer a Powerpoint presentation	**D (2):**5 **N (3):**1 **A (4):**5 **SA (5):** 1	**D (2):** 41,7% **N (3):** 8,3% **A (4):** 41,7% **SA (5):** 8,3%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I	**N (3):** 1	**N (3):** 8,3%	Mdn = Agree (4)

prefer face-to-face contact	**A (4):**9 **SA (5):**2	**A (4):**75% **SA (5):**16,7%	IQR = 0
When being trained, I prefer role-play and examples	**D (2):** 2 **N (3):**1 **A (4):**7 **SA (5):** 2	**D (2):** 16,7% **N (3):** 8,3% **A (4):** 58,3% **SA (5):** 16,7%	Mdn = Agree (4) IQR = 0.5
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

All participants in this group either agreed (91.7%; N=11) or strongly agreed (8.3%; N=1) that they prefer written information during training. Most participants agreed (58.3%; N=7) or strongly agreed (16.7%; N=2) that they like to receive verbal information as part of training. All participants either agreed (83.3%; N=10) or strongly agreed (16.7%; N=2) that they prefer to receive written and verbal information simultaneously when being trained.

The majority of participants disagreed (66.7%; N=8) with the statement "When being trained, I prefer using a computer", with a further 8.3% (N=1) strongly disagreeing. Participants gave varying responses to the statement "When being trained, I prefer a Powerpoint presentation", as 41.7% (N=5) of participants agreed and disagreed with the statement respectively. "Strongly agree" was indicated by 8.3% (N=1) of participants, as well as "Neither agree nor disagree" (8.3% (N=1) of participants). These differences in preference resulted in an IQR of 2 for this statement.

The majority of participants agreed (75%; N=9) or strongly agreed (16.7%; N=2) that they prefer face-to-face contact during training. "Agree" was indicated by 58.3% (N=7) of participants when given the statement "When being trained, I prefer role-play and examples", with another 16.7% (N=2) of participants strongly agreeing with the statement.

4.4.3.b. Free State hospital

Table 27: Summary of the Free State hospital responses regarding information preferences, group 11-15+ years working experience (N=16)

Free State hospital: 11-15+ years of working experience			
Information preferences			
Statement	**Total responses**		
	Frequency (N)	Percentages	Median, IQR
When being trained, I prefer written information	**D (2):** 1 **A (4):** 12 **SA (5):**3	**D (2):** 6,3% **A (4):** 75% **SA (5):**18,8%	Mdn = Agree (4) IQR = 0
When being trained, I	**D (2):** 2	**D (2):** 12,5%	Mdn = Agree (4)

prefer verbal information	**A (4):** 10 **SA (5):**4	**A (4):** 62,5% **SA (5):**25%	IQR = 0.25
When being trained, I prefer written and verbal information together	**D (2):** 1 **A (4):** 11 **SA (5):**4	**D (2):** 6,3% **A (4):** 68,8% **SA (5):**25%	Mdn = Agree (4) IQR = 0.25
When being trained, I prefer using a computer	**D (2):** 7 **N (3):** 3 **A (4):** 5 **SA (5):**1	**D (2):** 43,8% **N (3):** 18,8% **A (4):** 31,3% **SA (5):**6,3%	Mdn = Disagree/Neither agree nor disagree (2.5) IQR = 2
When being trained, I prefer a Powerpoint presentation	**D (2):** 5 **N (3):** 4 **A (4):** 7	**D (2):** 31,3% **N (3):** 25% **A (4):**43,8%	Mdn = Neither agree nor disagree (3) IQR = 2
When being trained, I prefer face-to-face contact	**D (2):** 1 **A (4):** 12 **SA (5):**3	**D (2):** 6,3% **A (4):** 75% **SA (5):**18,8%	Mdn = Agree (4) IQR = 0
When being trained, I prefer role-play and examples	**D (2):** 2 **A (4):** 11 **SA (5):**3	**D (2):** 12,5% **A (4):** 68,8% **SA (5):**18,8%	Mdn = Agree (4) IQR = 0
LEGEND: SD (1): Strongly disagree, D (2): Disagree, N (3): Neither agree nor disagree, A (4): Agree, SA (5): Strongly agree			

The majority of participants agreed (75%; N=12) or strongly agreed (18.8%; N=3) that they prefer receiving written information as part of training, while most participants also agreed (62.5%; N=10) or strongly agreed (25%; N=4) that they prefer verbal information during training. Participants indicated a preference for receiving written and verbal information simultaneously, as 68.8% (N=11) of participants agreed with the statement, and 25% (N=4) of participants strongly agreed.

Participants gave mixed responses to the statement "When being trained, I prefer using a computer", as 31.3% (N=5) of participants agreed with the statement (and 6.3%, N=1, strongly agreed), while 43.8% (N=7) of participants disagreed with the statement. "Neither agree nor disagree" was indicated by 18.8% (N=3) of participants. These discrepancies in preferences resulted in an IQR of 2 for this statement. The statement "When being trained, I prefer a Powerpoint presentation" also had an IQR of 2, indicating differing participant preferences – as 43.8% (N=7) of participants agreed with the statement, while 31.3% (N=5) of participants disagreed, and 25% (N=4) neither agreed nor disagreed.

The majority of participants agreed (75%; N=12) or strongly agreed (18.8%; N=3) that they prefer face-to-face contact during training, and most participants also agreed

(68.8%; N=11) or strongly agreed (18.8%; N=3) that they prefer role-play and examples as part of training.

Comparison: Information preferences

Western Capehospital and Free State hospital

11-15+ years of working experience groups

Using the Mann-Whitney U. test, no statistically significant differences were observed between the participants from the Western Cape hospital and the Free State hospital regarding their information preferences.

Working experience-group comparisons: Information preferences

Western Cape hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding their information delivery preferences. The Western Cape hospital sample is thus homogenous in this regard. An overall preference for written and verbal information (and a combination thereof) was observed, as well as a preference for face-to-face contact and practical examples.

Working experience-group comparisons: Information preferences

Free State hospital

Using the Kruskall-Wallis H. test, no statistically significant differences between the groups of 0-5, 6-10, and 11-15+ years of working experience regarding their information delivery preferences. An overall preference for written and verbal information (and a combination thereof) was observed, as well as a preference for face-to-face contact and practical examples.

In summary, participants across all groups in this study indicated a preference for both written and verbal information, as well as a combination thereof. Participants also demonstrated a preference for face-to-face contact during training sessions, as well as practical examples and demonstrations.

4.5. Sub-aim: Participants' perceptions of barriers to dysphagia care

4.5.1 Western Cape hospital

As there were no statistically significant differences between the subgroups of the Western Cape hospital sample, all of the results for the qualitative section of the questionnaire will be discussed as a whole. Some facilitators to the care of patients with dysphagia also emerged during the interviews, and will be discussed below.

4.5.1.a. Working environment-related barriers and facilitators

Participants were asked to describe their work environment and how it affects their care of patients with dysphagia. Themes that emerged from discussions with this group include "Lack of time", "Workload", "Staff shortage", "Skills and knowledge", as well as concerns with the "System" in which treatment takes place.

1) Lack of time: Participants cited a lack of time as one of the main barriers they experience when treating patients with dysphagia – resulting in difficulties such as patients not finishing meals. As described by one participant:

> "*You must stand over someone. I was long by a patient who has a CVA and difficulties swallowing. You must observe if there is aspiration and all that stuff. So it takes time. Sometimes we don't have that time. That's why sometimes you only give one thing and not the whole plate. And if a patient starts coughing you just leave it, 'cause you're scared of the aspiration."* (p26)

2) Shortage of staff: This theme was often mentioned during the interviews conducted with the participants. For example:

> "*We have a staff shortage at times, then we struggle.*" (p5)

Participants also associated shortage of staff with lack of time, as a staff shortage leads to higher workload per individual nurse, which in turn contributes to less time available to spend on each patient. As stated by a participant:

> "*Because of a shortage of staff, we don't have enough time.*" (p46)

Not only was the amount of nursing staff reported to be insufficient, but comment was also made regarding the limited presence of the SLT:

> *"At the moment we only have one speech and she will come and show us how to feed."* (p30)

3) Workload: High patient loads were another prominent theme that emerged from the participant interviews. This was often mentioned alongside "Lack of time". Two participants described their situation as such:

> *"Look here, we are very busy. We have a lot of patients with dysphagia who can't swallow, CVA's and so on. This place is extremely busy. We don't always have time."* (p37)

> *"It takes time to feed patients with dysphagia, especially when the ward is full."* (p4)

4) Skills and knowledge: Different opinions emerged under this theme. Concerns were raised regarding the lack of knowledge among nurses, such as:

> *"Sometimes the nurses don't observe. They just give and they [the patients] are coughing and coughing and the patient aspirates."* (p26)

However, positive changes were reported after nurses in the dedicated stroke unit received input from the "stroke team" – referring to the entire multidisciplinary team, including medical doctors, nurses, and allied health professionals. According to one participant:

> *"This is the stroke section, so you have a lot of people with dysphagia. Since the stroke team is here we approach it this way* [following SLT recommendations]. *Before that it was just 'put the tube in and go'."*(p31)

5) System: The involvement of other healthcare professionals and the effect it has on managing patients with dysphagia was commented on by some participants:

"It does affect it [management of patients] *somehow. There are a lot of referrals, then we have to wait for others, which means the patient won't eat in time."* (p6)

4.5.1.b. Patient-related barriers and facilitators

"Challenging patients" and "Communication difficulties" were the only two negative themes reported by participants regarding patients with dysphagia. During discussions, participants spontaneously mentioned a more positive theme, namely "Sympathy".

1) Challenging patients: Perceptions of patients as challenging was a barrier to care that was mentioned by some participants. For example:

> *"They have special needs, so that makes it more difficult."* (p30)

More specifically, one participant commented on difficulties with tube feeding:

> *"They* [doctors] *prescribe a nasogastric tube and then they* [patients] *pull it out."* (p26)

2) Communication difficulties: As dysphagia is commonly caused by neurological injury, co-morbid communication difficulties frequently occur. Impaired speech, language and comprehension was an important barrier reported by participants. As stated by one participant:

> *"It's a challenge for them* [patients] *to understand you."* (p31)

> *"Naturally you feel sorry for the patient, because the patient used to speak. Now suddenly the patient can't speak, the patient can't swallow."* (p37)

3) Sympathy: Feeling sympathy towards patients with dysphagia was a major theme that emerged from participant interviews. However, this was not seen as a barrier to care, but rather a facilitator, as many participants indicated an increased effort to take care of these patients. Statements were made such as:

> *"I take my time, try to reassure him or her: 'We'll get through this'."* (p5)

> *"I feel sorry for them, especially if they have a nasogastric tube. What makes it worse is they are in the same room as the people receiving normal food. It affects their mind."* (p6)

> *"Automatically you need to encourage that patient. You need to nurse the patient in such a nice environment that he doesn't even realise that they problem is there."* (p37).

4.5.1.c. Knowledge and training barriers and facilitators

Regarding interaction with the SLT and knowledge of the SLT's recommendations, no barriers were brought up by participants. Instead, the following positive themes emerged during discussions: "SLT recommendations as helpful", and "Working in a multidisciplinary

setting". However, with regards to training, lack of formal training was a prominent barrier to care. Themes such as "Dysphagia as part of CVA management", "In-service training", and "Interprofessional training" were discussed during the interviews with participants.

1) SLT recommendations as helpful: Participants expressed finding the recommendations made by the SLT helpful in facilitating their care of patients with dysphagia, stating that it makes management of such patients "easier" (p6). One participant expressed their views as such:

> *"It helps us a lot, just knowing that there is someone who looks after those types of patients."* (p37)

2) Working in a multidisciplinary setting: Some participants commented on their efforts to follow SLT recommendations in the spirit of cooperation between professions. As stated by one participant:

> *"We work as a multidisciplinary team – we help one another."* (p5)

3) Dysphagia as part of CVA management: Many participants stated that they had not received in-depth training or information on managing dysphagia as an individual problem, but rather as an aspect of CVA care. Statements were made such as:

> *"While studying, yes, we only do the CVA patients and the conditions."* (p26)

> *"[As an undergraduate] you must know how to feed, the position, things like that."* (p46)

4) In-service training: Due to the lack of formal training, many participants reported learning important dysphagia management techniques from other, more experienced nurses while working. Participants made comments such as:

> *"We didn't get training on tube feeding or anything like that. We had to teach ourselves when we started working."* (p30)

> *"We didn't get training about it* [dysphagia], *but according to our years of knowledge and things, we figured it out among ourselves and helped each other."* (p37)

5) Interprofessional training: Participants also discussed the role that the SLT has played in the expansion of their knowledge and skills, as training workshops have been offered to some

of the participants by SLTs. Informal learning, such as discussing feeding management at bedside, was also mentioned as a learning method. As motivated by some participants:

> *"They* [the SLTs*] started training us. They are in the stroke room daily and assist us and show us 'You must do it like this', and the thickener – how they must drink it, to feed it on the strong side, things like that."* (p31)

> *"The SLT comes, we can ask questions, they help us, show us how to do something. Or how to do things in an easier way."* (p45)

4.5.2. Free State Hospital

In this section, barriers and facilitators will be discussed as a whole, as there were no statistically significant differences between the responses of the various subgroups in this sample. As previously stated, all of the responses from Free State Hospital to the qualitative section of the questionnaire was written down by the participants, instead of a personal interview being conducted. This change in approach was due to resistance from participants to be interviewed, stating they would rather fill the qualitative section in by themselves when they had time available to do so.

4.5.2.a. Working environment-related barriers

When asked how their work environment affects their care of patients with dysphagia, participants responded with themes such as "Lack of time", "Workload", and "Staff shortage". All of these themes were often mentioned together, as they influence each other greatly. For example:

> *"I work in ICU, we are short staffed* [Staff shortage]. *It influences how much time they can spend feeding a patient."*[Lack of time] (p58)

> "*Sometimes it is difficult due to staff shortage* [Staff shortage]. *There is not enough time"* [Lack of time] (p80)

> *"The ratio is no longer 1:1. The ICU is very busy* [Workload]. *There is a staff shortage."* [Staff shortage] (p53)

> *"It is difficult cause sometimes you nurse two-three patients* [Workload] *and those patients takes time to feed."* [Lack of time] (p47)

4.6.2.b. Patient-related barriers and facilitators

Participants wrote responses that involved the themes "Challenging patients" "Familiarity", and "Sympathy".

1) Challenging patients: Some participants reported perceiving patients with dysphagia as challenging, due to the effect it has on their workload. An example of such a statement:

> *"They consume time."* (p47)

2) Familiarity: Participants commented on feeling comfortable and confident when working with patients with dysphagia, with responses such as:

> *"When you used to working with them you feel familiar."* (p80)

3) Sympathy: A facilitator to care was observed to be empathetic feelings towards patients with dysphagia. This was often reported alongside increased effort to show kindness towards such patients. Statements were made such as:

> *"They need care and need to be made comfortable."* (p53)

> *"I feel sorry for them and do measures."* (p74)

4.5.2.c. Knowledge and training barriers and facilitators

Several barriers to care regarding knowledge of the SLT's recommendations emerged from the responses in this section. Themes such as "Unfamiliarity", "Discomfort", and "Impractical" were mentioned, as well as a positive theme "SLT recommendations as helpful". Themes emerging from questions regarding dysphagia training included "No formal training", "Interprofessional training", and "Self-enrichment".

1) Unfamiliarity: Not being aware of the SLT's role in managing dysphagia was observed to be a barrier to care for this group. As one participant wrote down:

> *"I don't know the speech therapist care and treatment."* (p74)

2) Discomfort: When asked how they feel about the SLT's recommendations, several participants responded with "*Uncomfortable*" (p79; p80), although the reasons for this discomfort was not stated.

3) Impractical: It was observed that SLT recommendations cannot always easily be implemented, with one participant stating:

> *"Some cannot be done due to time limits."* (p53)

4) SLT recommendations as helpful: Several participants commented on finding the SLT's involvement helpful, with statements such as:

> *"It makes our work much easier."* (p47)

5) No formal training: Participants commented on their lack of formal training in the management of patients with dysphagia, with statements being written down such as:

> *"No training at all."* (p47)

> *"I have not received training."* (p53)

6) Interprofessional training: Comments were made regarding the SLT's role in the participants' expansion of knowledge and skills. One participant wrote:

> *"I listened to the speech therapist when they explained what to do years ago."* (p58)

7) Self-enrichment: One participant reported learning necessary skills regarding dysphagia on her own time, stating:

> *"I also read on the Internet."* (p58)

4.6. Summary of results

As can be seen from the results of this study, the nursing populations in two different academic hospitals generally experience the same barriers to care for patients with dysphagia – with the most prominent of these working environment-related barriers being lack of time, staff shortages, and overwhelming workload, and the most prominent patient-related barriers being perceptions of difficulty, uncooperative patients, and patients who dislike their modified diets. The most prominent knowledge and training-related barriers were unfamiliarity with the SLT's role in dysphagia, terminology, and positioning recommendations, as well as lack of training. The qualitative data obtained in this study supports the study's quantitative findings and highlights the similar experiences shared by nurses in South African public hospitals.

CHAPTER 5: Discussion

The goal of this study was to determine the perceived barriers to care that nurses face when treating patients with dysphagia –specifically, barriers related to the working environment, patients, and dysphagia-related knowledge and training. King's Conceptual Systems theory (1971), as cited in Gunther (2013) was used to interpret findings. Nurses' information preferences were also examined. A mixed-methods approach was followed, whereby both qualitative and quantitative methods of data collection and analysis were utilised. This allowed for the collection of responses that were simple to measure and interpret, while also giving participants the opportunity to expand on their responses, and thereby including other relevant information in the study. Based on the explanatory sequential design that was followed, qualitative and quantitative results will be discussed together, as the qualitative findings corroborate the qualitative findings.

As similar barriers were found at both the Western Cape and the Free State hospital, it can be inferred that these barriers are related to the South African public healthcare system, and are not hospital-specific. The results from the two hospitals will therefore be discussed as a whole. No differences regarding perceived barriers were observed between the groups with 0-5 years, 6-10 years, and 11-15+ years of working experience. It can be assumed that, regardless of years of working experience, the majority of nurses in South Africa experience the same barriers to dysphagia care. These shared experiences could be due to similar working environments, as well as similar exposure to dysphagia care on an undergraduate level. The results from these various sub-groups will also be discussed as a whole.

Intervention to address the barriers discovered in this study would likely need to take place at various levels, ranging from personal and interpersonal systems, such as ward-specific nurse education to social system changes such as expansion of dysphagia training for nursing students and addressing staff shortages in public hospitals.

5.1. Work environment

Social system barriers can contribute greatly to decreased quality of patient care. Lack of available staff was a major barrier reported by participants in this study. These findings correlate with other studies which report that South African nurses often face staff shortages (George et al., 2013; Steyn et al., 2015). Staff shortages result in less time available for nurses to spend with each individual patient, thereby negatively affecting care of patients with dysphagia, as workloads are increased and nurses might not have time to

comprehensively and effectively follow feeding guidelines for each individual patient, resulting in poor health outcomes for patients with dysphagia. Systemic difficulties, such as poor referral pathways, can further exacerbate these working environment barriers – as explained by a participant, waiting for the SLT to assess patients with dysphagia often delays mealtimes, resulting in patients not receiving their meals, or nurses rushing meals. Staff shortages might also result in inadequate supervision, leading to fewer opportunities for guidance and "on-the-job" learning. Supervisors are also in the position to monitor their staff and to ensure that feeding guidelines are being complied with – while this would not be the case if there is inadequate supervision (Hlosana-Lunyawo & Yako, 2013).

In South Africa, staff shortages in the public health sector can occur due to various reasons. Migration of qualified nurses is a common occurrence, with nurses moving from South Africa to other countries, from rural areas to cities, and from the public healthcare sector to the private healthcare sector (Hlosana-Lunyawo & Yako, 2013). This migration might be attributed to expected better working conditions in the private healthcare sector, as significant job dissatisfaction in the public healthcare sector is frequently reported. High levels of burnout and workplace stress, along with dissatisfaction regarding remuneration, lack of resources, and limited opportunities for career development are examples of difficulties experienced by nurses in the public healthcare sector (Klopper, Coetzee, Pretorius, & Bester, 2012). Despite the presence of staff shortages, dysphagia care can be improved by means of more frequent SLT-nurse collaboration – thereby promoting interprofessional transfer of knowledge and "on-the-job" learning. Providing supplementary material such as notes, glossaries, or guidelines to assist nurses when SLTs are not available can also improve care of patients with dysphagia despite staff shortages.

To address these social system barriers, viable strategies need to be considered. In a South African setting, recommendations such as simply employing additional nurses or increasing remuneration are not practical. A possible solution would be to promote multidisciplinary teamwork in hospital settings, as task-sharing can assist in decreasing workloads. As reported by a participant, working in a multidisciplinary "stroke team" improved dysphagia care in their specific ward. Combining new nurses with more experienced nurses can also assist with knowledge sharing, thereby promoting task-sharing and decreasing workloads per individual nurse. Referral systems can also be improved be more quick and effective – for example, assigning short codes to SLTs, or providing the SLTs contact details in a prominent position,

so that the SLTs can be reached quickly and patients with dysphagia can be seen as soon as possible.

5.2. Patients

Nurses' ability to function in an interpersonal system can often be affected by personal system factors, such as patient-related barriers. In this study, participants indicated that they experience patients with dysphagia as uncooperative and difficult to feed. This "hassle" barrier could be due to patients disliking their modified diets, as reported by participants in this study. These findings of poor patient compliance with feeding recommendations correlate with previously published literature (Horner, Modayil, Chapman, & Dinh, 2016). Patients might not be compliant with their modified diets for several reasons, such as denial of the presence of dysphagia, incorrect perceptions of the severity of their swallowing problem, or dissatisfaction with the prescribed diet.

Patients being unwilling to forgo "regular" food were observed to be a major barrier to nursing care. The time required to feed patients with dysphagia is greatly extended when patients are uncooperative, thereby contributing to existing time restraints – which could be demotivating or aggravating to nurses who are pressed for time and overworked. Patients with dysphagia could thus be approached with reluctance or apathy, which would negatively influence patient care. Nurses might also disregard the recommended feeding guidelines if they reason that patients might eat more quickly when presented with food they like, even if it is not as per the feeding guidelines. In the South African context, alternatives to modified diets are not often available. A limited variety of food thickeners are available for patients, and hospitals often have restricted menus for puree and soft diets – which leaves the patients and nurses with little choice regarding meals. Nurses can thus very seldom offer patients appropriate alternatives to their modified diets. Furthermore, patients with neurological impairments can often contribute to an already heavy workload, as they experience a wide variety of sequelae and co-morbidities. Nurses therefore need to address and manage a broad spectrum of conditions along with dysphagia, which can negatively affect time and workload constraints.

Fortunately, during the interview some nurses reported that they experience feelings of familiarity and sympathy when working with patients with dysphagia – which can be a great facilitator to patient care. Communication impairments were reported to be a barrier by some participants – poor communication between nurses and patients could exacerbate existing

difficulties during mealtimes. Language comprehension impairments might result in patients not fully understanding why they receive their modified diets, while expressive language or speech fallouts could impair patients' ability to raise complaints regarding their meals or to ask questions about their feeding guidelines.

Having the SLT discuss the rationale underlying modified diets with patients and nurses can assist with addressing poor compliance, as patients might be more cooperative when they understand why they receive these diets. The risks of noncompliance should also be explained to patients and nurses, as patients or nurses may underestimate the severity of the swallowing impairment. Meeting with a patient's family or friends can also address this barrier, as the SLT can not only explain the motivation behind the diet (and thereby potentially have the family members monitor the patient's compliance), but can also discuss the possibility of the family bringing appropriate food from home. In this way, families can bring food that is more to the patient's liking, while still complying with feeding guidelines.

A patient's caregivers can also be trained to assist nurses with feeding while in hospital. The SLT would usually provide training to caregivers before discharge to ensure that the patient maintains a safe nutritional status at home. This training can take place earlier in the treatment process and a patient's caregivers can be given the opportunity to assist nurses during mealtimes. Not only will this allow caregivers to familiarise themselves with the patient's feeding guidelines before discharge, but it will also lessen the nurses' workload – thereby providing nurses with more time to attend to other patients with dysphagia and to follow the SLT's feeding guidelines comprehensively. Finally, communication aids can be provided to both nurses and patients, including communication boards, to improve nurse-patient communication during mealtimes.

5.3. Knowledge and training

Personal system factors such as inadequate knowledge and training can significantly contribute to interpersonal system-level interaction, such as the nursing care rendered to patients with dysphagia. For nurses to consider the feeding recommendations made by the SLT as important to follow, they must first be aware of the role of the SLT in dysphagia management. Various "knowledge" factors similar to Colodny's (2001) findings were observed in this study. Poor familiarity with the role of the SLT in dysphagia management, as observed in this study, can result from a lack of formal training, as well as from limited exposure to SLTs in practice. SLT services in South Africa are not readily available, due to

shortages of trained professionals, as well as an unequal distribution of skills – many SLTs prefer private practice, due to an expectation of better work conditions, better infrastructure, and more resources. This preference for the private healthcare sector leaves many public hospitals and rural areas understaffed (Blackwell & Littlejohns, 2010; Pascoe & Norman, 2011).

Exposure to other health professions can increase the transfer of knowledge and skills, leading to overall improved patient care and patient safety (Berings, Poell, & Gelissen, 2008; Goh, Chan, & Kuziemsky, 2013). For example, the slight difference between participants from the Western Cape hospital and the Free State hospital regarding their knowledge of the role of the SLT might be attributed to the increased presence of speech-language therapists in the Western Cape hospital. Not only is the speech therapy department at the Western Cape hospital relatively large in terms of number of personnel, but SLT students from the affiliated university are also trained at the hospital. At the Western Cape hospital, collaboration and interaction between nurses and SLTs can therefore occur more frequently, allowing for an exchange of information between professions. The benefits of this interaction between professions are demonstrated by comments from participants indicating that SLT recommendations are helpful in the management of patients with dysphagia.

SLTs have a responsibility towards nurses to assist them with patient care, as well as to provide interprofessional education. An increased presence of SLTs in the working environment will promote the care of patients with dysphagia – as this increased presence will not only provide more opportunities for in-service training, but will also provide more opportunities for interprofessional collaboration and sharing of knowledge between professions. An introduction to the role of the SLT in feeding management while studying could also address this lack of knowledge about the SLT and thereby improve dysphagia care later on in nurses' careers.

However, even when a sufficient number of relevant healthcare professionals are present, adequate communication between parties needs to occur. The language and terminology used by SLTs needs to be familiar and understandable, to allow nurses to correctly interpret feeding recommendations. The poor familiarity with SLT terminology reported by nurses in this study likely stems from insufficient formal and in-service training, as well as a lack of exposure to SLTs during daily procedures. In must be kept in mind, though, that dysphagia terminology is not always used consistently by different SLTs. As there is not standardised

terminology for various assessment measures, therapeutic interventions, and texture and viscosity classifications, differences in how SLTs write and discuss their recommendations can occur. Assessment and treatment of dysphagia is often performed differently by individual SLTs – in South Africa, 6 universities offer SLT training, with these universities distributed throughout the country and each offering a unique training milieu. As such, variations in terminology used can often occur (Andrews & Pillay, 2017). This inconsistent use of SLT terminology might contribute to nurses' improper implementation of feeding recommendations, as they might have been exposed to other terminology in previous practice, and might not understand the new terminology presented to them.

It might also be that nurses do not ask the SLT for clarification – potentially due to lack of access to the SLT, lack of time to discuss the feeding guidelines, feelings of embarrassment, or feelings of disagreement with the recommendations. "Disagreement" was also a barrier recorded in Colodny's (2001) study. To address these terminology barriers, it might be beneficial for the SLT to explain the guidelines and terminology to nurses during patient discussions. Nurses should also be encouraged to ask for clarification if necessary. A glossary of frequently used terminology can also be compiled by the SLT and distributed to the relevant wards and nursing units.

Lack of knowledge regarding feeding postures was also observed to be a perceived barrier to care for patients with dysphagia. Feeding postures, which often form part of feeding guidelines, play a significant role in the prevention of aspiration and the improved efficacy of eating and drinking. It is therefore important for nurses to be aware of not only the terminology used by the SLT (such as "chin tuck" or "head rotation"), but also to be knowledgeable of how to cue patients to perform these postures. Lack of knowledge regarding these postures could result from limited exposure to the terminology used by SLTs to prescribe postures, as well as limited exposure to these postures in practice. Having an SLT demonstrate important postures could improve nurses' knowledge thereof. Visual aids such as pictures with short descriptions can also be distributed and placed in wards for nurses to refer to when an SLT is not present.

In this study, it was observed that a number of participants indicated disagreement with the SLT's recommendations. Disagreement might stem from poor understanding of why the guidelines were implemented. Poor comprehension of the rationale behind SLT recommendations might result from insufficient dysphagia knowledge and training. However,

it should also be considered that nurses might consider themselves the primary caregivers of patients and, as such, they might feel they have a better understanding of what the patient needs, rather than following the advice of the SLT, who spends less time with patients. If recommendations are considered unnecessary and as a result are not followed, patient safety may be at risk. To address this barrier, having the SLT discuss the recommendations and the rationale behind it with nurses might increase compliance. Nurses should also receive the opportunity to provide input into the patient's management plan – as the primary caregivers, they may have valuable insight into the patient's abilities and needs.

A significant barrier to care in personal systems was a lack of training regarding dysphagia care. Many nurses reported inadequate undergraduate training and limited in-service training. Various nursing qualifications exist, resulting in different scopes of practice for different personnel members. "Feeding of patients" is only explicitly described in the scope of practice of enrolled nurses, although maintenance of nutrition is an expected task for all nursing categories (SANC, 2018). However, differences in curriculums between nursing qualifications exist, resulting in potential differences in knowledge regarding the anatomy and physiology of swallowing, dysphagia management, and the role of the SLT. Due to staff shortages, it might happen that nurses need to perform duties outside of their scope of practice and, as such, nurses who do not have extensive training often take care of patients with dysphagia. These differences in knowledge and experience might contribute to improper interpretation and implementation of the SLT's feeding guidelines. Providing basic in-service training to all nursing personnel to feed patients and to interpret feeding guidelines might address this barrier. Having the SLT frequently monitor the feeding and swallowing safety of patients can also contribute to better health outcomes for patients with dysphagia. In-service training opportunities are also not consistently provided to healthcare staff (Hlosana-Lunyawo & Yako, 2013), likely due to time constraints and lack of available trainers. This reduces the amount of learning opportunities to increase dysphagia-related knowledge.

Lack of training resulting in poor knowledge about dysphagia can affect dysphagia care in social and interpersonal systems – in a social system such as a ward or hospital, the efficient functioning of that unit might be compromised by poor staff performance, with inadequate patient care and decreased job satisfaction as a result. In an interpersonal system, the nurse-patient interaction might be negatively affected, as suboptimal care can be rendered. Nurse-SLT interaction might also be affected, as poor communication can occur and, as a result, possible perceptions of the other profession as intrusive or uncooperative.

To address knowledge and training barriers, in-service training with relevant supporting materials, can be considered as a viable solution. The goal of in-service training would be to improve employee performance, update skills, prepare employees for career development, and to orientate new employees (Hlosana-Lunyawo & Yako, 2013). However, in the South African context, the practicality of in-service training needs to be carefully considered. Workplace and patient barriers, along with a lack of resources can hinder training opportunities. Nursing personnel also work in shifts, making it difficult to reach all the relevant personnel at the same time. For training to take place outside of working hours, other factors such as lack of transport or family commitments also needs to be considered. Many South Africans do not have regular access to motorised transport (Lucas, 2011), and many working South Africans are also responsible for the care of extended families and might not have time available after working hours to attend training. It should also be considered that nurses might consider the time outside of working hours as their personal time, and do not wish to spend it on work-related subjects.

Increased multidisciplinary contact would also allow for more frequent knowledge-sharing between professions. Grouping a well-experienced nurse with a novice nurse can also contribute to "on-the-job" learning. Lastly, supporting material such as written aids can further assist with increasing nurses' dysphagia knowledge.

5.4. Information preferences

To address knowledge barriers, an exchange of information needs to take place. However, for successful learning to take place, the individual learner and their learning preferences needs to be considered – in this case, nursing personnel.

A significant preference for written information was observed in this study, which correlates with published literature (Eames et al., 2011). It can be reasoned that written information can be safeguarded and referred back to if necessary. Written information is also easy to distribute and share among colleagues. Nurses can take this information home and study it in their own time, or they can revise as needed. A preference for personal contact and verbal information was also noted in this study. During the exchange of verbal information and interpersonal interaction, opportunities arise to ask questions, clarify ambiguous content, and discuss relevant cases or scenarios. This allows for a flexible exchange of knowledge. If nurses had already received written information about a topic, verbal information can then reinforce existing knowledge. This combination of methods ties in with a principle of adult

learning, which assumes that adult learners have prior experience and knowledge that needs to be integrated with new knowledge (Collins, 2004). Reinforcement of new information can also help with the retention of information, thereby decreasing the need for frequent training sessions.

A strong dislike for computer-based learning was observed in this study – given the sample population, this is not surprising. Learners' characteristics, such as their computer competence and Internet self-efficacy can greatly determine their attitudes toward computer-based learning (Chiu, Tsai, & Chiang, 2013). These skills are influenced by learners' age, education, and previous exposure to electronic equipment. In South Africa, many individuals come from disadvantaged backgrounds and have not received much exposure to computers and electronic programs. Computers are also not always readily available at places of work due to poor infrastructure and financing (Asah, 2013; Bharuthram & Kies, 2013). Nurses might be hesitant to take part in electronic dysphagia training programmes, as they might consider themselves to be poorly competent with computers. Many nurses will also not be able to take part in these training sessions at home, due to lack of resources.

Thus, in order to provide dysphagia training that is relevant and applicable, training sessions need to be conducted in a manner that accommodates nurses' preferred learning styles. When in-service training is provided, written materials can be given as support. Nurses should also have the opportunity to ask questions during training sessions. During informal interactions with nurses, the SLT can also provide pamphlets or posters for nurses to read, keep, and distribute amongst their colleagues. The SLT should also make him-/herself available for discussions, should a nurse wish to verbally clarify information.

5.5. Summary

Social system barriers directly influence functioning in personal and interpersonal systems. Staff shortages result in limited time to perform nursing duties and lead to increased workloads – which will negatively affect the time available for nurses to spend tending to each patient with dysphagia. These barriers are exacerbated by interpersonal system barriers such as uncooperative patients and poor nurse-patient interaction, as well as personal system barriers such as inadequate knowledge and training on dysphagia management. When training is delivered, teaching approaches should include written and verbal information, and allow for personal interaction during training.

5.6. Clinical implications

This study highlights barriers to care that SLTs need to be aware of when prescribing feeding guidelines for patients with dysphagia. It is important for SLTs to consider nurses' work environment when feeding guidelines are introduced and monitored, and the SLT should attempt to accommodate nurses by making feeding guidelines as simple and efficient as possible. Attempts to share workload can also be initiated – for example, instead of the nursing personnel, the SLT can train family members and caregivers regarding feeding guidelines, allowing nurses to continue with other duties.

The SLT should also consider patient-related barriers. SLTs need to consult and acknowledge patients in decision-making processes regarding modified diets if possible, as this will not only help patients to feel more empowered, but will also grant patients the opportunity to ask questions or raise concerns. The SLT can also provide communication aids or therapy services to patients who are unable to sufficiently comprehend information given by the SLT or nurses, or for patients who are unable to effectively express themselves. Facilitating patient comprehension of why their modified diets are necessary and improving patient satisfaction can increase patient compliance during meals and, as a result, decrease the duration of meals per patient – thereby reducing time restraints experienced by nurses and improving nurses' negative perceptions of patients with dysphagia.

Training of nursing personnel regarding dysphagia management is an important responsibility of the SLT. The SLT needs to identify site-specific knowledge barriers and determine viable methods of transferring knowledge and skills to nurses. In-service training, more frequent nurse-SLT interaction, multidisciplinary teamwork, and written or visual aids are methods to be considered. When training is presented however, it is recommended that multiple modalities are used – specifically a combination of written and verbal information. The SLT should also make themselves available to address nurses' questions or uncertainties. Referral pathways need to be considered and optimised where needed – referral pathways should be clearly indicated and accessible (for example, making contact details for the SLT available in all wards).

CHAPTER 6: Conclusion

As the incidence and prevalence of non-communicable diseases rises, so do the concurrent sequelae such as dysphagia. Poorly managed dysphagia can result in complications such as weight loss, dehydration, and the development of aspiration pneumonia. The proper management of dysphagia is thus central to proper patient care and recovery. In a setting such as South Africa, where resources are limited, care for patients with dysphagia is not always optimally provided. Various barriers to dysphagia care have been discussed in published literature, and this study investigated various barriers to care that nurses face when managing patients with dysphagia in South Africa. Nurses' information preferences were also examined. The results of this study indicated that personal system barriers such as inadequate knowledge about dysphagia, as well as a lack of training regarding dysphagia care, often occur. Limited knowledge about the role of the SLT was also discussed. Personal system barriers are exacerbated by social system barriers – including staff shortages, overwhelming workloads, and time constraints. Perceived patient-related barriers, such as uncooperative patients, further hinder effective nursing care. These observed barriers negatively affect nurses' ability to provide adequate care to patients with dysphagia, while also limiting opportunities for further training.

This study highlights the homogenous barriers that nurses face in public hospitals, as no significant differences were observed between the Western Cape and the Free State hospitals. The importance of adequate staffing becomes evident when the impact of staff shortages are considered – a lack of available SLTs results in limited nurse exposure to the role of the SLT in dysphagia management, as well as reduced interprofessional learning opportunities. A lack of nursing personnel compromises the quality of care rendered to patients, as little time can be spent on individual patients. These time constraints also leave fewer opportunities for formal or in-service training.

The importance of knowledge exchanges is also demonstrated – whether by means of formal training, in-service training, or interprofessional learning. An understanding of other professions' role in dysphagia management, as well as comprehension of feeding guidelines and the rationale thereof, can greatly contribute to improve patient care.

Factors in personal and interpersonal systems can be targeted to address knowledge and training barriers. In-service training (provided by an SLT or well-trained nurse) will likely be a practical approach to increasing nurses' dysphagia knowledge and skills in an immediately

relevant and applicable manner. Other options include increased exposure to SLTs – for example, by inviting nurses to observe the SLT, or to assist with assessment tasks. Providing written information in wards can also contribute to improved patient care – including information on signs and symptoms of dysphagia, when and how to refer, the scope of practice of the SLT, or a glossary of frequently-used SLT terminology.

The main clinical implications for the SLT are that feeding guidelines need to be simple and efficient to accommodate nurses' lack of time and heavy workloads, and that nurses' knowledge regarding dysphagia need to be increased by means of in-service training, multidisciplinary teamwork, or visual aids.

CHAPTER 7: Limitations and recommendations

The first limitation of this study was the sampling method used. Convenience sampling was used, which could have introduced selection bias into the final sample that was obtained. This could have negatively affected the representativeness of the study sample. Recommendations for future studies would include making use of a random sampling method to increase the validity and reliability of the study.

The second limitation of the study was the limited demographical information obtained, which makes it difficult to determine how representative the sample is of the population. It can thus not be said that these findings can be extrapolated to the total population. Comparisons can be drawn, however, between the nurses of two South African provinces. A recommendation for future studies would be to include demographical information such as age, gender, and race.

The third limitation of this study was the lack of information regarding nurses' qualifications. Although it was requested that nurses provide this information on the questionnaire, many nurses did not do so, which makes it difficult to draw comparisons between barriers perceived by different nursing groups. Future studies might benefit from ensuring that this information is provided by asking nurses about their qualifications verbally, or by explaining the importance of providing this information when the questionnaire is presented.

The fourth limitation of this study was the lack of available information regarding the various South African nursing qualifications and the relevant scopes of practice. This made it difficult for the researcher to succinctly and accurately describe the roles and responsibilities of the various nursing professions. As such, nursing categories who are not typically involved in the feeding and managing patients with dysphagia might have been included in the study, and skewing the final results. Future studies might include more detailed information regarding the training and scopes of practice of the different nursing categories, to address this potential confounder.

A confounder in this study was the time restraints experienced regarding the completion of the questionnaire. Many nurses asked to complete the questionnaire in their own time, which resulted in the SLT not being present to administer the qualitative section of the questionnaire. Qualitative data differences between the two hospitals therefore exist, as some of the Western Cape hospital participants were personally interviewed by the SLT, while

none of the Free State Hospital participants were interviewed in this manner. However, similar themes were observed when comparing the responses of both hospital groups, and the assumption can be made that, despite different methods of interview administration, nurses in both hospitals share the same experiences. A recommendation for future studies would be to arrange dedicated time slots with nurses to conduct the interview, in order to provide necessary prompts and cues as needed, which would increase the trustworthiness of the study.

Future studies could potentially examine topics such as whether there is a correlation between perceived barriers to dysphagia care and nurses' various qualifications. A comparison between perceived barriers in the private and public sectors could also be drawn, to determine whether the barriers in this study are isolated to the public healthcare sector or whether nurses in the private sector experience similar difficulties. The development of standardised SLT terminology, as well as the development of an in-service dysphagia training module could also be addressed.

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