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# THE STRATEGIES AND BARRIERS ADDRESSED BY OCCUPATIONAL THERAPISTS IN THE PROCESS OF SUCCESSFUL WORK-RELATED TRANSITIONS FOR CLIENTS WHO HAVE SUSTAINED SERIOUS HAND INJURIES

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Thesis by publication presented in partial fulfilment of the requirements for the degree of Master of Occupational Therapy in the Faculty of Medicine and Health Sciences at Stellenbosch University.

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# Declaration by Author

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This thesis includes one original paper published in peer-reviewed journals, one paper under review and two unpublished publications. The development and writing of the papers (published and unpublished) were the principal responsibility of myself and, for each of the cases where this is not the case, a declaration is included in the thesis indicating the nature and extent of the contributions of co-authors.

# Abstract

**Introduction.** The socio-economic burden of a hand injury in South Africa is substantial. Occupational therapists who facilitate work-related transitions after a hand injury require contextually relevant and robust evidence to inform their clinical practice.

**Aim.** The thesis aimed to understand the strategies employed by occupational therapists to facilitate successful work-related transitions for people with serious hand injuries in both the government and private sectors of South Africa.

**Methods.** A concurrent mixed-methods approach was used. The thesis comprised three phases' a scoping review, a survey and a collective case design informed by phenomenological principles. The scoping review captured sources published between 2008 and 2018 across fourteen databases. The data was analysed descriptively and was used to inform a survey used in the second phase. The survey made use of a descriptive cross-sectional research design. The questionnaire was piloted. The data were exported from SUsurveys into Microsoft Excel for analysis. Phase three was a collective case design informed by phenomenological principles. Each of the four cases identified through purposive sampling comprised of an occupational therapist and client, amounting to eight participants. Sixteen interviews took place. Data was thematically analysed.

**Findings.** Fifteen studies from 16 countries (14 high- and two upper-middle income) were identified in the scoping review. These revealed four strategies to facilitate work-related transitions and four factors that contributed to their success. No sources were found that detailed the different types of work-related transitions. Three themes emerged in the qualitative study: the acute rehabilitation phase, the pre-occupational phase and the occupational phase. A process model was developed to illustrate the phases through which participants transitioned. The least used strategies were issuing assistive devices for work, a worksite visit, observing a client completing work tasks and implementing a work trial. Financial support and compensation were seen as both an asset and a barrier.

**Conclusion.** The absence of literature from low- and middle-income countries is likely to restrict the evidence-based practice in these countries, as interventions used in high-income

countries may not be feasible in these contexts. In clinical practice, an occupation-based approach for work-related transitions is optimal. Collaboration with employers and co-workers enhances service delivery. Clients were positively impacted by the occupational therapists to successfully transition to work. In a country with high levels of unemployment, occupational therapists can contribute to facilitating work-related transitions despite the barriers identified.

**Key Words**

Return to Work, Work Strategies, Work Barriers, Upper Extremity, Upper Limb

# Opsomming

**Inleiding.** Die sosio-ekonomiese las van handbeserings in Suid Afrika is groot. Arbeidsterapeute wat werksverwante aanpassings na 'n handbesering wil bewerkstellig, benodig bewysgefundeerde oplossings wat kontekstueel relevant is om hul kliniese praktyk te bevorder..

**Doel.** Die tesis het ten doel om die strategieë te verstaan wat arbeidsterapeute gebruik om suksesvolle werkverwante aanpassings te fasiliteer vir mense met ernstige handbeserings in die staatsdiens en die privaatsektor van Suid Afrika.

**Metodes**. 'n Gelyktydige benadering van gemengde metodes is gebruik Die tesis bevat drie fases, ‘n oorsig-literatuurstudie, 'n opname en 'n kollektiewe saakontwerp wat deur fenomenologiese beginsels ingelig is. 'n Oorsig-literatuurstudie is gedoen wat bronne tussen 2008 en 2018 in veertien databasisse gepubliseer is bevat. In die opname is gebruik gemaak van 'n beskrywende navorsingsontwerp in deursnee. Die vraelys is geloods. Die data is vanaf SU-opnames na Microsoft Excel uitgevoer vir ontleding. Fase drie was 'n kollektiewe saakontwerp wat deur fenomenologiese beginsels ingelig is. Elkeen van die vier gevalle wat deur middel van doelgerigte steekproefneming geïdentifiseer is, bestaan uit 'n arbeidsterapeut en kliënt, wat agt deelnemers beloop. Sestien onderhoude het plaasgevind. Data is tematies ontleed.

**Bevindings.** Vyftien studies uit 16 lande (14 uit die boonste inkomstegroepe en twee uit die boonste middelsektor) is in die oorsig-literatuurstudie geïdentifiseer. Vier strategieë om werkverwante oorgange te fasiliteer en vier faktore wat tot die sukses daarvan bygedra het, is geïdentifiseer. Geen bronne is gevind oor soorte werkverwante oorgange nie. Drie temas het na vore gekom in die kwalitatiewe studie: die akute rehabilitasiefase, die pre-beroepsfase en die beroepsfase. 'n Prosesmodel is ontwikkel om die fases te illustreer waardeur deelnemers oorgegaan het. Die minste gebruikte strategieë was die uitreiking van hulpmiddels vir werk, 'n besoek aan die werkplek, die waarneming van 'n kliënt wat die werktake voltooi en die uitvoering van 'n werkproef gedoen het. Finansiële ondersteuning en vergoeding word gesien as 'n bate en 'n hindernis.

**Afsluiting.** Die afwesigheid van literatuur uit lande met lae en middelinkomste sal waarskynlik die bewysgefundeerde praktykvoering in hierdie lande beperk, aangesien strategieë wat in lande met hoë inkomste gebruik word, moontlik nie haalbaar sal wees in hierdie kontekste nie. In kliniese praktyk is 'n beroepgebaseerde benadering vir werkverwante oorgange optimaal. Samewerking met werkgewers en medewerkers is 'n wesenlike element wat dienslewering

bevorder. Kliënte is positief beïnvloed deur arbeidsterapeute in die suksesvolle oorgang na werk. In 'n land met 'n hoë vlak van werkloosheid, kan arbeidsterapeute bydra daartoe om werkverwante oorgange effektief te vergemaklik, ondanks die talle hindernisse wat geïdentifiseer is.

**Key Words**

Return to Work, Work Strategies, Work Barriers, Upper Extremity, Upper Limb

# List of Definitions

Activities of daily living

Activities of daily living (ADLs) is a term used by occupational therapists to describe the basic skills that a person requires to take care of themselves (McHugh and Pendleton, 2013). ADLs include self-care tasks (personal management such as washing, toileting, dressing and eating as examples) as well as leisure time activities and work.

Compensation for Occupational Injuries and Diseases

In South Africa, workers who get hurt at work, or sick from diseases contracted at work, or for death as a result of these injuries or diseases are paid out of a compensation fund which is under the management of the Department of Labour (Landman and Buchanan, 2010).

Constant physical demand characteristics of work

*Constant* refers to work tasks completed 76-100% of the workday (DOT, 1991 & Matheson, 1993).

Frequent physical demand characteristics of work

*Frequent* refers to work tasks completed 34-66% of the workday (DOT, 1991 & Matheson, 1993).

Hand Therapy

Hand Therapy refers to the rehabilitation, usually conducted by occupational therapists to assist a person to regain maximum use of their upper limb(s) using modalities such as splints, hand exercises and activities to promote healing and protection after injury, surgery or disease (South African Society of Hand Therapists, 2018).

Heavy demand level work

This refers to work tasks requiring occasional lifting of 23-45kgs or carrying objects weighing up to 23kgs frequently (DOT, 1991 & Matheson, 1993).

Inherent physical job demands

A person's inherent physical job demands are the physical factors that a job requires an individual to be able to do in order to fulfil their job tasks effectively. The physical demands

of a job include the lifting, carrying, pushing, pulling, standing, sitting, walking, reaching and twisting demands of their work among others (Campbell, 2010). The frequency and intensity (work strength required) of these demands would allocate an individual's job into a category of sedentary work, light work, medium work, heavy work or very heavy work (Campbell, 2010).

Intrinsic job tasks

The intrinsic job tasks are the activities that an individual is required to complete to fulfil their job role. It includes the person's responsibilities and duties that require specific cognitive, physical and emotional skills and knowledge to be completed at an optimum.

Light demand level work

Light demand level work refers to work tasks that involve occasionally lifting 9kgs or less or carrying objects weighing less than 4.5kgs frequently (DOT, 1991 & Matheson, 1993).

Medium demand level work

This refers to work tasks that involves lifting 9-23kgs occasionally or carrying objects that weigh 4.5-11.5kgs frequently (DOT, 1991 & Matheson, 1993).

Occasional physical demand characteristics of work

The term *occasional* refers to work tasks completed 0-33% of the work day (DOT, 1991 & Matheson, 1993).

Return to work

Return to work is a process that restores a worker's function in the workplace, as a part of their recovery after sustaining an injury or illness (the American Occupational Therapy Association, 2014). Return to work could involve a person returning to their current place of employment or to alternative employment. Return to work could be with or without accommodation, whereby return to work includes an alternative job and/or employer.

Sedentary demand level work

This refers to work that requires sitting for 76 to 100% of the workday with minimal walking and lifting (DOT, 1991 & Matheson, 1993).

Semi-structured interview

A semi-structured interview is a tool which is used to explore topics and themes on a deeper and more detailed level through the use of open-ended questions (Barriball & While, 1994).

Serious hand injury

In this study, a serious hand injury is defined as one that required a person to be out of work for six weeks or longer (due to physical or psychological causes), that required reasonable accommodation (which could be temporary or permanent) or required work-related assistive technology.

Survey

A survey refers to a data collection tool that enables one to collect information from a sample of people through their answers to the questions provided in the survey (Check & Schutt, 2012).

Very heavy demand level work

This consists of work tasks requiring lifting of over 45kgs occasionally and carrying over 23kgs occasionally. If the work tasks are constant, it will refer to carrying and lifting over 9kgs for 76-100% of the work day (DOT, 1991 & Matheson, 1993).

Vocational Rehabilitation

The process in which individuals with illness, injuries or other disabilities are facilitated to maintain or return to any form of employment. Vocational rehabilitation can involve graded return to work programmes, work hardening programmes or workplace accommodations (Hou, Chi, Lo, Kuo, & Chuang, 2013).

World Bank Country Classification

For the 2019 fiscal year, the World Bank defined low-income countries as having a Gross National Income (GNI) per capita equivalent to or less than $995, lower-middle income countries ranging from $996 to $3,895, upper-middle-income countries between $3,896 and $12,055 and high-income countries have a GNI per capita in excess of $12,056.

Work

For the purpose of this study, work refers to the physical and cognitive intrinsic tasks that a person does in exchange for remuneration.

Work Accommodation

If a person returns to work, they may need to be accommodated by restructuring the work tasks, for example, sedentary or lighter demand level work. In addition, a person can be accommodated through completing alternative tasks at work (Department of Labour, 2001).

Work-related transition

This thesis adopts Shaw and Rudman (2009)'s definition of a work-related transition. Shaw and Rudman (2009) define an occupational transition as the process of change in a person's life which requires them to expectedly or unexpectedly change what they can do or are required to do. Occupational transitions encompass multi-phase processes and events, as well as the interplay that is applicable across various contexts (Wasiak, Young, Roessler, McPherson, van Poppel and Anema, 2007). Successful work-related transitions are multifaceted and intricate (Shi, Sinden, MacDermid, Walton, & Grewal, 2014).

# List of Abbreviations

| | |
|---|---|
| ADL | Activities of Daily Living |
| CTS | Carpal Tunnel Syndrome |
| DASH | Disabilities of the Arm, Shoulder and Hand Questionnaire |
| HCPs | Healthcare providers |
| HI | Hand Injury |
| HIC | High-income country |
| LIC | Low-income country |
| LMIC | Lower- middle income country |
| NHI | National Health Insurance |
| NRTW | Non-return to work |
| OT | Occupational Therapist |
| PTSD | Post-Traumatic Stress Disorder |
| RTW | Return to Work |
| TOW | Time off Work |
| TRTW | Time to Return to Work |
| UL | Upper Limb |
| UMIC | Upper-middle income country |
| WHO | World Health Organization |

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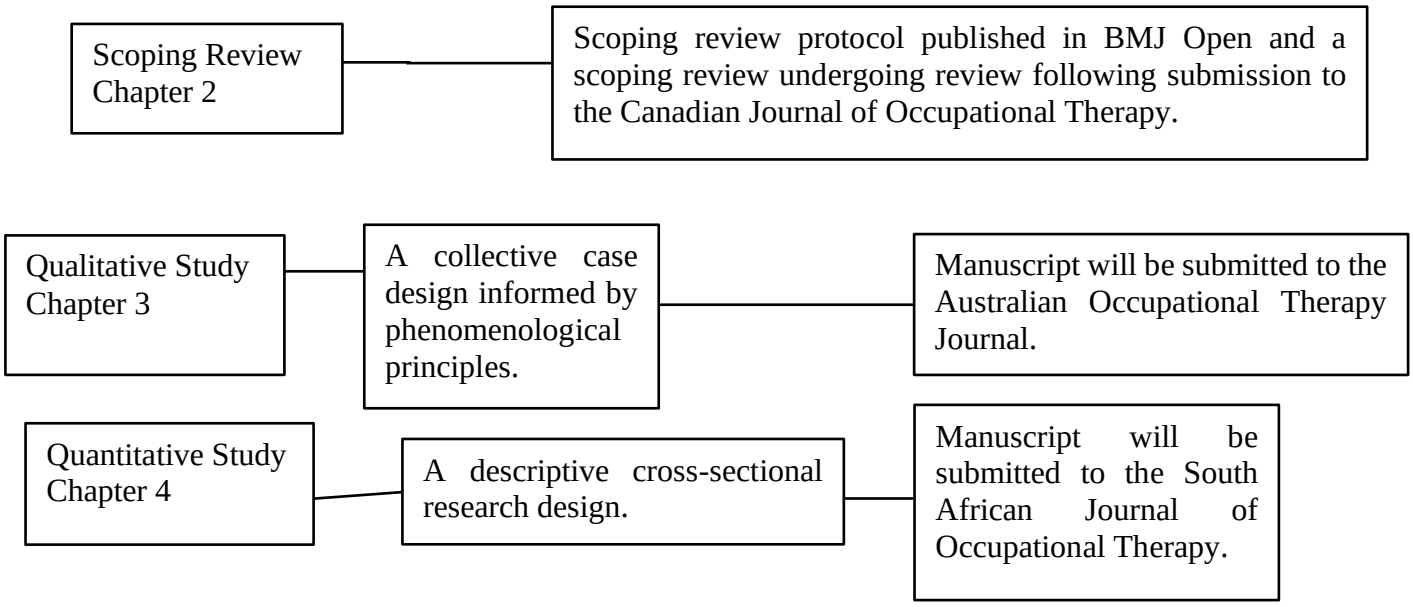
# Table of Contents

# Chapter 1: Introduction

## An Overview

This study explored the barriers and factors affecting work-related transitions in the governmental and private sectors of South Africa's healthcare system. This was explored to better inform occupational therapists of different strategies that are used to facilitate work-related transitions as well as the way in which complex work-related transitional barriers can be overcome. The study was nested in a larger study that explored the successful work-related transitions of people with serious hand injuries from the occupational therapists' perspectives, the employers' perspectives and the patients' perspectives. The research used a concurrent mixed-methods methodology, which focused primarily on the perspectives of both patients and occupational therapists. A scoping review was conducted on literature related to the thesis' area of research interest, to replace a conventional literature review. *Figure 1* below schematically represents the research process and indicates in which section specific aspects of the thesis is presented.

*Figure 1.* A schematic representation of the thesis' research components.




## Thesis Delineation

This thesis comprises five sections of which chapter 2 has two components. Chapter 1 provides a broad introduction and overview of the thesis. Chapter 2.1 comprises a scoping review protocol published in BMJ Open and chapter 2.2 the scoping review which has been submitted to the Canadian Journal of Occupational Therapy. Chapter 3 holds the qualitative component,

with a focus on the specific strategies utilized by occupational therapists to facilitate work-related transitions for clients with hand injuries, which will be submitted to the Australian Journal of Occupational Therapy. Chapter 4 comprises of a manuscript reporting the frequency of use of strategies used by occupational therapists which will be submitted to the South African Journal of Occupational Therapy. Chapter 5 will conclude the thesis with further detail regarding ethics, additional findings and discussion, recommendations for future research and concluding remarks. *Table 1* provides a summary of the peer-reviewed publications and submissions which includes the journal impact factor, scope and aims, as well as publication dates.

**Table 1: Peer-reviewed publications, publication submissions and provisional manuscripts**

| Manuscript Title | Journal Name and Impact Factor | Journal Scope and Aims | Publication Dates |
|---|---|---|---|
| Strategies occupational therapists employ to facilitate work-related transitions for persons with hand injuries: a study protocol for a scoping review. | BMJ Open 2.376 | *BMJ Open* is a medical journal that addresses research questions in clinical medicine, public health and epidemiology. The journal's focus is on research that is relevant to patients and clinicians. | Received 20 October 2018. Revised 21 February 2019. Accepted 28 February 2019. |
| Work-related Transitions Following a Hand Injury: A Scoping Review. | Canadian Journal of Occupational Therapy 1.098 | The mission of the journal is to provide a forum for leading-edge occupational therapy scholarship that advances theory, practice, research, and policy. The vision is to be a high-quality scholarly journal that is at the forefront of the science of occupational therapy and a destination journal for the top scholars in the field, globally. | Received 12 June 2019. Revised 15 November 2019. |
| Mitigating barriers and addressing factors in work-related transitions: what do occupational therapists and their clients say? | Australian Occupational Therapy Journal 1.278 | The aim of the journal is to be a leader in the dissemination of scholarship and evidence to substantiate, influence and shape policy and occupational therapy practice locally and globally. Preference is given to papers that have a sound methodological rigour with sufficient scope and scale to make important new contributions to the occupational therapy body of knowledge. | Submission ready manuscript. |
| Strategies utilized by South African occupational therapists to return clients with hand injuries to work. | South African Journal of Occupational Therapy 0.2979 | The SAJOT publishes articles that contribute to the scientific knowledge of occupational therapy with particular reference to service delivery in Africa. The journal provides a platform to debate about issues relevant to OT in Africa which will also contribute to the development of the profession worldwide. | Submission ready manuscript. |

**Background to the Study**

Shaw and Rudman's (2009) definition of occupational transitions was used in this thesis. Occupational transitions "centre on life course transitions, both normative, expected and unexpected, that involve changes in what people can do, are expected to do, or need to do" (Shaw & Rudman, 2009 p.363). A hand injury usually results in an unexpected transition which may involve "taking on new sets of occupations, fitting these new occupations into other ongoing occupations, and relinquishing some occupations" (Shaw & Rudman, 2009. P362). Shaw and Rudman suggested that research should be directed towards understanding occupational transitions on a micro and macro level, as well as the interactions between them. This thesis considered macro factors such as institutional barriers and micro factors related to the occupational therapist or client.

Work provides meaning to people and being absent from work has physical, psychological, social and financial consequences, which need to be addressed. Occupational therapists assist clients with hand injuries in the aforementioned domains. Occupational therapy has been described as a complex intervention. This is because occupational therapists engage with the interplay of multiple factors that are constantly changing in an unpredictable way (Creek, 2005). In work-related transitions, personal factors and relationships with family members, employers and colleagues might be in a state of flux, all of which require careful consideration by occupational therapists. Occupational therapists also fulfil a central role as hand therapists to restore hand function. However, rehabilitation is restricted when limited budgets are available (Peden & Butchart, 2006).

Injuries have been reported to be a leading contributor to disability worldwide (MacKenzie, Morris, Jurkovich, Yasui, Cushing, Burgess & Swiontkowski, 1998). It is expected that the global burden of injury is on an upward trajectory, thereby making it a healthcare priority (Spiegel, Gosselin, Coughlin, Joshipura, Browner & Dormans, 2008). Healthcare is relatively available in countries such as South Africa due to government health service subsidies that enable free healthcare provision to citizens with no income In many countries, there is no significant financial compensation for those permanently disabled by their hand injury; however, some countries, such as South Africa, may issue a grant. Workman's compensation does alleviate some of the financial burden of a hand injury. If people with hand injuries are provided with the support that they need, their quality of life and well-being, while they

recover, will improve. Depending on a country's labour legislation, contracted workers may be protected against dismissal on the grounds of injury or disability; further discussion on this will follow in the manuscripts.

South Africa is a country with significant income inequalities. Therefore, there is a discrepancy in the access that clients may have to healthcare services. People who earn more, are more are likely to successfully transition to work, as the difference between their salary and the compensation that they receive is likely to encourage their work-related transition (Shi, Sinden, MacDermid, Walton & Grewal, 2014). For people who earn less this is not the case. People who are not formally employed have immense challenges in finding re-employment and may lose their jobs as a consequence of their hand injury. A study that focused on the factors associated with work-related transitions after sustaining a hand injury, found that there is a need to improve our understanding of the work-related transitional process; in terms of increased healthcare costs and low levels of employment for individuals with disabilities (Cabral, Sampaio, Figueiredo, & Mancini, 2010).

**Research Problem**

There is a paucity of evidence in the area of work-related transitions following a serious hand injury. Of the few published studies, most were conducted in high-income countries. Research from middle- and lower-income countries is likely to provide different perspectives, due to limited resources and social support structures in these countries.

**Rationale for the Study**

As occupational therapists, it is important to understand the barriers and factors affecting work-related transitions. Clearly identifying and understanding the factors affecting work-related transitions in South Africa, as well as knowing how occupational therapists are facilitating work-related transitions can assist therapists to address the obstacles within their own practices, to ensure optimal service delivery and improved success rates. Few known work-related transitional strategies, used by occupational therapists to successfully facilitate work-related transitions, have been documented. Therefore, identifying the variety of strategies which are used would contribute to the knowledge base of the profession. An extensive literature search indicated that most of the literature on this topic has been produced by in the Global North.

### *Overarching Research Question*

With consideration to success stories in which occupational therapists facilitate work-related transitions for persons with serious hand injuries, what strategies did occupational therapists use to mitigate the barriers that arise, and which factors were deemed to contribute to success?

### *Overarching Aim*

To understand the strategies employed by occupational therapists to facilitate successful work-related transitions for people with serious hand injuries in both the government and private sectors of South Africa.

### *Overarching Objectives*

1. To explore the strategies used by the occupational therapist to facilitate the work-related transition process in terms of the frequency of strategies used.
2. To explore the clinical reasoning of occupational therapists underpinning strategies prioritised in facilitating work-related transitions.
3. To identify the factors that clients with serious hand injuries identify as having been important in their successful transition back to work?

## Methodology

### *Study design*

A concurrent mixed methods study design was used. Creswell (2009) described the outcome of mixed method approaches as broadening the understanding of a complex phenomenon from various angles (Creswell, 2009). A mixed methods design was necessary to assist in understanding the topic from a qualitative and quantitative perspective to thoroughly answer the research question. The weighting of the qualitative and quantitative components of the study was equal and not was not limited by sequential requirements (Creswell, 2009). The use of a concurrent triangulation was made possible by collecting the data concurrently. According to Creswell, concurrent data collection implies that the collection of quantitative and qualitative data should occur at the same time, whereby their weighting is of equal importance (Creswell, 2009). Therefore, the timing of quantitative and qualitative data collection overlapped.

A scoping review was conducted as a starting point for the concurrent mixed methods study. The Peters et al. (2015) framework was used to guide the scoping review. Because of the

recommendation that a protocol is developed prior to initiating the scoping review, a protocol was developed and published in BMJ Open. The scoping review extracted particular details which were aligned with the research questions; these are detailed in chapter 2. Table 2 provides an overview of components of the study design used in each phase of the study.

*Table 2*. Study Designs used for each phase of the study

| **Title/Description** | **Study Design** |
|---|---|
| Strategies occupational therapists employ to facilitate work-related transitions for persons with hand injuries: a study protocol for a scoping review. | Peters et al. (2015), Arksey and O'Malley (2005) and Colquhoun et al. (2017)'s methodological frameworks. |
| Work-related Transitions Following a Hand Injury: A Scoping Review. | Arksey and O'Malley (2005)'s framework |
| A Qualitative Study Exploring Occupational Therapists' Strategies to Return Clients with Hand Injuries to Work within the South African healthcare context. | A collective case design, informed by phenomenological principles |
| Work-Related Transitional Strategies Implemented by Occupational Therapists for Hand Injury Clients. | A descriptive cross-sectional research design |

**Ethical Considerations**

The Human Research Ethics Committee of Stellenbosch University (HREC reference number: S18/05/098) contact no: (021)938 9819 and the University of Cape Town (HREC reference number: 537/2018) contact no: (021)406 6338 granted permission for this study. Additional permission was acquired to interview government employees (occupational therapist-participants) and their clients of the government sector (client-participants). The study was registered with the National Health Research Database (NHRD) South Africa. The reference numbers are WC_201811_015 and WC_201902_003. Interviews were conducted at two sites.

The principles in the Declaration of Helsinki were adhered to (World Medical Association, 2013). The manuscripts in Section C and D include ethical considerations. Therefore, this

paragraph outlines additional ethical considerations. The occupational therapist and the client-participants were given pseudonyms to protect their identity. No identifying information was provided in the manuscripts. Confidentiality was maintained and protected throughout the study. All audio-recordings and transcripts were kept confidential. All hard copy documents were filed and locked away.

All participants and respondents in this study gave written or electronic informed consent. Please refer to Addendum 6 and Addendum 10. The participants and respondents participated in this study out of their free choice, without any concerns of adverse consequences should they chose not to participate or to withdraw from the study. The participants were informed that they could withdraw from the study at any time. On agreeing to participate, I contacted the participants to arrange a convenient time and location for the interviews.

An information sheet was provided electronically and for the interview participants (see Addendum 7, Addendum 8 and Addendum 10). The information sheet was discussed with the occupational therapist and client-participants prior to the interview, with particular attention paid to the implications of their involvement, the potential risks and benefits involved. Non-maleficence was upheld, as there were no direct benefits for participation in any of the parts of this study. They were also given the opportunity to ask questions. The participants were given R150.00 for each interview to compensate them for their time. This amount was deemed sufficient to cover any costs involved, however, not enough to coerce people into participating. The study posed little to no risk to study participants, as they were people who have already successfully returned to work. Occupational therapist-participants may have benefited indirectly by gaining greater insight into their own practice with regard to the work-related transition process. A summary of the study findings and the publications will be disseminated to the occupational therapist and client-participants, once my degree has been completed.

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# Chapter 2: Scoping Review

## 2.1 Strategies occupational therapists employ to facilitate work-related transitions for persons with hand injuries: a study protocol for a scoping review

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# Strategies occupational therapists employ to facilitate work-related transitions for persons with hand injuries: a study protocol for a scoping review

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## ABSTRACT

**Introduction** Hands make it possible to be employable and productive, to communicate non-verbally and to perform fine motor tasks required in day-to-day activities. Sustaining a hand injury can be detrimental to function including the ability to work. As the literature on work-related transitions is scattered across a range of journals, it is difficult to get a sense of how much literature there is, what is known and where the gaps lie. This scoping study will provide a single source of up-to-date evidence to inform health professionals about the strategies occupational therapists employ to facilitate work-related transitions for people with hand injuries.

**Methods and analysis** The methodological framework by Arksey and O'Malley (2005) will form the structure of the scoping review. The search strategy has been developed in collaboration with a subject librarian. The following databases will be searched: EBSCOhost including only Medline, CINAHL and Health Source: Nursing/Academic Edition; PubMed, Scopus, The Cochrane library and Web of Science. Reference lists will be examined, and grey literature sources will be searched to ensure that literature missed in the database searches is included. Covidence will be used to manage the project. Full-texts will be uploaded for literature that meets the inclusion criteria. A process of blind review will be used to ensure that consistency and rigour is upheld.

**Ethics and dissemination** The findings of the scoping review will be disseminated in an article, within 2019, to be published in a peer-reviewed journal. The findings will be presented at conferences to ensure the optimal dissemination of the scoping review's conclusions.

## Strengths and limitations of this study

- The search strategy for this scoping review protocol has been developed comprehensively in collaboration with an expert librarian who verified the search terms and database choices to be used.
- The search strategy will include databases (PubMed, Scopus, Web of Science, Cochrane, Medline, CINAHL and Health Source: Nursing/Academic Edition) reference lists and grey literature sources to ensure that all applicable literature is captured.
- The researchers will conduct a blind review to ensure rigorous and consistent application of the inclusion and exclusion criteria.
- A codebook system, such as "R" qualitative data analysis (RQDA), will be used to analyse the literature to maximise the findings in terms of both implications for clinical practice and research.
- The scoping review will be limited to occupational therapists and will therefore not include literature by other professions who may be publishing within the field of work transitions and hand injuries.

## INTRODUCTION

### Background to the problem

Hands are essential for the optimal completion of functional tasks that people do on a daily basis. Hands support employability, productivity, communication, balance and manipulation of tools and other fine motor tasks in day-to-day activities.[1] A hand injury causes substantial occupational disruption temporarily preventing engagement in activities of daily living, including work. The disruption is temporary while the person receives rehabilitation to restore functional components or makes adaptations where function cannot be restored.[2] A variety of possible work-related outcomes are possible ranging from returning to the same job in the same capacity to having to find alternative employment. Adaptations tend to be slow and require the integration of both physical and psychosocial components.[3]

Despite the hand injury being physical, it can impact on an individual's self-perception and emotional well-being. It has also been suggested that the barriers in work-related transitions include the interplay between personal, work or family related problems rather than that of the hand injury.[4] Deep-rooted fears and insecurities can frequently

manifest in physically injured employees, as they perceive themselves as inadequate, unable to fulfil their job role optimally or develop a genuine fear of job loss.[5] Hand injuries typically require extensive rehabilitation over time, and the extended recovery process may keep a person out of work. Occupational therapists fulfil an essential role in restoring hand function and participation in daily activities. This is through the use of specialised treatment techniques, approaches and modalities, in addition to having a unique focus on return to work and adaptations within the workplace.[6] Rehabilitation is, however, restricted by the budgets available in the healthcare sector.[7]

Disability, which may be caused by impairments due to hand injuries, has been linked to poverty as the hand injury affects the persons' ability to work.[8] Therefore, disability due to a hand injury may expose individuals and their families to the risk of becoming impoverished. This is particularly devastating in low- and middle-income countries, as a large percentage of people are not formally employed. Individuals with impairments and disabilities who operate in the informal economy, frequently have difficulties re-entering the workplace. If a worker is unable to perform his or her work tasks and there are no alternative jobs within the organisation, he or she may lose his or her work where the likelihood of re-employment is poor. This is critical in low- and middle-income countries where unemployment is rife. For example, in South Africa, a middle-income country, unemployment rates are estimated to be 27.7% of the population, amounting to 6.08 million people.[9]

Gosselin found that injuries were the leading cause of disability and death world-wide, in people under the age of 60.[10] Over 5 million people die every year from injuries, of which 'over 90% of these deaths occur in low- and middle-income countries.[10] Hand injuries are a common reason for persons requiring vocational rehabilitation and/or occupational therapy intervention. In a study conducted from 2004 to 2006, it was established that 23.4% of people in Hong Kong who was referred to occupational therapy for work rehabilitation (n=3031), had sustained upper limb injuries.[11] In the USA, the total cost of injuries involving the upper limb in 2004, has been estimated at approximately $19 billion and accounts for one-third of all injuries in the country.[12] The costs incurred due to the loss of productivity after sustaining a hand injury are estimated to be double that of the healthcare costs.[13] The subsequent economic burden of absenteeism, in addition to the healthcare costs incurred due to a hand injury, requires researchers and policymakers to understand it intricately well. The global burden of injury predominantly falls within low- and middle-income countries. In a 2008 paper by Spiegel *et al* it was reported that 'addressing the burden of injury in low- and middle-income countries has become a public health priority'.[14]

Work-related transitions of clients with hand injuries is a growing field within occupational therapy. Scoping reviews are appropriate when the available literature is extensive, multifaceted or heterogeneous.[15] The literature on work-related transitions after sustaining a hand injury is scattered across different professions and journals, which makes it difficult to get a sense of how much literature there is, what is known and where the gaps lie. Treatment of hand injuries may involve a variety of health professions, each of whom play a role in the overall rehabilitation process. Occupational therapists have a unique role in treating clients with a hand injury as their treatment goals are aligned specifically with return to work and workplace adaptations, in addition to treating their clients' hand injury. This scoping review will map the existing literature pertaining to occupational therapy and work transitions to inform a national survey to be conducted in South Africa on the subject.

## Background to the literature

It is clear that developing countries have complex and diverse social, organisational, political and infrastructural challenges that need to be explored within a specific context. This is primarily due to the interplay between education, socio-economic status, multi-disciplinary healthcare intervention and work-related transition coordination.[12] In Brazil, the need to improve occupational therapists' understanding of the work-related transition process regarding factors such as increased healthcare costs and low levels of employment for individuals with disabilities was highlighted.[16] The healthcare system in South Africa is divided along socio-economic lines, whereby people who are in a higher income bracket can buy health insurance which affords them more efficient healthcare services, better resources and reduced waiting times.[17] There are also low-income countries, who only have government healthcare options and some who have no allied healthcare professionals trained or working within these countries at all.

In Shi *et al*'s systematic review, education and income appeared to be significant factors in the length of time taken to transition to work.[18] Shi *et al*, also found that income affected duration to return to work, wherein Taiwan, people with better education and those with a higher income were found to be 6.5 times more likely to return to work.[19] In the Netherlands, it was found that the expectations of white-collar employees' return to work were 4.3 times higher than that of manual labourers.[13] In Denmark, age, gender and social variables did not significantly influence absenteeism from work.[19] It is not clear whether low- or middle-income countries will document the same findings as those reported in high-income countries. This emphasises the need to gain clarity on context-specific work-related transition strategies used by occupational therapists classified as low-, middle- and high-income countries, according to the World Bank.

Hand injuries are the primary cause of work-related disability in young employees throughout the UK.[8] Sustaining a hand injury is frequently unforeseen, which complicates the work-related transition process, as the individual will typically have limited time to prepare and adjust to the hand injury. Ammann *et al* (2014) reported

that hand injuries were responsible for occupational disruptions, changes in occupational patterns and occupational limitations, which requires adaptations and creates immense challenges in a person's daily life.[20] This is likely to include the successful work-related transition of the person with the hand injury. It was noted that when an injured worker has been absent from work for an extended amount of time, their transition in returning to work can be complicated by feelings of non-compliance with the demands of their job, feelings of inadequacy and feelings around a loss of control.[5]

Ramel *et al*[21] found that although most participants had returned to work (67.5%), those who had not returned to work had higher perceived disability, reduced hand function and were more dissatisfied with their daily occupations than those who were back at work.[21] In Brazil, a cross-sectional study (n=35), found that the factors associated with work-related transitions after a hand injury, 3 years after discharge from rehabilitation, were grip strength, occupational performance scores, occupational category and age.[16] The qualitative data revealed the complex nature of work-related transitions following a hand injury and indicated that professional input in specific areas probably contributed to successful work-related transitions.[16] Self-perceived health has been shown to be an essential factor in successful work-related transitions following a traumatic work-related hand injury.[11] Each of these studies contributed critical knowledge to the field of work-related transitions after a hand injury, however, few have identified the strategies that seemed to be most helpful in the context of a low-, middle- or high-income country. Therefore, we are aiming to identify what research has been conducted over the last decade (2008 to 2018) on the strategies occupational therapists employ to facilitate work-related transitions for people with hand injuries in low-, middle- and high-income countries.

### Aim and objectives

This scoping review aims to identify research conducted in the last decade (2008 to 2018) on the strategies occupational therapists employ to facilitate work-related transitions for people with hand injuries. Objectives are:

- To identify the strategies used by occupational therapists to facilitate work-related transitions after hand injuries.
- To describe the different types of work-related transitions found in the literature.
- To determine which factors, contribute to work transitions and how these factors differ internationally.

## METHODS AND ANALYSIS

The methodology that will be used in the proposed scoping review was informed by Peters *et al* and Colquhoun *et al*.[15 22] Arksey and O'Malley's,[23] methodological framework will be used to guide the scoping review.

**Box 1 Methodological framework[23]**

- Stage 1: identifying the research question
- Stage 2: identifying relevant studies
- Stage 3: study selection
- Stage 4: charting the data
- Stage 5: collating, summarising and reporting the results

Box 1 depicts the stages of the scoping review process, each of which is described in more detail in the subsequent sections.

### Stage 1: identifying the research question

Broad research questions were developed to ensure that the scoping review would not lend itself to the exclusive identification of particular types of studies, but would capture the diversity and scope of the literature available.[15 23]

The research questions are:

1. What strategies do occupational therapists use to facilitate work-related transitions after hand injuries?
2. What types of work-related transitions are described in the literature?
3. What factors contribute to transitions to work and how do they differ internationally?

### Stage 2: study identification

The search will identify literature from electronic databases. Additional hand searches will be conducted to assist in retrieving literature missed in the database searches.[23] The reference lists of the included articles will be searched to ensure that all relevant literature is included. Saturation is considered to be the point at which no new literature is found to be included in the scoping review.

The following databases have been selected in consultation with a subject librarian: EBSCOhost (including Medline, CINAHL and Health Source: Nursing/Academic Edition). The databases were chosen to ensure that all relevant literature was identified. An initial, limited search selection of relevant databases will take place, followed by an analysis of text words in the title and abstract, as well as the index terms used to describe the article.

A Boolean search string has been developed through the systematic process of reviewing Medical Subject Heading terms on Medline. In consultation with the subject librarian, the initial search terms have been developed for each database (see table 1).

An initial screening has been run to avoid using broad searches that would result in an unmanageably large number of results.[23] The results for the initial screening run using the abstract/title field are presented in table 2 below. The cut-off date applied for the search strategy screening was 30 August 2018.

To ensure that all relevant studies are included, additional, peer-reviewed literature will be added by hand

Table 1 Search strategy derived from the medical subject heading terms

| | |
|---|---|
| *TOPIC:* | Hand OR hands OR 'Upper Extremity' OR 'upper limb' |
| *AND TOPIC:* | 'Return to Work' OR 'return-to-work' OR 'work transition' OR 'back to work' OR 'back-to-work' |
| *AND TOPIC:* | occup* AND (therap* OR rehab*) |

searching the reference lists of the articles that were initially included to ensure that articles have not been missed.

### Stage 3: study selection

It is not considered necessary to place strict limitations on search terms, the identification of literature and the study selection at the outset of the scoping review protocol, as increased familiarity with the available literature will guide an iterative research process.[23] There will be no restrictions by country or language for the initial screening.

Studies published within the last decade (2008 to 2018) will be included in the review. Limitations will, however, include the additional, database specific filters that were implied, namely timespan, age groups, articles only and the specific indexes on the Web of Science database. This is due to the unmanageably large search results obtained without the appropriate filters used.

Preliminary inclusion and exclusion criteria have been drafted as a general guideline to select studies for the review (see table 3). Unlike systematic reviews, the inclusion criteria are not focused on the quality of the research produced.[24] Therefore, all studies that meet the inclusion criteria will be included regardless of the quality and rigour of the study. The study selection process will exclude literature on polytrauma, as the transition to work may differ on account of other injuries, and therefore not the hand injury specifically. This will also ensure that the primary focus of the intervention in the article will be for hand injuries. Furthermore, conference abstracts on work related transitions after a hand injury will also be excluded as detailed literature is required for the 'descriptive-analytical' method of analysis that will be used in this study.

In consultation with a librarian, databases and search strategies will be determined. All literature will be uploaded onto the Covidence platform to manage the project. Covidence will automatically remove and highlight duplicates, before the start of the review process. Covidence will initially be used to upload the abstracts and titles captured in the initial screening. The second and third authors will blind review all captured literature to determine its eligibility for selection into the scoping review. Where consensus is not achieved, another reviewer will be involved in debating any disagreements until a consensus is reached.

Full-texts will be uploaded for articles that meet the inclusion criteria. The researchers have set parameters to ensure that only published manuscripts and doctoral theses will be included in the scoping review. This will identify any systematic or literature reviews that have yet to be included through the initial searches. Grey literature will be identified by using the WHO's OpenGrey and OpenDOAR Library, as well as sources such as Open Access Theses and Dissertations, Sabinet: Current and Completed Research, ProQuest Dissertations and Theses, Database of African Theses and Dissertations and the Networked Digital Library of Theses and Dissertations to include doctoral research conducted by occupational therapists.

The Preferred Reporting Items for Systematic Reviews and Meta-analyses Protocols (PRISMA-P) flow diagram will be used to document the search and identification of studies. The number of studies identified in each step of the study selection process will be documented to represent

Table 2 Initial database screening results

| | |
|---|---|
| EBSCOhost including only Medline, CINAHL and Health Source: Nursing/Academic Edition | 77 |
| Pubmed | 99 |
| Scopus | 53 |
| The Cochrane Library | 15 |
| Web of Science | 67 |

Table 3 Provisional selection Criterion

| Inclusion criteria | Exclusion criteria |
|---|---|
| Literature on hand, upper limb or upper extremity injuries and return to work or work transition. | Literature on polytrauma which includes the hand, upper limb or upper extremity injuries and successful return to work or successful work transition. |
| Studies with adults (aged 18 to 65 years) who are working within the open labour market or in sheltered employment. | Conference abstracts on work-related transitions after a hand injury. |
| Studies involving participants with a variety of possible work-related outcomes ranging from returning to the same job in the same capacity to having to find alternative employment. | |
| At least one author must be an occupational therapist or the intervention in the article must directly refer to those used by occupational therapists. | |

the process visually. The PRISMA-P flow diagram will assist with reporting the duplicates found between the databases.

### Stage 4: charting the data

The 'descriptive-analytical' method will ensure that the authors collect standard information that will be useful to disseminate the findings in a concise and user-friendly format.[2] The 'descriptive-analytical' approach will assist the researchers to: identify historical data that will answer the research question comprehensively, to organise existing literature and to identify significant patterns and links within the literature. Care will be taken when charting the data, to ensure that accuracy is maintained.[25]

A qualitative data analysis system, such as the "R" qualitative data analysis (RQDA) program, will be used to analyse and categorise literature into theme areas. RQDA *is a qualitative data analysis tool which makes use of* computer assisted qualitative data analysis software to facilitate the process.[26] The codebook will be used to identify the strategies occupational therapists use to facilitate the work transitions for clients who have sustained hand injuries. To conduct a narrative on the available literature, the primary researcher will identify sub-themes from the sources included in the scoping review. The researchers will then critically analyse the sub-themes to identify the themes that will be discussed in the results section of the scoping review. The researchers will be cognisant of implications for practice and research when identifying themes.[27] Before grouping the barriers experienced by clients with hand injuries by country classification, the barriers will be described. The barriers will also be tabulated according to the World Bank classification of low-, middle- and high-income countries. This will assist in identifying gaps in the existing literature, as it is likely that there will be more literature from the global north than that produced by low- and/or middle-income countries.

The following general information will be extracted and tabulated from the included articles: author name(s), publishing journal, year of publication, country of origin, study population, the study aims/objectives/question, the setting, study-design and findings. In addition, themes will be extracted from the following areas:

- the strategies occupational therapists used to enable work-related transitions;
- the types of work-related transitions described and,
- the factors that contribute to transitions to work classified by World Bank country income groupings.

### Stage 5: collating, summarising and reporting the results

A descriptive and narrative summary of the study findings will be presented. Summary tables will be used to portray the vital elements of each study whether qualitative, quantitative or mixed methods approaches have been used.

To determine what literature has been produced over the last decade, we will tabulate a list of countries and sources from which research or literature about hand injuries and work-related transitions has been conducted. We will further provide a percentage breakdown of literature published by World Bank country classification, namely low-, middle- and high-income.

From the literature included in the scoping review, key quotes and ideas will be extrapolated to describe work-related transitions. The findings will be synthesised into a coherent article with applications to research and clinical practice.

**Table 4** Study timeline

| | |
|---|---|
| Stage 1: identifying the research question | The research questions have been formulated to develop the scoping review protocol and to initiate the planning of the scoping review to follow. |
| Stage 2: identifying relevant studies | The databases and search strategy have been determined in consultation with a subject librarian. An initial search has been run. However, the identification of relevant studies is still being confirmed. |
| Stage 3: study selection | A provisional inclusion and exclusion criteria have been formulated. However, this process is iterative and is therefore likely to change once the scoping review commences. We expect that roughly 132 articles will be screened after duplicates have been removed. The researchers will review 22 titles and abstracts per day over six working days. Once the included literature has been selected and the additional grey and hand searched literature has been included, the full-texts will be reviewed. The researchers are aiming to review 11 full-texts per day, which will amount to 12 working days. The total amount of time for data collection of the scoping review is expected to be approximately 30 working days. |
| Stage 4: charting the data | The data will be charted once stage three has been completed in entirety. The researchers have allocated 21 working days to conduct the descriptive analysis and to tabulate all the research findings. |
| Stage 5: collating, summarising and reporting the results | Once stage 4 has been completed, stage 5 will be initiated. A descriptive and a narrative summary of the study findings will be presented and written up into an article. The scoping review findings will be written up into an article in the first 6 months of 2019, to ensure optimal dissemination of the findings. |

### Study timeline

The proposed details pertaining to the study timeline are described in table 4.

## Patient and public involvement

The scoping review to follow on this protocol, will not require the participation of any patients or the general public.

## DISCUSSION (ETHICS AND DISSEMINATION)

Because the literature on this topic is scattered across a range of journals, it is challenging to determine how much literature there is, what is known and where the gaps lie. A scoping review will be beneficial in examining the extent of available literature, identifying possible research gaps and in synthesising the findings. This will take place once all the steps in the scoping review process have been completed. The researchers anticipate that the findings of this scoping review will have an application in research, policy development as well as in a clinical context and will be written up for publication in an international peer-reviewed journal. The findings will also be presented at conferences. The proposed scoping review is feasible, realistic and can be done within the time allocated in the proposed timeline.

Ethics approval is not required for the scoping review, as existing literature will be analysed. Exploring the barriers in work-related transitions, in low- and middle-income countries, through the use of a scoping review, can assist occupational therapists and researchers who are addressing the obstacles within the system, to have an informed position. The scoping review protocol has assisted the researchers in consultation with a librarian, to cast the scope wide enough to obtain literature from low- and middle-income countries which can contextualise work-related transitions after sustaining a hand injury from the low-, middle- or high-income countries' perspective, which is the ultimate aim of this scoping review.

It is useful to determine the strategies employed by occupational therapists and the barriers that people who have sustained hand injuries experience according to the World Bank classification of countries, as the barriers and means for addressing them is likely to differ in various contexts. This is likely to be more beneficial for clinicians and researchers in identifying gaps and applications in their specific countries. Furthermore, contradictory findings during the initial screenings demonstrate the need to distinguish between low-, middle- and high-income countries.

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**Contributors** All three authors conceptualised, drafted, developed and edited the protocol in preparation for the scoping review. MEU drafted the initial protocol manuscript as part of her master's degree. HB and LVN guided the protocol development and made numerous conceptual and editing contributions. All researchers contributed to all drafts of the manuscript and will be involved in screening and extracting the data once the scoping review commences. The researchers are all committed to being accountable for all aspects of this protocol.

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**Competing interests** None declared.

**Patient consent for publication** Not required.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** The papers that are to be included in the scoping review are uploaded onto Covidence. The project is password protected and is only accessed by the three researchers.



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## 2.2 Work-related Transitions Following Hand Injury: Occupational Therapy Scoping Review

### Title Page

***Key Words***

Upper extremity, Upper Limb, Return to Work, Vocational Rehabilitation, Work Strategies

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***Conflicts of Interest***

None declared.

***Declaration***

We declare that there are no competing interests. The authors consent to this manuscript being published and are committed to being accountable for all aspects of this scoping review. All three authors conceptualized, drafted, developed and conducted the scoping review. The first author drafted the initial manuscript as part of her master's degree. The second and third authors made numerous conceptual and editing contributions. All researchers contributed to all drafts of the manuscript.

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# Work-related Transitions Following Hand Injury: Occupational Therapy Scoping Review

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# Work-related Transitions Following Hand Injury: Occupational Therapy Scoping Review


## Abstract

**Background.** Occupational therapists who facilitate work-related transitions after hand injury require robust evidence to inform practice. **Purpose.** To identify the occupational therapist's contribution to facilitate work-related transitions for persons with hand injuries and identify gaps in existing knowledge. **Method.** A systematic search was conducted from 2008 to 2018 to identify articles and doctoral theses published across fourteen databases. Data was analysed descriptively. **Findings.** Fifteen studies from 16 countries (14 high- and two upper-middle income) were identified. Four strategies to facilitate work-related transitions were identified. Clear differences were evident across country groupings. **Implications.** The paucity of research limits evidence-based practice, especially in low- and middle-income countries, which indicates the need for further research.



## Keywords

Upper extremity, Upper Limb, Return to Work, Vocational Rehabilitation, Work Strategies

## Introduction

People who sustain hand injuries are likely to experience disruptions in their ability to continue their day-to-day activities, particularly work. These disruptions are likely to necessitate occupational transitions. Shaw and Rudman (2009) define an occupational transition as the process of change in a person's life which requires them to expectedly or unexpectedly change what they can do or are required to do; this definition was adopted in this review. Occupational transitions encompass multi-phase processes and events, as well as the interplay that is applicable across various contexts (Wasiak et al., 2007). Serious hand injuries typically require a work-related transition for people of working age. Successful work-related transitions are multifaceted and complex, and therefore require high-quality research to help direct appropriate resources towards interventions facilitating work-related transitions (Shi, Sinden, MacDermid, Walton, & Grewal, 2014).

The World Health Organization and the World Bank have reported injury as a significant burden to ill-health globally, but the highest burden occurs in low- and middle-income countries (LMICs), often in systems that are poorly equipped (Gosselin, 2009). Therefore, producing research in LMICs is essential to inform practice development. Care following hand injuries is inadequate in many parts of the world, particularly in LMICs (Dias & Garcia-Elias, 2006) where up to 50 percent of people sustaining an injury do not receive any healthcare (Spiegel et al., 2008).

The cost of a hand injury encompasses the direct costs related to the medical implications of the diagnosis, as well as indirect costs, such as days off work and loss of earnings (Dias & Garcia-Elias, 2006). The indirect costs are particularly noteworthy in LMICs, where social policies and support are not always available or implemented. For example, in Myanmar, a lower middle-income country, the per capita cost of healthcare in

2006 was $2.7 compared to $6620 per citizen in Norway, a high-income country (HIC) (Dias & Garcia-Elias, 2006).

Although numerous professionals contribute to work-related transitions, occupational therapists' unique contribution to rehabilitation following hand injuries is directed at ensuring successful work-related transition outcomes. Occupational therapists require relevant evidence in conjunction with their professional expertise and client preferences to inform best practice in specific contexts (Hoffman, Bennett and Mar, 2017). This scoping review thus aimed to synthesise the body of evidence focussed on the strategies occupational therapists use to facilitate successful work-related transitions for persons with hand injuries to provide a single information source for clinicians to consult.

## Aim

This scoping review aimed to identify the occupational therapy contribution to work-related transitions for persons with hand injuries and identify gaps in the existing body of knowledge in this area.

## Method

The methodology was informed by Arksey and O'Malley's (2005) framework and was structured according to five stages: (a) identifying the research question, (b) identifying relevant studies, (c) study selection, (d) charting the data and (e) collating, summarising and reporting the results. A protocol was published to obtain expert feedback to guide the review process (Uys, Buchanan and Van Niekerk, 2019). This scoping review was conducted in accordance with the published study protocol.

### Stage 1: Identifying the Research Question

The research questions for this review related to: (a) identifying the strategies occupational therapists use to facilitate and support work-related transitions after hand injuries, (b) identifying the different types of work-related transitions described by occupational therapists

in the literature, (c) determining the factors that occupational therapists have identified that contribute to successful work-related transitions, and (d) categorising the strategies used to facilitate work-related transitions and the factors contributing to successful transitions for people with hand injuries by the World Bank country classification (World Bank, 2018) to establish similarities and differences across these groups. This latter objective was deemed important as work-related transitions are likely to differ across contexts, particularly where income levels are substantially different.

**Stage 2: Study Identification**

The search strategy was created with guidance from a librarian. A Boolean search string was developed through the systematic process of reviewing Medical Subject Heading (MeSH) terms on Medline. The search strategy shown in Table 1 was used to identify articles and grey literature (theses) sources published from January 2008 to August 2018. The database search was conducted on 31 August 2018 after which all captured article titles and abstracts were extracted and uploaded onto the Covidence platform for review. The grey literature database searches took place on 21 January 2019. Sources from the last decade were included to capture the most updated strategies used by occupational therapists and to accommodate for the fact that policies and legislations around work-related transitions are continuously evolving. To ensure that all relevant sources were included, the reference lists of articles that met the inclusion criteria were hand searched. Only published manuscripts and doctoral theses were considered for inclusion in the scoping review.

**[Table 1 here]**

**Stage 3: Study Selection**

All literature was uploaded onto the Covidence platform to manage the project. The first author determined the eligibility of a manuscript, while the second and third authors verified all sources. Where consensus was not achieved, the authors discussed and resolved the

applicability of the source based on the inclusion criteria. Full-texts that were not available were requested via inter-library loans.

Literature from the last decade on hand, upper limb or upper extremity injuries sustained at work or outside of work that included return to work or work-related transition involving adults of working age were included in the analysis. Sources were included if at least one author was an occupational therapist, or the intervention directly referred to those used by occupational therapists. There were no restrictions by country or language. Translation was not necessary because the eligible sources were all in English. Studies on polytrauma were excluded as factors affecting work-related transitions might differ for hand injuries and multiple injuries. Conference abstracts were excluded as these did not provide sufficient detail for descriptive analysis. Systematic reviews were included if the original articles reported in the article were older than 2008.

**Stage 4: Charting the Data**

Descriptive information was extracted and tabulated for each article in a Microsoft Excel spreadsheet. The information that was captured included: author name(s), year of publication, publishing journal, country of origin, country classification, study design, population, aim/objectives/research question, setting. A qualitative data analysis system, called R Qualitative Data Analysis (RQDA) was used to manage the qualitative data analysis. Data were analyzed inductively using a descriptive-analytical method to develop themes related to: the strategies that occupational therapists use to enable work-related transitions (objective 1), the types of work-related transitions described in the literature (for example, the implementation of work-related assistive technology or adaptations in the workplace) (objective 2), factors contributing to work-related transitions (objective 3), and country-specific contextual differences influencing work-related transitions (objective 4). For the fourth research objective, the thematic analysis process involved coding key trends related to

the strategies occupational therapists used and the factors that contributed to successful work-related transitions in relation to contextual data; this was then further analysed by World Bank country groupings.

### Stage 5: Collating, Summarising and Reporting Results Findings

The authors collated and summarised the included literature to extrapolate key ideas and identify themes related to occupational therapy practice, hand injuries, work-related transitions and context-specific considerations, to thoroughly understand the complexity of the topic from various angles. Descriptive information was summarised in table format. Objectives one and two were discussed in-text, and objectives three and four used a combination of in-text descriptions and tables.

The percentage breakdown of literature was determined by World Bank country classification (low-, middle- and high-income), to establish the origin of each source. We felt this was important as the strategies and factors contributing to successful work-related transitions for people with hand injuries is likely to differ across country groups.

To categorise the contextual data, a table was developed to visually depict the identified codes by country income group. The tabulated data were entered into a Worlde producer to create an image to reflect the similarities and/or differences in the contextual codes by country group. Words that were not contextual descriptors were removed prior to this.

## Findings

### Search Findings

The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA-P) flow diagram was used to visually display the search and screening process for published articles (see Figure 1) and grey literature (see Figure 2).

A total of 236 sources were identified through the database searches. Covidence automatically removed 113 duplicates. An additional eight sources identified through hand searching reference lists were included for full-text screening. During the abstract, title and keyword screening phase, 79 sources were excluded.

The remaining 44 full-text sources were reviewed for eligibility, including one systematic review identified during the database searches. An additional two sources were identified by following up on articles included in the systematic and literature reviews. Four original published sources were identified from the systematic reviews; three were published prior to 2008 and were therefore excluded, and one did not meet the inclusion criteria.

After the full-text screening took place, 15 sources met the inclusion criteria, of which 13 were from the initial database searches, and two were from the hand searches. The breakdown of reasons for excluding 29 of the 44 full texts reviewed can be viewed in Figure 1.

**[Figure 1 here]**

252 grey literature sources were identified through searching thesis databases. Three theses were included for full-text screening, none of which met the inclusion criteria. See Figure 2.

**[Figure 2 here]**

**Characteristics of included sources**

Table 2 depicts the characteristics describing the 15 sources that were included. These were produced in 16 different countries, with the highest number from Taiwan (n=4), two each from Australia, Canada, Israel and The Netherlands and one each from Brazil, China, Sweden and the United Kingdom. 13 sources (87%) originated in HICs, and two (13%) from upper middle-income economies (Brazil and China). None of the sources originated from low- or lower-middle income countries.

Sources were published in 11 different journals; mostly work-related / occupational health (n=8) journals. Other journal types in which sources appeared included hand-specific (therapy or surgery) (n=2), systematic review databases (n=2), rehabilitation (n=2) and medical / surgical journals (n=1). The sources were predominantly quantitative; in cases where qualitative research strategies were used, the approach was exclusively mixed-methods.

Six of the included sources did not explicitly name the study design. Study designs reported in the remaining sources were systematic reviews (n=3), prospective cohort studies, (n=2), retrospective record reviews (n=2), a case control study (n=1) and an observational cross-sectional study (although this appeared to be a mixed methods study) (n=1). The two sources from UMICs both focused on predictive factors for work-related transitions.

**[Table 2 here]**

Most sources investigated factors affecting work-related transitions, including possible predictive factors (n=12); the remaining three determined the effects of vocational rehabilitation programs (n=1), provided recommendations for safe return to work (n=1) and investigated the barriers and strategies for return to work (n=1).

**Strategies Used by Occupational Therapists to Facilitate Work-Related Transitions**

Objective one focussed on four strategies occupational therapists used to facilitate work-related transitions: addressing psychological factors (including coping skills and pain management); communicating with employers; work specific strategies and hand therapy treatment.

**Addressing Psychological factors**

Eight sources reported the importance of psychological factors in work-related transitions. In Peters et al. (2018) identified 31 modifiable barriers to work-related transitions, 15 of which were psychological. Chen et al (2016) found that, in addition to biological factors, psychological factors should be regarded as discriminative predictors prior to a person's transition to work. Hu et al. (2014) reported that psychological factors may be associated with other prognostic factors such as injury severity and recognition at work. Marom, Ratzon, Carel, and Sharabi (2018) recognised the particular importance of considering psychological factors for trauma-related hand injuries. Opsteegh et al. (2009) reported that for some clients, an alteration in the appearance of the hand may be linked to trauma-related distress including mood disorders. They also reported on the length of time taken to return to work and symptoms of post-traumatic stress disorder. Four sources discussed the need for clients to develop coping strategies, and five considered pain management as fundamental to successful work-related transitions. Opsteegh et al. (2009) noted the lack of clarity on the influence of a particular coping style on work-related transitions. However, more recent research noted that coping skills need to be addressed in the early stage of occupational therapy intervention (Chen et al., 2016; Marom et al., 2018). Lastly, Ramel, Rosberg, Dahlin and Cederlund (2013) recommended incorporating coping strategies into a specific program for work-related transitions.

**Communication with Stakeholders**

Occupational therapists communicate with the employer, the injured employee and various stakeholders. Miscommunication affects the consistency of strategies used in work-related transitions (Peters et al., 2018). Cabral et al. (2010) found that the involvement of a professional at the beginning of the work-related transition process was one of the actions that could contribute to successful return to work. Cabral et al. (2010)'s respondents reported that professional input would facilitate reintegration to work, in addition to recommending

changes within the organization (such as moving departments, modifying job tasks or reducing working hours) and implementing such changes effectively.

**Work specific strategies**

Occupational therapists can assist in matching job demands with that of their client's functional ability. Five articles indicated a trend for clients to return to alternative employment after sustaining a hand injury (e.g. Hwang et al., 2009 and Peters et al., 2016). In Craig, Englehart, Adisesh's (2017) study, just over half (51%) the respondents returned to work; however, only one participant returned to the same job in the same capacity. Marom et al. (2018) noted that some clients may require work restrictions or reduced working hours during their rehabilitation. Ramel et al (2013) recommended that occupational therapists focus on adapting specific tasks in their client's occupations, as dissatisfaction in activities of daily living has a direct bearing on return to work. Hwang et al. (2009) recommended adding a vocational program to that of their medical program, establishing a work skills program, providing assistive devices for work and setting up work hardening programs to improve the person's work-related transition outcome within their setting.

**Hand Therapy**

Hu et al (2014) found that hand rehabilitation, in addition to paying attention to financial and social aspects, was pivotal to ensuring a successful transition to work. Three articles discussed the importance of treatment focused on the components of function to ensure a successful work-related transition (Cabral et al., 2010, Hwang et al., 2009, Ramel et al., 2013). These included biological aspects such as grip strength (Ramel et al. 2013) and scar management (Hwang et al. 2009). This finding was supported by a participant in Cabral et al.'s (2010) study who described how their reduced range of motion and joint stiffness limited their occupational participation.

**Types of work-related transitions**

For the second objective, we envisaged that finding studies to support the different types of work-related transitions occupational therapists use in their practice, for example, work-related assistive technology and adaptations in the workplace. However, none of the sources mentioned these; this is therefore a gap in the existing evidence in this field. It must be noted that while some of the included studies discussed workplace accommodations, which is a strategy to facilitate work-related transitions, this was discussed broadly, with none of the sources reporting how clinicians could implement different types of work accommodations or adaptations. For example, Peters et al. (2016) reported that job accommodations may be more challenging for people with carpal tunnel syndrome, as their job tasks may include exposure to heavy lifting, repetitive hand movements and bending or twisting of the hands, which may contribute to this diagnosis. Hou et al. (2017) considered modified work as a prognostic factor for work-related transitions and Hwang et al. (2009) mentioned general factors linked to job modifications such as changing from skilled to unskilled work, changing to a totally different type of work with the same employer and changing employers. Shi et al. (2014) reported that opportunities for work accommodations, such as flexible employment, are often greater for client's with higher levels of education.

**Factors Contributing to Work-Related Transitions**

In terms of objective 3, the analysis revealed four factors that contribute to work-related transitions: 1) the client's clinical picture; 2) the client's thoughts, perceptions and emotions; 3) the client's background, family and social context; and, 4) the client's work history, work environment and sense of belonging at work (refer to Table 3).

**[Table 3 here]**

**The Client's Clinical Picture**

Findings from ten of the sources confirmed that hand injury severity, the mechanism of injury and type of injury are likely to affect work-related transitions. Shi et al. (2014) found that the

greatest predictor for return to work was injury severity with more severe injuries resulting in longer work-related transition periods. The amount of time spent in hospital has also been found to affect work-related transitions. Logistic regression demonstrated that a one-day increment in hospitalization was associated with a 7 percent reduction in the odds ratio of returning to work within 12 months (Hwang, Chen-Sea, & Chen, 2009). A systematic review identified one study that reported that prolonged treatment delayed a client's work-related transition to their job in their pre-injury capacity, and another that found that workers who received outpatient treatment were more likely to return to work more quickly (Shi et al., 2014). Grip strength was identified as a factor influencing return to work in two studies; one found it essential for completing work tasks (Cabral et al., 2010) and the other identified it as a significant predictor of time needed to return to work (Chang, Wu, Lee, Guo, & Chiu, 2011).

**The Client's Thoughts, Perceptions and Emotions**

Eight sources considered self-efficacy and the client's perception of their occupational performance as factors affecting their work-related transition. A binary logistic regression indicated that self-perceived vitality and time off work were factors predicting work-related transitions in the early stages (Chen et al., 2016). Cabral et al. (2010) noted the meaning that work held for some clients. For example, a participant described feelings of missing work in terms of doing something, and being, useful. Peters, Johnston, Hines, Ross and Coppieters' (2016) systematic review concluded that improved worker satisfaction in relation to occupational performance was associated with successful work-related transition. Furthermore, dissatisfaction with work was prognostic for long-term work disability, as well as the likeliness of remaining in the current job or ceasing workman's compensation claim (Peters, Johnston, Hines, Ross, & Coppieters, 2016). Five sources discussed the effect of a client's desire to work on their work-related transition; those who wanted to work were more

able to overcome their physical limitations (Cabral et al., 2010). In their systematic review, Peters et al., (2016) reported that two sources identified decreased self-efficacy as prognostic of perceived disability for upper extremity conditions. Similarly, Shi et al. (2014) found that self-perceived levels of functioning affected the timeliness of work-related transitions following a traumatic hand injury.

**The Client's Background, Family and Social Context**

Twelve of the included sources considered demographics as potential predictors of a client's return to work. Shi et al. (2014), Chang et al. (2011) and Chen et al. (2016) explicitly noted that there was no conclusive statistical link between the interplay of collective demographic factors such as age, gender, education level, income, occupational category and successful work-related transitions. All other studies focused on the role that a specific demographic factor, such as age, could have on influencing work-related transitions. Despite older people having more work experience, people younger than 50 years of age at the time of an upper limb amputation were more likely to return to work (Craig, Englehart, Adisesh, 2017). The age of a person who sustained hand burns increased the odds ratio for returning to the same job with the same employer without any job modifications (Hwang et al., 2009). Chen et al. (2016) and Chang et al. (2011) found no significant differences in gender, marital status, education level, and compensation status with regard to successful work-related transitions. Marom (2018) and Hu et al. (2014) found quicker return to work was associated with a higher level of education. Similarly, employers in Canada were more likely to facilitate work-related transitions of employees with higher educational levels (Shi et al., 2014).

Three sources reported that social support positively impacted work-related transition. Motivators for work-related transitions included having dependents and being a breadwinner Hwang et al. (2009). Socio-economic status was an influencing factor, with higher-income workers being more likely to return to work sooner as a result of having access to more

comprehensive treatment and support to accelerate their recovery, compared to their lower-income counterparts (Shi et al., 2014).

**The Client's Work History, Work Environment and Sense of Belonging at Work**

Workers who are supported by their employers tend to return to work promptly and report increased job satisfaction (Hu et al., 2014). Five sources discussed aspects related to organizational support that positively influenced the work-related transition outcome. The less time taken to return to work the better the outcome of the work-related transition (Chang et al., 2011). Factors related to early return to work included increased self-efficacy, reduced occupational stress, decreased pain and distress related to the trauma and reduced functional distress (Marom et al., 2018). The longer a person had been employed, the more likely they were to return to work (e.g., Cabral et al., 2010).

Six sources noted that an increase in the amount of time away from work increased the amount of time taken to return to work. Chen et al. (2016) found that a longer time off work impaired work-related transition. A further finding was that job demands affected work-related transition. Blue-collar workers took longer to return to work than white-collar workers, as their jobs are typically physically demanding, requiring manual dexterity and hand strength (Opsteegh et al., 2009). Poor co-worker relationships are prognostic of poor work-related outcomes (Peters et al., 2016). Patients who sustained their injury on the job were almost eight times more likely to take longer than ten weeks to return to work (Opsteegh et al., 2009). Three authors found that return to work was less likely if the injury was sustained at work (Cabral et al., 2010, Chen et al., 2016 and Opsteegh et al., 2009).

**Contextual differences influencing work-related transitions**

Table 4 represents the key contextual factors classified by World Bank country groups.

**[Insert Table 4 here]**

Six contextual factors were identified: compensation legislation and insurance policies; employment opportunities in unstable labor markets, region specific factors within a country, cultural and ethnic differences, countries with minority groups and gendered role differences embedded within culture. Twelve sources referred to compensation legislation, insurance and legal factors as contextual factors influencing their research findings. Concerns around employment opportunities was discussed exclusively by one UMIC source.

Shi et al. (2014) highlighted that two studies in their systematic review were unable to demonstrate an association between workers' compensation status and return to work. They concluded that clinicians, employers and policymakers need to be mindful of geographical context as the studies were conducted in China and Taiwan, which differ from systems in countries such as the United States. Country-specific differences in return to work were reported in several studies. Delays in work-related transitions were identified in Taiwan which has a labour system that pays injured people their lost wages for two years post-injury (Chen et al., 2016). Similar correlations between disability compensation and delayed work-related transition were found in Israel (Marom et al., 2018) and the Netherlands (Opsteegh et al., 2009). However, in Canada, workers with compensatory support were more likely to return to work than those who sustained equivalent injuries outside of work (Craig et al., 2017). In Australia, injured employees reportedly have access to plans for return to work, reimbursement for medical expenses and rehabilitation, and an income substitute for their work-related injury (Peters et al., 2018). In Sweden, a rehabilitation plan is implemented within 90 days of injury to ensure return to work (Ramel et al., 2013) and national insurance policy documents have been devised specifically for work-related transitions. Contrarily, in most LMICs, compensation exclusively covers the acute treatment of a patient (Gosselin, 2009).

Figures 3 and 4 highlight the differences between HICs and UMICs in contextual factors that reportedly influence work-related transitions . The contextual factors that dominate for the sources from HICs are compensation, systems, support, benefits and insurance compared with unemployment, worldwide, policies, retirement and different regions in UMICs.

**[Figures 3 and 4 Here]**

## Discussion

This scoping review aimed to to identify the occupational therapy contribution to work-related transitions for persons with hand injuries and identify gaps in the existing body of knowledge in this area. The occupational therapy specific literature reviewed indicated that occupational therapists were using a variety of strategies to facilitate work-related transitions (e.g. Craig et al., 2017., Hwang et al. 2009., Marom et al., 2018 and Peters et al., 2016). Occupational therapists engaged and educated the client's family and employer in the work-related transition process and played a crucial role in the implementation of a graded return to work plan and recommending work accommodations or adaptations based on the client's functional ability (Melvin, 1985). Sources indicated that clients did better if rehabilitation focused on what the client perceived as difficulties (e.g. Cabral et al., 2010).

The literature in the scoping review demonstrated that the maximum level of hand function should be obtained, as there was a direct correlation between hand function and return to work (e.g. Chang et al., 2011). Factors that increased the likelihood of a successful work transition outcome included returning to work as early as possible and having a supportive employer. In contrast, the longer a client was away from work the less likely they were to have a successful outcome. Most hand injuries can be safely treated on an outpatient basis (Dias & Gracia-Elias, 2006). Therefore, safely reducing days of hospitalisation should

be considered, as literature has indicated that many people with hand injuries can be safely treated as outpatients.

A lack of role clarity in the process of work-related transitions has been found to hinder the return to work (Peters et al., 2018). Peters et al., 2018 recommended that the role of key stakeholders in the process of work-related transitions for hand injuries should be defined. It was also identified that there was variability in recommendations on time off work for clients with the same diagnosis from different clinicians (e.g., Newington et al., 2018). Newington et al., (2018) found that consensus needs to be reached to optimally advise clients on how much time off work is recommended for their particular hand injury related to their job demands.

Many sources used models such as the biopsychosocial model, and frameworks such as the International Classification of Functioning, Disability and Health, to guide their clinical reasoning (e.g., Peters et al., 2018). Due to the complexity of work-related transitions, a traditional biomedical paradigm applied within a clinical setting was found to be inadequate, as addressing the interplay between biological, psychological and social factors has been found to result in the best outcome for work-related transitions (Peters et al., 2018). An important finding of this review is that it is crucial to address pain and psychosocial factors within clinical practice (e.g. Marom et al., 2018). As adaptations after hand injury may occur over a long duration, occupational therapists need to integrate physical and psychosocial components in their approach to treatment, and in the development of protocols and modalities (Chan & Spencer, 2004). Accommodations can address the barriers related to the physical demands of a person's work, which will improve their work-related transition outcome.

Work-related transitions were found to be influenced by context-specific, financial, legal and societal processes (Marom et al. 2018). Therefore, the generalizability of the findings of

this review have to be interpreted with caution and within the parameters of the labor legislation, social security, insurance and healthcare services specific to a particular country or context.

This review identified contextual differences between countries in work-related transitions, which indicates the need for occupational therapists to consider their intervention within the system in which they are working. A clear gap in the existing body of knowledge is that none of the sources in this review originated from low- and LMICs. This is noteworthy, as the strategies used by occupational therapists in UMICs and HICs may not be feasible in low- or LMICs. Furthermore, a limited number of sources in this review were from UMICs. Further research is required globally to extend the evidence base in this field, but even more so in LMICs due to the paucity of evidence from these contexts.

## Limitations

The review may have yielded further results had master's dissertations been included. The use of additional search terms may have identified other relevant sources for inclusion in this review. As this review focussed only on the available evidence for occupational therapy involvement in this field, information produced by other professions that may have relevance to occupational therapy was excluded.

## Conclusion

Work-related transitions appear to be complex due to the number of prognostic factors affecting the likelihood of a person with a hand injury returning to work. Context-specific healthcare, economic and political policies add to this complexity. Occupational therapists are well equipped to support the complete rehabilitation of clients with hand injuries including work-related transitions. Occupational therapists have the ability to align and grade their hand therapy and vocational rehabilitation intervention with that of the functional needs of a person while taking all aspects of the person's personal and work-context into

consideration. The sources included in this review largely considered prognostic factors for work-related transitions which are likely to differ across countries due to fiscal, legal, political and social factors which will affect work-related transitions. Sources indicated a broad scope of potential interventions used by occupational therapists to facilitate work-related transitions. However, these did not seem to be offered in a comprehensive manner. Occupational therapists' role tended to focus on initial stages of rehabilitation with less of a focus on facilitating the actual return to work phase.

## Implications for Research

The evidence base for the efficacy of strategies occupational therapists could use to ensure the successful return to work of their clients is extremely limited, and therefore research in this area is recommended. Although hand injuries are a global phenomenon, the existing literature on hand injuries and return to work largely reflects a HIC perspective. Research partnerships between low-, middle- and high-income countries are recommended in order to produce the evidence required to support contextually relevant occupational therapy practice globally.

Research into the different types of work-related transitions and the strategies used to facilitate work-transitions is required to support occupational therapists' fundamental role in facilitating work-related transitions.

## Key Messages

- Most of the included literature in this review was produced in high-income countries (HICs). The absence of literature from LMICs could limit evidence-based practice in these countries, as interventions used in HICs may not be feasible in LMICs.
- Despite occupational therapists being fundamental to work-related transitions, insufficient research has been published on this area with regard to hand injuries.

- Occupational therapists can provide profession-specific strategies within a multidisciplinary team which contribute to the overall success of work-related transitions after a hand injury.

## Conflicts of Interest

None declared.

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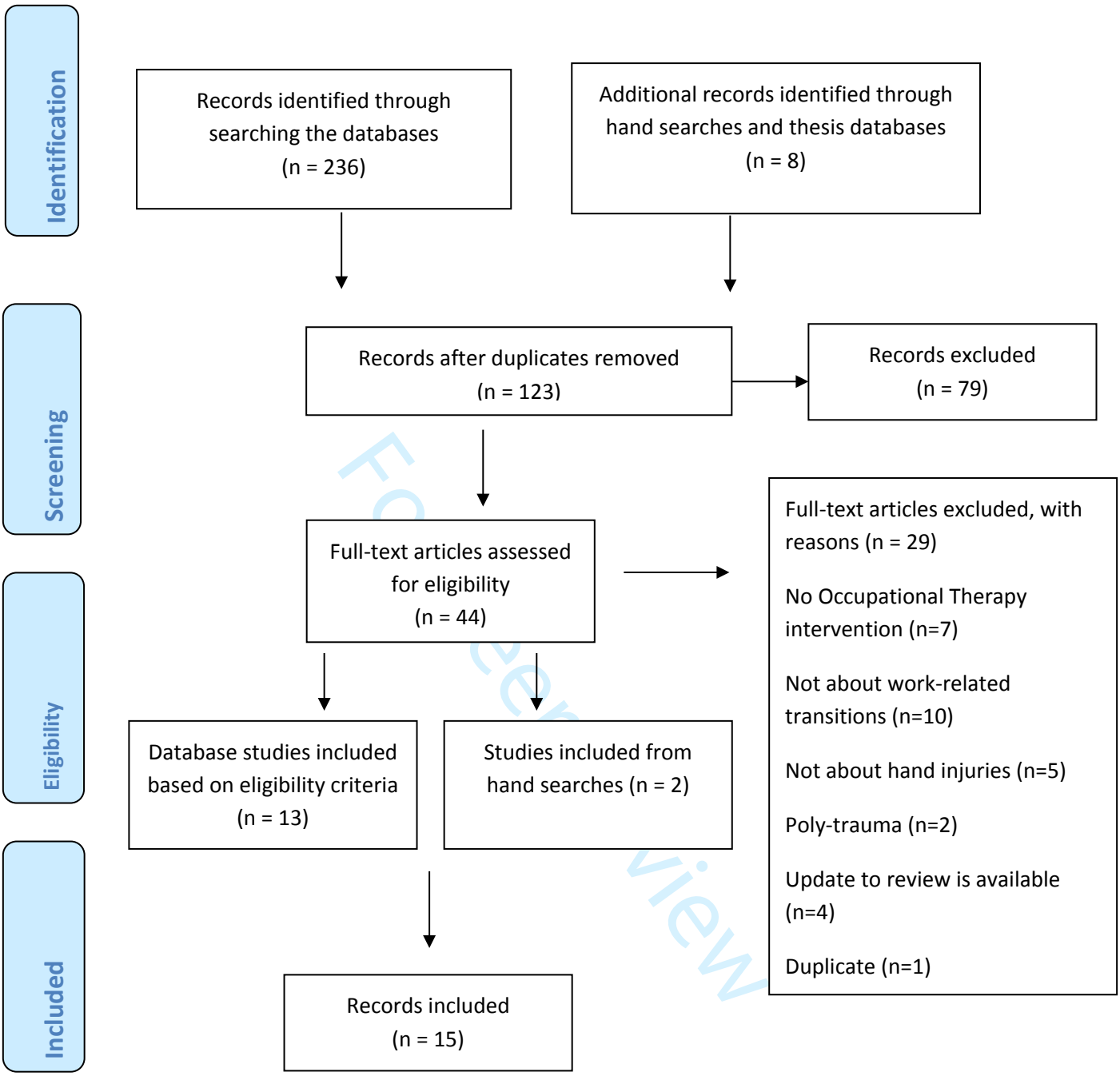


*Figure 1.* The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA-P) flow diagram.

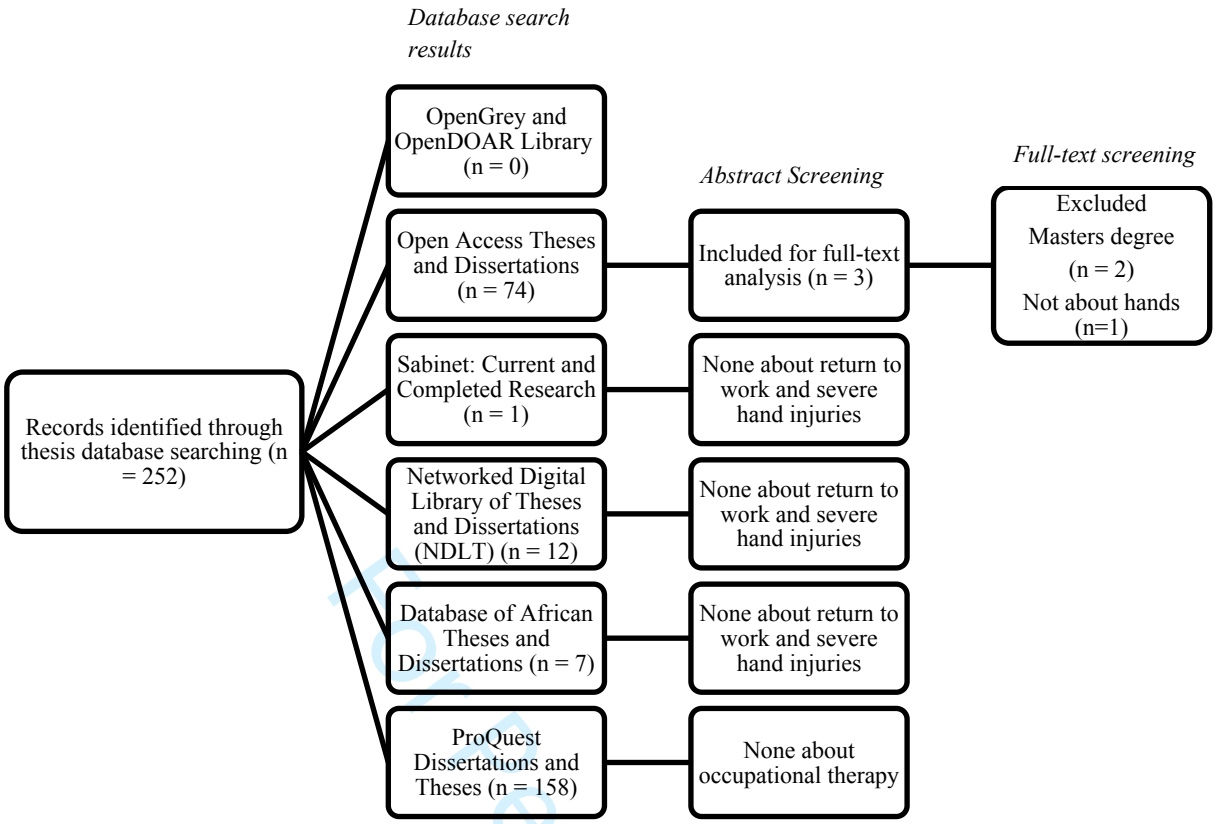


*Figure 2.* Study selection flow diagram for theses.


*Figure 3.* A visual depiction of contextual concepts considered by UMICs


*Figure 4.* A visual depiction of contextual concepts considered by HICs

*Table 1* Search Strategy

| | **Search term lists** |
|---|---|
| **Database: Search date 31 August 2019** | |
| Medline<br>CINAHL<br>Healthsource: Nursing/Academic Edition<br>Pubmed<br>Scopus<br>The Cochrane Library<br>Web of Science | ***TOPIC:*** Hand OR hands OR "Upper Extremity" OR "upper limb"<br>***AND TOPIC:*** "Return to Work" OR "return-to-work" OR "work transition" OR "back to work" OR "back-to-work"<br>***AND TOPIC:*** occup* AND (therap* OR rehab*) |
| **Grey literature sources: Search date 21 January 2019** | |
| OpenGrey and OpenDOAR Library<br>Open Access Theses and Dissertations<br>Sabinet: Current and Completed Research<br>ProQuest Dissertations and Theses and dissertations<br>Database of African Theses Dissertations and the Networked Digital Library of Theses and Dissertations (NDLT) | |

*Table 3* Factors Contributing to Work Transitions

| **Factors (Themes)** | **Sub-themes (number of sources)** | **Sources for each factor** |
|---|---|---|
| The client's clinical picture | 1. Grip and pinch strength (n = 3) | Cabral et al. (2010)<br>Chang et al. (2011)<br>Moshe et al. (2015) |
| | 2. Length of hospitalisation (n = 2) | Hwang et al. (2009)<br>Ramel et al. (2013)<br>Shi et al. Q (2014) |
| | 3. Hand injury severity, mechanism of injury and type of injury (n = 10) | Cabral et al. (2010)<br>Chang et al. (2011)<br>Chen et al. (2016)<br>Hwang et al. (2009)<br>Hu et al. (2014)<br>Marom et al. (2018)<br>Opsteegh et al. (2009)<br>Peters et al. (2016)<br>Ramel et al. (2013)<br>Shi et al. Q (2014) |

| | | |
|---|---|---|
| The client's thoughts, perception and emotions | 1. Self-efficacy and perception of occupational performance and health (n = 8) | Cabral et al. (2010)<br>Chen et al. (2016)<br>Marom et al. (2018)<br>Moshe et al. (2015)<br>Opsteegh et al. (2009)<br>Peters et al. (2016)<br>Ramel et al. (2013)<br>Shi et al. Q (2014) |
| | 2. Desire to work/ work satisfaction (n = 5) | Cabral et al. (2010)<br>Chang et al. (2011)<br>Hu et al. (2014)<br>Peters et al. (2016)<br>Ramel et al. (2013) |
| | 3. Client's perception of the meaning of work (n = 2) | Cabral et al. (2010)<br>Ramel et al. (2013) |
| The client's background, family and social context | 1. Client demographics (n = 12) | Cabral et al. (2010)<br>Chang et al. (2011)<br>Chen et al. (2016)<br>Craig et al. (2017)<br>Hu et al. (2014)<br>Hwang et al. (2009)<br>Marom et al. (2018)<br>Moshe et al. (2015)<br>Opsteegh et al. (2009)<br>Peters et al. (2016)<br>Ramel et al. (2013)<br>Shi et al. Q (2014) |
| | 2. Social support (n = 3) | Opsteegh et al. (2009)<br>Peters et al. (2016)<br>Peters et al. (2018) |
| | 3. Socio-economic status/salary bracket (n = 6) | Chen et al. (2016)<br>Hu et al. (2014)<br>Hwang et al. (2009)<br>Marom et al. (2018)<br>Opsteegh et al. (2009)<br>Shi et al. Q (2014) |
| The client's work history, work environment and sense of belonging at work | 1. Relationship with co-workers and colleagues (n = 3) | Opsteegh et al. (2009)<br>Ramel et al. (2013)<br>Peters et al. (2016) |
| | 2. Place of injury at work versus outside of work) (n = 3) | Opsteegh et al. (2009)<br>Cabral et al. (2010)<br>Chen et al. (2016) |

| | |
|---|---|
| 3. Duration of employment (n = 2) | Cabral et al. (2010)<br>Hu et al. (2014) |
| 4. Organizational support (n = 5) | Hu et al. (2014)<br>Peters et al. (2016)<br>Peters et al. (2018)<br>Ramel et al. (2013)<br>Shi et al. Q (2014) |
| 5. Job demands (n = 8) | Cabral et al. (2010)<br>Hu et al. (2014)<br>Hwang et al. (2009)<br>Marom et al. (2018)<br>Moshe et al. (2015)<br>Newington et al. (2018)<br>Opsteegh et al. (2009)<br>Peters et al. (2016)<br>Ramel et al. (2013) |
| 6. Time off work (n = 6) | Chang et al. (2011)<br>Chen et al. (2016)<br>Hwang et al. (2009)<br>Marom et al. (2018)<br>Newington et al. (2018)<br>Opsteegh et al. (2009) |

*Table 4* Summary of contextual factors impacting work-related transitions by World Bank country classification

| Factor | HIC | UMIC | Source (year) |
|---|---|---|---|
| Compensation legislation and insurance policies. | ✓ | ✓ | Cabral et al. (2010)<br>Chen et al. (2016)<br>Craig et al. (2017)<br>Hou et al. (2017)<br>Hu et al. (2014)<br>Moshe et al. (2015)<br>Marom et al. (2018)<br>Peters et al. (2016)<br>Peters et al. (2018)<br>Shi et al. Q (2014)<br>Ramel et al. (2013)<br>Opsteegh et al. (2009) |
| Unstable labor market and scarce employment opportunities. | ✗ | ✓ | Cabral et al. (2010) |
| Differing regional statistics for success rates and factors influencing work-related transitions. | ✓ | ✗ | Hou et al. (2017) |
| Cultural and ethnic differences between different groups . | ✓ | ✗ | Marom et al. (2018)<br>Moshe et al. (2015) |
| Minority groups require attention from stakeholders and occupational therapists. | ✓ | ✗ | Marom et al. (2018) |
| Gendered role differences embedded within a culure. | ✓ | ✗ | Hwang et al. (2009) |

HIC: high-income country; UMIC: upper-middle income country

*Table 2* Characteristics of included studies (N=15)

| First author (year) | Journal | World Bank Classification | Country of origin* | Population, Sample Size and Setting | Study Design | Study aim(s) relevant to review | Findings relevant to review |
|---|---|---|---|---|---|---|---|
| Cabral et al. (2010) | Brazilian Journal of Physical Therapy | UMIC | Brazil | n=35 workers with occupational hand trauma; admitted for surgery between 2003 and 2006 (N=42). | Observational cross-sectional | Describe workers who returned to work after a hand injury and analyze the factors associated with this outcome three years after discharge from rehabilitation. | 1. Strongest predictors for RTW were: grip strength, occupational performance scores, occupational category and age.<br>2. RTW is multifactorial in nature; requiring professional follow-up, adjustments to the workstation and working hours and accident benefits may contribute to a successful return. |
| Chang et al. (2011) | Journal of Occupational Rehabilitation | HIC | Taiwan (Republic of China) | Patients with occupational hand trauma; admitted for surgery from 2003 to 2006 at a tertiary referral hospital centre (n=96). | Not stated (quantitative approach). | Investigate the correlation between RTW and overall hand impairment measures in workers with traumatic hand injury. | 1. Loss of grasp power was a significant predictor for TRTW.<br>2. The hand impairment ratio had a significantly mild positive correlation with TRTW.<br>3. Both strength loss and the motion area loss of the hand showed the significant correlation with RTW outcomes. |
| Chen et al. (2016) | International Journal of Occupational | HIC | Taiwan (Republic of China) | Clients with major traumatic work-related injuries to the forearm, wrist or | Case-control. | Investigate the predictors of RTW following work-related major forearm, wrist or | 1. There were no significant differences in demographics and the severity of hand injury between 2 groups. |

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|---|---|---|---|---|---|---|---|
| | Medicine and Environmental Health | | | hand consecutively sampled at two centres over a six-month period (July 2009 - Jan 2010), and allocated to two groups depending on their readiness to RTW (n=80). | | hand injury at the preparation stage of RTW. | |
| Craig et al. (2017) | Occupational Medicine | HIC | Canada | Adults with traumatic occupational upper limb amputation listed on a Workers Compensation Review Board database from 1993 to March 2015 (n=49). | Retrospective record review. | Describe the characteristics of workers experiencing occupational upper limb amputations and their work outcomes. | 1. Younger patients were more likely to RTW and did so sooner.<br>2. Patients returning to work did not seem to change job type, as coded through the Canadian National Occupational Classification.<br>3. Age was a protective factor for RTW. |
| Hou et al. (2017) | Cochrane Database of Systematic Reviews | HIC | Taiwan (Republic of China) | Published randomised controlled trials comparing vocational rehabilitation with an alternative (control) intervention | Systematic Review. | Determine the effects of vocational rehabilitation programmes for enhancing RTW. | 1. No high-quality evidence to support or refute the efficacy of vocational rehabilitation for enhancing RTW in workers with traumatic upper limb injuries. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | (n=466 records; none met the inclusion criteria). | | | |
| Hu et al. (2014) | International Journal of Injury Control and Safety Promotion | UMIC | China | Workers with work-related hand injury admitted at three hospitals (1 first-level and 2 second-level hospitals) from May 2008 to Jan 2010 (n=246). | Prospective cohort study. | Explore the situation and the potential determinants of RTW and the absence duration following a work-related hand injury, and to provide evidence for the future intervention strategy of improving RTW. | 1. Factors such as: demographic, clinical, economic and psychological affected RTW in the univariate analyses.<br>2. Timely treatment at outpatient clinics, less serious injury, no tendon trauma and no skin loss found to be significantly beneficial to RTW.<br>3. Workers with decreased monthly salary during absence and lower pre-injury salary were likely to take longer sick leave.<br>4. Proper clinical treatment and rehabilitation, as well as economic and social support seem to have played vital roles in prompting RTW. |
| Hwang et al. (2009) | Journal of Burn Care & Research | HIC | Taiwan (Republic of China) | Patients' of working age with hand burn injuries listed on a computerized registry at an academic hospital between January 1997 and | Not stated (described a quantitative approach). | Determine the work status of burn patients and what influenced their RTW. | 1. Being the primary wage earner in a family increased the likelihood of RTW postburn.<br>2. A longer stay in the hospital increased the time required to RTW.<br>3. Being older decreased the likelihood of returning to a modified job.<br>4. RTW was affected by general demographic and employment factors. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | August 2003 (n=108). | | | |
| Marom et al. (2018) | Archives of Physical Medicine and Rehabilitation | HIC | Israel | Male manual workers with acute hand injuries aged 22–65 referred to seven physical rehabilitation community occupational therapy clinics (n=178). | Prospective cohort study. | Determine time of RTW in relation to multivariable predictors among male manual workers after hand injury over a 12-month follow-up. | 1. Only compensation factors and education contributed significantly to overall RTW.<br>2. When separate analyses were performed: decreased self-efficacy, higher workplace demands, pain, emotional response to trauma, reduced hand function, and higher level of disability were significantly associated with delayed TRTW.<br>3. TRTW was determined by: hand function, pain, psychosocial factors and was also affected by legal factors.<br>4. Participants who did not RTW during the first 9 months are at risk for long-term disability. |
| Moshe et al. (2015) | Occupational Medicine | HIC | Israel | Patients with upper limb disorders referred for occupational fitness evaluation between 2005 and 2008 at a health maintenance organisation (n=52). | Retrospective record review. | To weigh various clinical, functional and occupational parameters that influence RTW in upper limb disorder sufferers and to identify significant predictors. | 1. Only the Disability of the Arm, Shoulder and Hand (DASH) score was a significant independent predictor of RTW.<br>2. Rehabilitation staff should regard a high DASH score as a warning sign when assessing RTW prospects in ULD cases. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Newington et al. (2018) | Journal of Hand Surgery (European) | HIC | United Kingdom | Members of the British Society for Surgery of the Hand, the Association of Surgeons in Primary Care, the Reconstructive Surgical Trials Network and the British Association of Hand Therapists (n = 310; 173 surgeons and 137 therapists). | Not stated (survey). | Derive recommendations for safe and effective return to different types of occupation after carpal tunnel release surgery. | 1. For Carpal Tunnel Syndrome: median recommended RTW times were 7 days for desk-based duties, 15 days for repetitive light manual duties and 30 days for heavy manual duties. |
| Opsteegh et al. (2009) | Journal of Occupational Rehabilitation | HIC | The Netherlands | Patients between 18 and 65 years of age who were operatively treated for a hand disorder or hand injury and were treated by a hand therapist at two rehabilitation centres between April 2006 and March 2007 (n=91). | Not stated. | Investigate the influence of biomedical, work-related and psycho-social determinants on RTW in patients with hand disorders and hand injuries. | 1. Pain, accident location, job independence and symptoms of PTSD were univariately associated with RTW.<br>2. Pain was a determinant for late RTW in the total group and accident location and symptoms of PTSD in the acutely injured group.<br>3. Pain, accident location and symptoms of PTSD were most important in resuming work in patients with a hand injury.<br>4. Treatment should focus on pain, and the development of PTSD symptoms during rehabilitation. |

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|---|---|---|---|---|---|---|---|
| Peters et al. (2016) | JBI Database of Systematic Reviews and Implementation Reports | HIC | Australia and the Netherlands | Quantitative studies (n=11) published before July 2015 investigating at least one prognostic factor for a work-related outcome in workers who had carpal tunnel surgery. | Systematic Review. | To synthesize the best available evidence on the association of preoperative prognostic factors with work-related outcomes in people who have undergone carpal tunnel surgery. | 1. Prognostic factors associated with workers' increased likelihood of an earlier RTW in a moderate-to-high-quality study included: worker expected or desired fewer days off work, occupation, lower pain anxiety and an unaltered their work role.<br>2. Prognostic factors for a poorer work-related outcome included: older age, lower income, functional limitations, lower recovery expectations, mental health status, job accommodation availability, high job demands, poor co-worker relationships, poor baseline work role functioning, workplace policies, preoperative work absence, workers' compensation status, attorney involvement, and post-diagnosis surgical wait time. |
| Peters et al. (2018) | Work | HIC | Australia and United States of America | Four stake holder groups - healthcare providers, legal professionals, insurers and employers – recruited nationally via gatekeeper | Not stated (survey that appeared to use quantitative and qualitative analysis methods). | Explore the perspectives of Australian stakeholders of the RTW barriers and strategies for a worker with an upper extremity condition and a | 1. 36 barriers (31 modifiable) were identified: 4 demographic; 8 biological; 15 psychological and 9 social barriers.<br>2. 'Work relationship stressors' (83.4%) and 'Personal relationship stressors' (64.7%) were the most frequently nominated barriers. |

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|---|---|---|---|---|---|---|---|
| | | | | organisations (n=621). | | complex workers' compensation case. | 3. Pain management and RTW planning were the most frequently nominated RTW stratergies. |
| Shi et al. Q (2014) | Journal of Hand Therapy | HIC | Canada | Studies investigating any prognostic factors of RTW after traumatic hand injury from 1980 until September 2013 (n=8; sample sizes ranged from 35 to 802). Countries publishing on the topic included Japan, Brazil, Denmark, Taiwan, China and Australia. | Systematic Review. | To systematically review available evidence to determine which prognostic factors predict RTW following work-related traumatic hand injuries. | 1. Consistent low-moderate quality evidence that individuals with more severe impairments and lower pre-injury income were less likely to RTW, and low-moderate quality evidence that age, gender and level of education had no impact on RTW. |
| Ramel et al. (2013) | Work | HIC | Sweden | All people with a serious hand injury referred to the department of Hand Surgery at a university hospital between 2005 and 2007 who were already | Not stated (survey). | Explore the factors important for RTW in people who sustained a serious hand injury. | 1. The most prominent differences were: higher perceived disability, reduced hand function, and dissatisfaction with daily occupations<br>2. The NRTW group had also more inpatient hospitilization days.<br>3. The RTW process can be more dependent on the person's own |

| | | | |
|---|---|---|---|
| | participating in an ongoing longitudinal study (n=40). | | ability and motivation than on the severity of the hand injury. |

HIC: High-income country; UMIC: Upper-middle income country; RTW: Return to Work; TRTW: Time to Return to Work; TOW: Time off Work; HI: Hand Injury; RTW: Return to Work; NHI: National Health Insurance; NRTW: non-return to work; PTSD: Post Traumatic Stress Disorder; CTS: Carpal Tunnel Syndrome; HCPs: healthcare providers, DASH: Disability of the Arm, Shoulder and Hand

*Note that for systematic reviews, the author(s) country is reported

*The study aims and findings were extracted from the abstracts of the sources.

# Chapter 3: The Qualitative Study

## A Qualitative Study Exploring Occupational Therapists' Strategies to Return Clients with Hand Injuries to Work


### ABSTRACT

**Introduction.** Occupational therapists focus on restoring engagement in meaningful activities. Hand injuries are disruptive to work, whereby occupational therapists consider a variety of different options to facilitate the work-related transition process. **Aim.** To understand the strategies used by occupational therapists to facilitate successful work-related transitions for people with serious hand injuries. **Methods.** A collective case study design, informed by phenomenological principles, was utilised. Each of the four cases comprised an occupational therapist and client dyad, amounting to eight participants. Sixteen interviews took place in total, as each participant was interviewed twice. Data was thematically analysed. **Findings.** A process model was developed to illustrate the phases through which participants transitioned. Three themes emerged, related to phases in the model. In the first phase intervention focused on the acute rehabilitation, which included the use of work-related tasks. The second, pre-occupational phase, focussed on work specific intervention. In the third, occupational phase, recommendations for work were implemented. Most of the strategies were used during any of the three phases. **Conclusion.** The process of transitioning back to work after a serious hand injury occurred in three-defined phases. Gaining clarity on the different phases was useful to identify the variety of strategies that are used. An occupation-based approach was found to make the client's transition successful. Collaboration with the client's employers and co-workers were essential to improve service delivery. Key barriers were related to worksite visits and the implementation of "alternative duty". It was found to be beneficial for clinicians to outline the importance of worksite visits and to carefully consider the employer when recommending "alternative duty". There is limited literature available from developing countries; which have unique social and economic challenges, such as high rates of unemployment. Producing literature in this context can enhance clinical practice in these countries and enhance successful work-related transitions.


**KEYWORDS:** Work-related transitions, Upper Extremity, Upper Limb, Hand Therapy, Vocational Rehabilitation

## INTRODUCTION

Rehabilitation is critical for people who have sustained a hand injury to restore function and enable return to previous occupations. Occupational therapists focus on restoring engagement in meaningful occupations, one of which is work. In South Africa, the setting for this study, citizens can make use of either the government or the private healthcare sector. The government healthcare sector refers to healthcare services provided by the state, whereas the private healthcare sector consists of private companies. The private healthcare sector is primarily utilized by citizens with healthcare insurance and those who were injured at work. However, there are circumstantial barriers in work-related transitions that differ in the private and government sectors of healthcare services provided within the country.

The barriers in the government sector of South Africa primarily include cost implications to access healthcare (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana and Chersich, 2011), vast travel distances for people living in rural areas (McLauren, Ardington, Leibrandt, 2013), dependence on public transport which is often unreliable (South African Human Rights Commission, 2007) and long waiting times (Young, 2016). These barriers may also apply to other countries with polarised healthcare systems or countries where healthcare facilities are concentrated around urban centres, which create difficulties for people living in rural areas to access healthcare (McLauren, Ardington, Leibrandt, 2013). A South Africa national household survey (n=4668) found that 63.6% of the wealthiest respondents used private transport to access healthcare, while 37% walked and 45.2% used public transport to access outpatient healthcare services (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana and Chersich, 2011 ). Understanding how these barriers are resolved in the two sectors of health care will enable the development of more effective occupational therapy service delivery within the country which may be transferable to other contexts.

To facilitate a successful work-related transition, occupational therapists conduct a thorough job analysis which enables them to determine the manual handling, postures, functional mobility, dexterity, skills and work environment of their client to make recommendations and adaptations to existing work tasks (Kunka, 2010), while simultaneously considering the biological aspects of hand function, psychological factors, pain management, coping skills, expectations and goals linked to recovery. The occupational therapist may also provide the client with assistive devices for work (Hwang et al., 2009). Occupational therapists frequently

play a fundamental role in the education of their client's employers and colleagues (Kunka, 2010), may implement a graded return to work plan or recommend a work trial (Kools & Koing, 2018). In cases where the employee is unable to return to their normal duties, the occupational therapist is equipped to make recommendations to facilitate a work-related transition for that specific person.

Some people who have sustained a serious hand injury have been found to have notable concerns about their employer's perception of them (Kunka, 2010). In an Australian study identifying barriers in work-related transitions, 83.4% of the identified barriers for return to work were stressors related to work relationships (Peters et al, 2018). Barriers were also found to include biological factors such as the person's health and job demands, psychological factors such as perceptions about work, and social factors such organizational systems (Australian Government Comcare, 2016). All of these barriers are addressed by occupational therapists.

This study aimed to understand the strategies used by occupational therapists to facilitate successful work-related transitions for people with serious hand injuries. In this study, a serious hand injury required the person to be out of work for six weeks or longer which could have been for physical or psychological reasons; or the requirement of reasonable accommodation which included alternative work at their place of employment in a temporary or permanent capacity; or the requirement of work-related assistive technology.

## METHODS

### Study design

A collective case design, informed by phenomenological principles, was utilised.

### Sampling and Recruitment

Purposive, criterion sampling was used to select occupational-therapist participants working within the Cape Town Metropole with at least three years' work experience within the field of return to work with clients with hand injuries. Once they had agreed and the study had been explained to them, they were asked to identify one of their clients to be interviewed using maximum variation sampling. The criteria for selection of client-participants were duration of recovery from the hand injury, time off work and the client's type of work. The clients were

plotted on a table and the occupational therapists were encouraged to select a client who differed to the other client's already on the table in terms of duration of recovery from the hand injury, time off work and the client's type of work. Therapist-participants were guided in the process of selecting a client-participant by considering clients who met the inclusion criteria, i.e. lived within a 50km radius of Cape Town, were of working age (18-65 years), had sustained a serious hand injury, were employed at the time of the injury and were not known mental healthcare service user. Each of the four cases comprised an occupational therapist and client dyad.

**Data collection and analysis**

A total of sixteen individual, semi-structured interviews were completed. The interviews lasted approximately 60 minutes and each participant was interviewed twice by the first author. The therapist-participants were guided to discuss their reasoning and intervention applied to a client. The client-participants were asked to talk about how occupational therapy facilitated their work-related transition. The interviews were audio-recorded, transcribed and, where needed, translated from Afrikaans to English by a sworn translator to maintain the integrity of the translation. The transcriptions were uploaded onto R Qualitative Data Analysis (RQDA) software, which was used to manage the analysis. Data were collected and analysed concurrently to allow the emerging findings to influence the second interview, which was essential, to enhance rigour (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Through the use of inductive content analysis codes were generated and then grouped to form categories, from which the themes emerged.

**Trustworthiness**

Credibility was ensured by using precise explanations to the extent that the participants who shared that experience were able to recognise it as their own during the second interview. The second interview included member checking, to ensure that the findings accurately captured what participants conveyed. Source triangulation was used to ensure the maximisation of understanding of a particular concept. The client and the occupational therapists' ideas on a particular concept was confirmed by existing literature on the topic as well as the authors' clinical experience. Researcher triangulation was also adhered to by ensuring that all three authors agreed on all the codes as well as time triangulation with the repetition of concepts in both interviews. Dense description was used to contextualise and provide rich information

about the study to enable accurate judgement about the applicability of the findings to other contexts to facilitate transferability.

All authors were involved in data analysis, and the findings were extensively discussed in order to reach an agreement. The research methods were accurately described to ensure clarity. The first author scheduled regular meetings with the second and third authors to give feedback on the study, to identify assumptions related to the research and to discuss emerging findings. The second and third authors are experienced in qualitative research and guided the process. Each step of the research process was documented, including noting decisions made during data collection, coding and analysis to ensure a clear audit trail; which enabled the verification of the findings, thus reducing the risk of researcher bias.

The study adhered to the ethical principles outlined in the Declaration of Helsinki (World Medical Association, 2013). The Health Research Ethics Committees at Stellenbosch University (HREC reference number: S18/05/098) and the Human Research Ethics Committee University of Cape Town (HREC reference number: 537/2018) approved the study. Each participant was required to give written, informed consent to participate in the study.

## FINDINGS AND DISCUSSION

### Participant Biographies

Jessica provided rehabilitation to clients who sustained an injury at work in a private practice; the cost of her services was covered under injury on duty compensation. Paul, a farmworker all his life, was 55 years old when he crushed his hand between a rock and the tractor wheel, causing extensor tendon damage, fractures and degloving. Jessica offered rehabilitation to improve biological structures, used graded motor imaging, made work specific adaptations and accommodations, in addition to facilitating a hand therapy group which Paul attended. Paul saw Jessica once in two weeks during the acute phase and once in three weeks during the pre-occupational phase. He returned to his work after a three-month absence. Because his work entailed many tasks requiring manual dexterity and strong grip strength, he required reasonable accommodation.

Mary was a community occupational therapist working in the government sector. She worked at a day hospital where the focus was on rehabilitative services provided on an outpatient basis.

Clients seen at day hospitals are usually referred from acute hospitals. Sarah, who sustained a zone three flexor injury following an assault by her husband was treated in an acute hospital, then referred to Mary for rehabilitation as an outpatient. Sarah worked ten-hour shifts in an assisted living facility for older adults, she thus required good endurance. When Sarah first returned to work approximately six weeks post-injury, she was unable to manage the intrinsic demands of her job. Ten weeks later she was able to resume with full capacity. Mary's intervention primarily focused on oedema, scar and pain management; long-duration passive stretching, hand grasps and education.

Charlotte, an occupational therapist in private practice, offered hand therapy and vocational rehabilitation. Freda, who had been working as a machinist in a large clothing factory for many years, developed bilateral Carpal Tunnel Syndrome which needed to be surgically repaired; she underwent two carpal tunnel release operations on each upper limb, done one month apart. Sarah had been with her current employer for two years and her work was light demand level. She resumed of work, with accommodations, 13 weeks post-surgery during which she saw Charlotte as an outpatient.

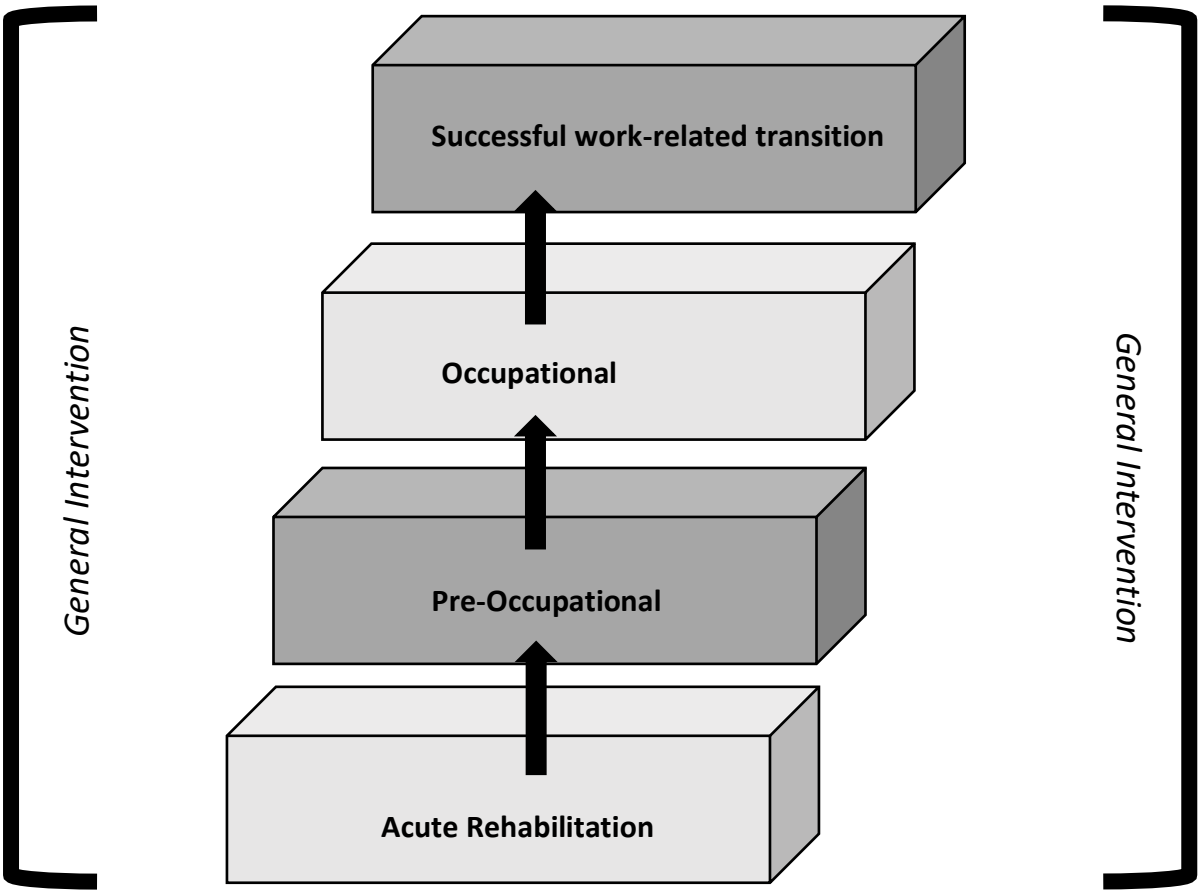
Inge worked in a large tertiary, government hospital, where her caseload comprised clients with various, physical pathologies, including acute hand injuries. Thomas, an immigration officer for the South African government, did mostly sedentary type work. He fell while on holiday and sustained a scapholunate dislocation and fracture. The fracture was not diagnosed immediately, leading to delayed rehabilitation. He was able to resume his work to full capacity three months post-injury. He did try a return to light-duty at an earlier stage; however, due to his job tasks requiring a lot of writing and clerical-type work, he was unable to do his work effectively until his fine-motor and dexterity hand improved, which took a full three months. Therefore, he went to work for one day in three months.

**The Work-Related Transitional Process**

From the data analysis, three themes emerged; these are presented in a process model developed to illustrate the phases through which participants transitioned to achieve successful work-related outcomes. The categories and codes inherent in each phase will be presented. During the first phase, acute rehabilitation, occupational therapy intervention focused primarily on hand structures and function, which included the use of meaningful, work-related tasks. Next was the pre-occupational phase; where occupational therapists focussed on work specific

intervention. Finally, occupational therapists implemented their recommendations in the occupational phase, when the person was back at work, either in an adapted role or in full capacity. Most of the strategies used by therapists were not phase specific and can therefore occur during any of three phases. This includes strategies such as client education or discussions with multi-disciplinary colleagues and employer.

Figure 1. The work-related transitional process




**Acute Rehabilitation**

The occupational therapists used a bio-psychosocial model as a framework, to structure their acute intervention strategies such as wound care, pressure care, scar massaging, oedema management, hand exercises, splinting and various treatment modalities such as graded motor imagery (GMI), paraffin wax, hand baths and heat during their initial sessions to improve the biological aspects related to their clients condition. The occupational therapists all issued home programs and educated their clients during this phase. OT-Jessica ran *hand groups* as a part of her services, which was she found to assist clients of a similar age and demographic

background with the support needed to ensure a successful work-related transition in the end-phase of his acute rehabilitation.

***Occupation-based Intervention***

The occupational therapists made use of simulated activities in order to strengthen their clients' hands. OT-Mary's rehabilitation strategy focused on using activities that client-Sarah would need to do at work in order to strengthen her hand. Client-Sarah was required to brush the hair of the elderly people that she cares for. OT-Mary explained as follows: *"[using] a hairbrush … we did [hair brushing for the] client [with] one hand brushing and then a little bit of the other hand. So, we didn't do active strengthening because … when she gains the passive range and when she uses the hand in activities, we thought that's enough strengthening".* OT-Charlotte used a similar approach with client-Freda's therapy: *"… we won`t do anything repetitive with the patient, nothing that's going to cause strain of the wrists, nothing too heavy, because actually, our belief is that when they go back to work, they`re strengthened. Especially carpel tunnels, because they`re doing the same work every single day, they must build their strength when they are back at work, so why do you want to do something here that might just influence - impact that recovery, where they are back at work and they can do exactly what it is that they need to do".*

***Pain Management***

All eight participants highlighted the influence of pain on work-related transitions. Client-Thomas detailed the significance of *OT-Inge* in overcoming the barrier of pain in his recovery: *"your role … as the OT is to break the barrier of pain ... [OT-Inge] will come to motivate you as to what it is that you need to constantly keep doing, even though you are in pain, so that you do not have to be stuck with the unnecessarily stiff fingers … when it comes to pain management, the positive attitude that [OT-Inge] gave me towards the injuries - to push me positively to an extent …*

**Pre-Occupational**

The *Pre-Occupational Phase* included strategies used by therapists pertaining to work specific intervention, such as obtaining job descriptions, completing worksite visits, work simulation and work hardening.

***Job Descriptions***

All four occupational therapists obtained a description of the clients work tasks in order to plan the return to work program for their clients. OT-Charlotte would: *"… speak to someone in HR, ask them for a job description. Ask them to go through the tasks with me, ask them to give the [production] targets and everything, so that I can actually simulate it … you ask the patient what is it that they [are] doing. … you ask every single activity that they do. How they [are] sitting, where they [are] sitting, where they [are] standing, how's the environment around them. So, you try to get the best picture you can of what they [are] doing".*

***Worksite Visits***

Work simulation and work hardening were found to be useful when a worksite visit could not be conducted. All occupational therapists indicated that they would ideally conduct a worksite visit. When discussing client-Freda, OT-Mary explained that: "*The only thing is I really would have wanted to do [is a] work visit. I would have wanted to see it and speak to the employer and just make sure.*

A frequent barrier was that employers did not want the occupational therapists to visit their place of employment. OT-Charlotte explained that: *"A few better [employers] are supportive … then you do get those employers that do not want you there. We really force … to go and do the worksite visit … The reason for that is just because they now see you and they see what your intention is, and they see that you are not there to do any harm to them or to their company".* The occupational therapists noted that in order to overcome this barrier, they would need to reassure the employer of their role to prevent them from feeling threatened.

**Occupational**

In the *Occupational Phase*, therapists would implement their recommendations and accommodations at their client's place of employment. This phase is focused on a graded return to work strategy if indicated or making accommodations at work. When client-Paul went back to work, he said that: *"then I felt there's life in me again"*.

***Workplace Recommendations***

Client-Paul had a supportive employer who was open to "light duty" which facilitated his work-related transition. When asked what light duty entails, client-Paul explained it as follows: *"I had to begin only with light duties, and any duties that I couldn't perform I was allowed to refuse until my hand was ready … [light duty is] whatever this hand could do. Actually, I can*

*drive a tractor, so now I spray the vines. Before I began spray the vines, I used to clean things, all light jobs, mainly I would transport people to farms. Now I work with big contractors, with 2 or 3 different people, then we take them to the farms".*

OT-Jessica made recommendations with regards to specific work tasks that client-Paul is able to do. Despite client-Paul's hand function not being that of his premorbid baseline, he said the following about his hand and his work: *"... as I work with my hand, my fingers cannot do things anymore, there are only some jobs that I cannot do anymore ... I'm just grateful they [*OT-Jessica*] helped me up here, that I can hold things with my hand. I thought I would not be able to use it anymore, but now I can work again and everything, even though it's not a 100% yet, I don't believe it will ever be a 100% again, but I'll just carry on with it as it is ....".*

Client-Freda recognised that the sewing machine she used at work aggravated her Carpal Tunnel Syndrome symptoms. OT-Charlotte was able to assist her client in addressing this concern: *"[her employer] did not understand it, to take me off [the problematic sewing machine] because Charlotte gave them a lot of letters, telling them to take me off the machine. That was my major problem I had with [the employer] and Charlotte sorted that out…".*

OT-Mary explained the modifications she suggested for client-Sarah. She emphasized: *... she was still doing a full day of work she was just doing it in a different way ... so she would put the top sheets on, and her colleague would maybe put the bottom sheets on, and she would do both beds. And so, there's equal distribution. It's not a different type of work and so I think that's one of the big things for her".*

Two of the occupational therapists noted that using the term "alternative duty" instead of "light duty" made a difference in how receptive the employers were to assist the client. Some of the clients' employers were not receptive to "light duty". OT-Charlotte reported: *"I know they won't send her back to light duty, we then asked for accommodations ... I asked them not to push her for target, so that she can work at her own speed. We asked them to allow her not to pick up the bundles of the jeans, because I would say it would be like 20 pair[s] of jeans that you would have to lift up and put on your machine, uhm so someone else does that for her. We asked them for her not to push the trolley.* OT-Mary noted that she *"would have employers that freak out when they hear [the term] "light duty" and once you explain alternative duty is also a possibility, they ... tend to listen to you and they tend to adapt. They [are] willing to swap*

*the type of tasks, so we, we'd go out, we'd analyse the work environment, the tasks have a look at what's also available in the environment and try and match that to the ability".*

OT-Charlotte reported that client-Freda's employer was resistant to alternative duty: *"... we like to say do some admin tasks, anything admin related, not computer work, that's obviously out, but something admin related, maybe the checklists, counting the bundles or something like that, but they [the employer] are not always keen. Especially the ones in production, then we always fight with the factories, we say at least she is there doing something, imagine she wasn't there doing anything. But they don't understand it like that. Because they must pay a full salary for when she's back. So, they [the employer] are actually losing income when she's at work. That's how they [the employer] explain[ed] it.*

***Graded Return to Work Strategies***

OT-Charlotte explained the need for gradual return to work using client-Freda as a case example. *So, ... now she doesn't have targets, maybe in six weeks' time also, ok, she might start meeting her targets… So, we'll gradually increase her work tasks until she's back at full, normal duty ..."*

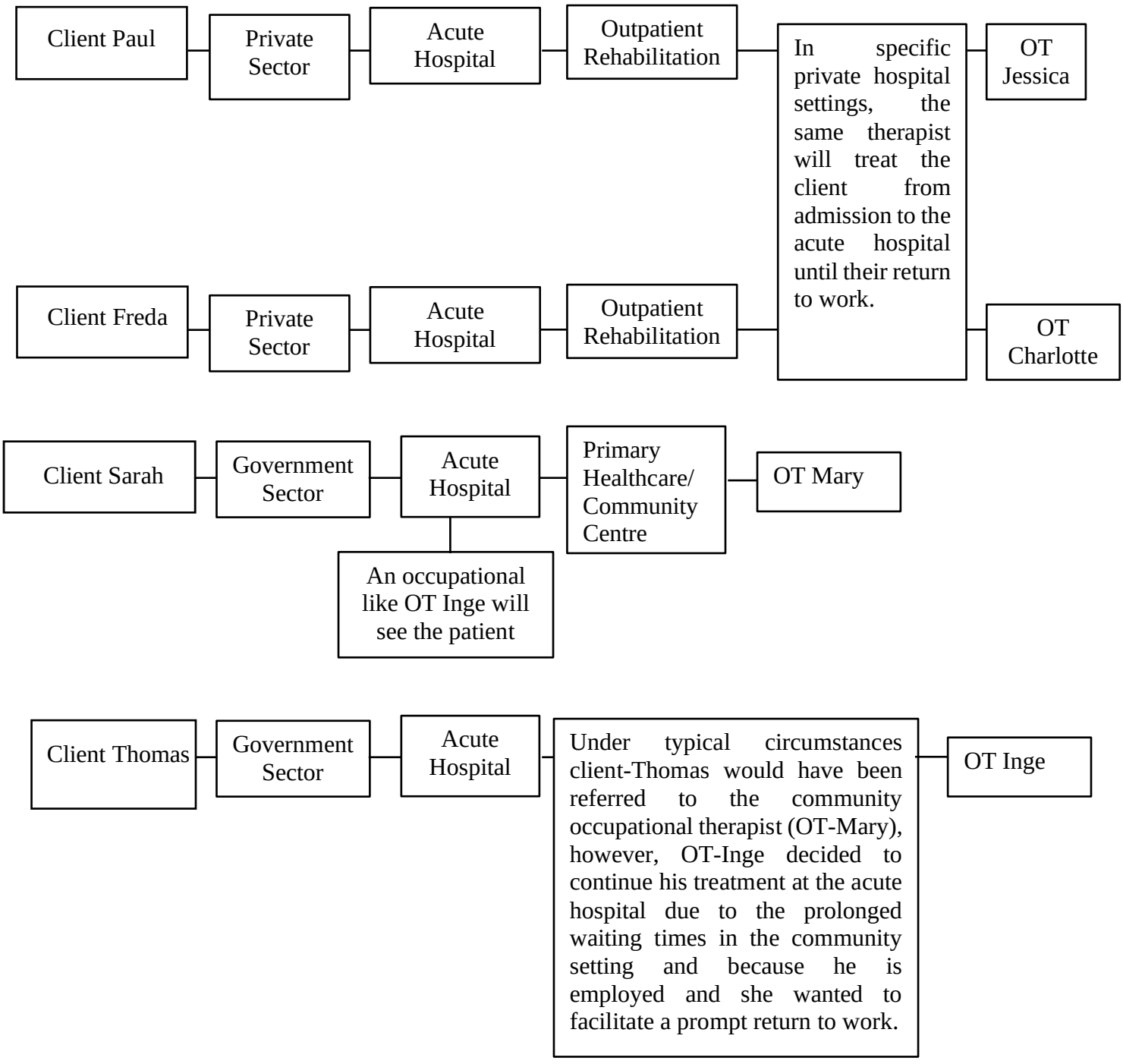
**General Intervention**

General intervention strategies referred to occupational therapy services that occurred throughout the above mentioned three stages. This included collaborating with healthcare professionals, speaking to the client's employers, addressing the client's colleagues, education and providing psychological input.

***Collaboration with healthcare professionals***

Collaboration with healthcare professionals included surgeons, physiotherapists, psychologists or previous occupational therapists. It is essential to have good communication between healthcare professionals working at different sites. Figure 2 is a schematic depiction of referral pathways for the occupational therapist and client dyad.

Figure 2. *Schematic representation of the treatment pathways followed by clients*




OT-Mary spent years building up a relationship with the acute hospital therapists to ensure the optimal care of the patients that she sees: *"I think that's one of the most important things to have a good network between different sites…"*. OT-Mary described that the use of protocols

and building relationships with healthcare professionals assist with mitigating barriers: *"it took a few years to build-up. You have to meet the people. They have to realize what skills you have, what equipment you have and what they can refer to you … it streamlines the process … we get very limited stock in primary healthcare, so [the acute hospital occupational therapist] and [me], we meet regularly for different reasons…. So, for instance … we don't get splinting material, but we can adjust splints, we can repair them…I think it's important to kind of cooperate".* In the community, a partnership with other sites is fundamental to ensuring efficient patient care. *OT-Inge* explained that she has also developed referral networks: *"I definitely have a good relationship with [the community occupational therapists] and there is … an open channel if they need anything from my side and they can always refer back if needed".*

OT-Jessica built successful relationships in private practice: *"we liaised with the doctor as well, so lots of correspondence letters, and then the doctor would send letters back saying he has done this and that … … there are some doctors that are difficult to work with and then it really affects your therapy at the end of the day …. [the surgeon] will trust [the occupational therapists] … and I think that's another thing that is maybe worth mentioning as a barrier or an asset to therapy. Is your trust relationship with your colleague".*

***Psychological Input***

The psychological support offered by occupational therapists for clients was found to facilitate work-related transitions positively. OT-Charlotte would follow-up often to ensure that her clients are coping at work: *"… I'm just calling you to check up and see if everything is going fine and how are you coping at work … I think a patient that's been injured at work their self-esteem is quite low … their self-esteem isn't the same as before … they go back to work because they are on light duty … other workers will [say]: … now I must do the heavy work because you are on light duty. Really nasty. Some patients can handle it and they will sort it out for themselves, other patients have to [be] refer[red] onto psychologists that will help them ....*". Client-Thomas also explained that *"…[OT-Inge] has prepared me psychologically [to be able to use his hand functionally at work]… [OT-Inge] was the person that gave me the lifeline, gave me hope, gave me the go ahead in terms of using my own hand [at work] …".*

***Educating the client***

A fundamental, yet crucial portion of occupational therapy intervention is educating the client. It was also essential to explain the hand injury and rehabilitation process clearly. Client-Thomas reported that the occupational therapist's education was helpful: *"the doctors, they got their own distinct language, unique language that they are using … as patients we turnout, not to understand … what it is that [the surgeons] are saying or what … actually happened to us. So, you know the significance of the OT… she will … explain what injury you have sustained … and what has happened, and what ought to happen, what the doctors still need to do on you … in a very simple, plain terminologies, not in medical jargon".*

OT-Mary found that it was crucial to educate her clients in a way that they could understand: *"… Using examples of objects and items that they understand. … with [an] injury that lasts many months-to-a-year, nerve recovery and everything that goes with that, you really need to make them understand why they are doing it [massaging and exercises provided in a home program], otherwise they stop doing it once the novelty has worn off … and then they just don't come back again".* OT-Jessica also made use of analogies to explain her client's hand injuries and the rehabilitation process to them.

All the occupational therapists explained the injury, precautions, and how to use assistive devices or therapeutic modalities to the clients. Client-Thomas said that *OT-Inge: … informed me what type of movements that I should continue trying to do on my hand so that I do not necessarily have to [be] stuck with a stiff wrist and stiff fingers which is going to be problem when it comes to my occupations".*

As a profession, occupational therapists are uniquely equipped to utilize an *occupation-centred* perspective, which enables us to deeply understand the disruption that injury can have on people as occupational beings, as well as to understand the influence that occupation can have as a therapeutic intervention (Fisher, 2013). In the acute phase of hand injury rehabilitation, there were two approaches which are used. The first is a *bio-psychosocial* approach and the second an *occupation-based* approach. The occupation-based approach was found to be more useful in ensuring that client's understood the benefits of occupational therapy intervention than the use of interventions. Therefore, clients were more engaged with their treatment when activities rather than exercises were used to improve grip strength.

Facilitation of work-related transitions were the long-term goal for the occupational-therapist participants. Towards this end they used *occupation-focused* strategies, in which occupation was the primary focus of their intervention (Fisher, 2013). For the occupational-therapist participants to meet their long-term goal, they used an *occupation-based* approach to engage their clients in occupational tasks. For instance, OT-Mary got client-Sarah to brush hair to strengthen her hands. This was a typical activity that she would do every day at work. There was a multitude of ways in which occupational therapists could strengthen their client's hands. However, using an *occupation-based* approach to restore hand function and the desired skills to engage productively in the workplace was observed to be the most effective (Fisher, 2013). The occupational-therapist participants also made use of a biomechanical approach in their intervention.

### Strengths and limitations

Data collection from perspective of occupational therapist and patient provided comprehensive insights. Maximum variation sampling was beneficial, as it assisted in understanding the complexity of work-related transitions for clients who have diverse occupations and socio-economic backgrounds. A limitation of this study is that the interviews were only conducted in one province of South Africa. The results could have been more transferable if more therapists and clients were interviewed in various provinces. The power-dynamic between the occupational therapist and their client may have led to the client only sharing positive aspects of their treatment. The authors reduced this risk by discussing specific aspects of the client's injury and rehabilitation which they know well and are therefore more likely to report accurately. The use of phenomenological principles has assisted to build an understanding around the complexity of work-related transitions for hand injury patients and has contributed to new ideas on the topic.

## CONCLUSIONS AND RECOMMENDATIONS

A fundamental role of the occupational therapist in a work-related transition is education. Occupational therapists should assume the responsibility to educate the client, the client's family, employer and colleagues. This will ensure that realistic expectations, accommodations and recommendations are made in the workplace. It has been noted that people who don't have the support of their colleagues are more likely to have a poorer work-related transition outcome than those who have the support of their colleagues (Peters et al., 2016). There has been no literature found to address the barriers or strategies in the return to work process for hand injury

patients in South Africa to date. It is recommended that future research is conducted on the topic to understand the barriers found in developing countries to enhance clinical practice.

A noteworthy challenge to work-related transitions is the reluctance of employers to agree to a worksite visit. Therefore, considerable efforts should be made to clarify the role of the occupational therapist in the workplace and the precise benefits of worksite visits. It is interesting to consider semantics when engaging with employers. Some employers were found not to be receptive to the concept of "light duty" and that using the term "alternative duty" can have a profound impact on the attitude of the employer. It is therefore recommended that occupational therapists use the term *alternative duty* and not light duty in their discussions with employers. It is recommended that clinical occupational therapists consider their unique professional position as *occupation-centred,* thereby using an *occupation-focused* and *occupation-based* intervention in their treatment of hand injury clients. It is evident that occupational therapists have the skills to use a range of strategies to facilitate positive work-related transitions. It is recommended that occupational therapists are involved with hand injury patients who are of a working age, to assist with facilitating work-related transitions.

**Key Points for Occupational Therapy**

- An occupation-based approach for work-related transitions is optimal.
- Collaboration with employers and co-workers is an essential element which enhances service delivery.
- Clients were positively impacted by the occupational therapists to successfully transition to work.

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# Chapter 4: The Quantitative Study

## Return to Work for People with Hand Injuries: Strategies and Barriers


### ABSTRACT

**Introduction.** The socio-economic burden of a hand injury in South Africa is substantial, particularly for manual labourers whose job tasks are physically demanding and require hand use. Barriers to work-related transitions occur on an economic, social and political level, as well as on a therapist- and client-specific level. **Aim.** The study aimed to identify the strategies and barriers encountered by occupational therapists to facilitate the work-related transition process after a serious hand injury. **Methods**. A descriptive cross-sectional design was utilised. A questionnaire was developed for the study through a rigorous development process, piloting and refinement. The final instrument was disseminated as an online survey to occupational therapists working within the field of return to work and hand injuries. A link to the survey was distributed to the entire population to recruit as many study participants as is possible. As no data were available on the number of occupational therapists working within this field, non-probabilistic, snowball and convenience sampling strategies were used. The data were exported into Microsoft Excel and descriptive analyses were conducted. **Results.** Forty-three occupational therapists completed the survey. The respondents mostly focused on treating components of function, addressing activities of daily living and issuing home programs as the direct strategies of their intervention to facilitate work-related transitions. One of the least used strategies was issuing assistive devices for work. The least used work-specific strategies included conducting a worksite visit, observing a client (or proxy) completing work tasks in the workplace and implementing a work trial. Financial support and compensation were seen as both an asset and a barrier. **Conclusion.** In a country with high levels of unemployment, occupational therapists can contribute to facilitating effective work-related transitions, despite the numerous barriers that exist. Identifying the strategies used by occupational therapists to facilitate work-related transitions in South Africa could lead to improved service delivery and improved success rates in work-related transitions after a serious hand injury.


**Keywords:** Upper extremity, Vocational Rehabilitation, Work-related transitions

## BACKGROUND

The socio-economic burden of hand injuries in South Africa is substantial. Hand injuries incur costs to the individual, employers and the state. This is particularly noticeable in the government health sector, where many patients are manual labourers whose job tasks are physically demanding. The intrinsic job demands of manual labour require hand function, with specific skills in dexterity and manual handling. Therefore, sustaining a hand injury will typically result in functional deficits requiring medical intervention and rehabilitation and will impact on the person's capacity to work (de Klerk, Badenhorst, Buttle, Mohammed & Oberem, 2016). Occupational therapists are equipped to provide therapy and vocational rehabilitation to people with hand injuries. Substantial evidence has been produced in the United Kingdom on the benefits of vocational rehabilitation (Waddell, Burton, Kendall, 2008).

More than a decade ago, it was reported that 1 million workers in the United States of America sustained hand injuries annually (Sorock, Lombardi, Courtney, Cotnam, Mittleman, 2001), Canadian statistics have shown that 28% of 630,000 work-related injuries in 2003 were to the hand (Statistics Canada, 2007), while one-fifth of cases presenting to European emergency departments are hand injuries (Amman, 2012). There are no accurate prevalence statistics for hand injuries in South Africa. Considering the high levels of violence and road traffic accidents in South Africa (Norman, Matzopoulos, Groenewald & Bradshaw, 2007), we assume that hand injuries are likely to be more prevalent than Europe and North America.

South Africa has large income inequalities despite the abolishment of *Apartheid* in 1994. This is speculated to have affected the level of skills of informal workers in the South African labour force (McLauren, Ardington and Liebrandt, 2013). In low and middle-income countries, the economy is dependent on manual labour for the propagation of industrialization. Equipment used by manual workers is often unsafe and unregulated by safety laws in developing countries, which may contribute to hand injuries in South Africa (Gosselin, 2009).

The majority of South Africans do not have healthcare insurance (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana and Chersich, 2011) and are therefore reliant on the government sector for healthcare. People in higher income brackets can afford healthcare insurance and thus to receive treatment in the private healthcare sector (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana and Chersich, 2011). The private sector has better human resourcing than the public sector, despite more people being dependent on the government sector for healthcare

(Coovadia, Jewkes, Barron, Sanders and Mcintyre, 2009). Transport costs, travelling distances and the type of transport available contribute to the barriers South Africans face in accessing healthcare (McLauren, Ardington and Liebrandt, 2013).

Occupational therapists draw on a variety of strategies to facilitate work-related transitions. The frequency of using these strategies is however unclear. In Norway, the most effective vocational rehabilitation strategy was found to include the prompt placement of the client back into work (Markussen & Røed, 2014) , while an Australian study reported the most important and most used skills within vocational rehabilitation were case management and personal counselling (Matthews, Buys, Randall, Biggs, Hazelwood, 2010). A study conducted in Australia found that the reported frequency of *actual* and *ideal* use of strategies differed (Innes and Straker, 2002). The authors did, however, find an overlap of strategies that were used with the same frequency across all types of work-related interventions (Innes and Straker, 2002).

Barriers to work-related transitions occur at an economic, social and political level, as well as on a therapist- and client-specific level (Innes and Straker, 2002). An Australian study found that the barriers to ideal practice in conducting work-related assessments related to occupational therapists working in isolation, and lacking training and experience (Innes and Straker, 2002). Client-specific barriers included a lack of motivation to return to work and clients who do not speak English as a first language. The most prominent work barriers included a lack of consistency in the workplace, the work environment and the employer's attitude (Innes and Straker, 2002). External barriers included industrial issues, delayed referrals and legislative problems among others.

The current study was nested within a larger mixed-methods study that explored the successful transition of people with serious hand injuries to work. The quantitative phase of the study aimed to identify the strategies occupational therapists in South Africa were using to facilitate return to work, as well as to determine the barriers that are encountered. Identifying which strategies occupational therapists used to facilitate work-related transitions could inform the development of best practice guidelines which will assist clients to receive the best care in this area of occupational therapy service delivery.

The study had three objectives:

1) To establish which strategies occupational therapists use in their practice.
2) To determine the frequency of use of the various strategies.
3) To determine the barriers identified in work-related transitions.

## METHODS

The STROBE guidelines have been used to report this study (Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP., 2008).

### Study Design

This phase of the larger study made use of a descriptive cross-sectional research design. A cross-sectional study was considered appropriate as the authors wanted to obtain descriptive data from occupational therapists to identify which work-related transition strategies are being used and to draw comparisons between the different strategies (Setia, 2016). Cross-sectional surveys are useful to measure the frequency that various work-related transitional strategies are being used (Setia, 2016) and to determine the variety barriers that that are encountered by the study participants.

### Setting

The population comprised all occupational therapists in South Africa working within the field of work-related transitions who had successfully returned clients with severe hand injuries to work. The survey was available from 25 May 2019 until 6 August 2019. Reminders was sent via a mailing list on 11 July 2019, 24 July 2019 and 5 August 2019. Links to the survey were posted on social media platforms between 27 May 2019 and 5 August 2019.

### Participants

Occupational therapists were eligible to participate if they worked within the field of upper limb and vocational rehabilitation or work practice. The survey could only be completed if the respondent met the self-selected inclusion criteria.

### Sampling

As no data were available on the number of occupational therapists working within this field, non-probabilistic, snowball and convenience sampling was used to include as many occupational therapists as possible.

## Questionnaire development

The items in the questionnaire were developed from two information sources. Firstly, as part of a scoping review, a thematic analysis was conducted to identify the different types of strategies used by occupational therapists to facilitate work-related transitions for clients with hand injuries (Uys, Van Niekerk and Buchanan, in review). Questions were formulated from the codes that made up the theme "the strategies that occupational therapists use to enable work-related transitions" in the scoping review. Secondly, an inductive analysis was undertaken of interview transcripts from an overarching study conducted in 2017 that explored South African occupational therapy practice related to work transitions after serious hand injury (Buchanan & Van Niekerk, in process). Codes were identified on the strategies the therapists used and questions were formulated from these codes. The questionnaire comprised two sections - work-related transition strategies used by occupational therapists and demographic information (see Table 1 for details on the questionnaire).

The survey made use of a combination of ordinal scales and text boxes. A four-point rating scale was chosen for most questions (43 of 67) as it is known to enhance validity and reliability when measuring individuals' opinions (Shing-On, 2009) which aligned with the objectives of this study. Four-point rating scales are also beneficial as the repetitive style of asking the questions has been found to improve the response rate (Treiblmaier and Filzmoser, 2011). The textboxes contextualised the responses or contributed new considerations to the existing questionnaire. Questions with four-point rating scales were supplemented with a textbox to provide an opportunity for additional descriptive information to the frequency of strategies used to facilitate work-related transitions, which is widely regarded as complex. The final questionnaire was refined during the pilot testing phase.

## Pilot testing

The pilot study was used to improve the face validity, content validity, reliability and utility of the survey, as well as to ensure that the data obtained was robust. The pilot study assisted in determining which questions should be removed, added or reformulated for clarity, whilst taking care not to compromise content validity (Greco, Walop and Macarthy, 1987). Reliability in self-reported questionnaires is often problematic. However, it has been found that responses are more likely to be reliable and accurate in studies where experts on a topic are consulted (Chong-ho Yu, 2018). Therefore, expert occupational therapists were approached to provide insight into the development and completion of the questionnaire. Participants in the first phase

of the pilot were asked to: 1) evaluate the content of the survey in terms of the applicability of the strategies for clients with serious hand injuries, and, 2) critique the clarity of the questionnaire. The participants in this group needed to be experts within the field of work-related transitions or hands, as knowledge concerning specific aspects of the questionnaire was important for validity. Occupational therapists working in academic institutions with a clinical background of at least five years in the field were chosen so as not to involve any potential respondents in the pilot phase.

The focus for reliability was to check the extent to which participants answered a question in a similar way. This was done by identifying logical patterns in responses to ensure that questions were answered consistently. The questions were also grouped logically together, in order to make it easy to identify the consistency of responses when they were reviewed.

In the second phase of the pilot study, the clinical utility of the questionnaire was tested with occupational therapists with extensive clinical and/or research- backgrounds who did not form part of the study. The occupational therapists completing the pilot survey contributed to the questionnaire's utility, by ensuring that its relevance to clinical practice was maintained. These participants assisted the researchers in addressing the completeness of the responses in the survey, to establish the time required to complete it and ensured that it was clinically relevant. Clinical relevance was related to the variety of strategies that would be used by South African occupational therapists and the barriers that they are likely to encounter in clinical practice.

*Procedure:* The pilot study participants were contacted via email or telephonically to invite them to participate. On agreement, each participant was emailed the questionnaire which they completed in their own time. They provided feedback through a combination of written and verbal formats. After completing the questionnaire, an individual, face-to-face or Skype meeting took place, with each pilot study-participant, to systematically discuss each question.

*Outcome:* Three expert occupational therapists employed at three different academic institutions across the country completed the pilot survey to obtain diverse input.

The feedback from the three-pilot study-participants was tabulated and systematically addressed. The authors considered the feedback in terms of the research objectives. Where the feedback improved clarity the changes were made. Where feedback did not fall within the

scope of the study, the changes were not made. The suggested revisions included changing or removing words for clarity, adding in a definition of case management, the expansion of the question to include synonyms such as components of function and performance skills, to divide concepts such as activities of daily living into instrumental and basic activities of daily living, to provide examples in the questions asked and to add in text boxes to capture more descriptive content. One pilot-participant recommended that an additional option was included in the four-point rating scale between *almost always* and *seldom*. These changes were implemented throughout. In one case where the pilot-participant recommended providing examples, the authors decided not to use this suggestion, as they were concerned about influencing the survey respondents' responses.

**The Questionnaire**

The questionnaire consisted of two distinct sections, the details of which are shown in Table 1.

*Table 1*. Questionnaire Structure

| **Section** | **Question** | **Content** | **Response option (descriptor)** |
|---|---|---|---|
| A | 1 - Techniques as part of a return to work protocol | • Direct occupational therapy treatment<br>• Indirect occupational therapy services<br>• Communication with key stakeholders<br>• Provision of emotional support<br>• Specific work-related strategies<br>• Specific work-related suggestions | • 4-point rating scale (almost always, often, seldom, never)<br>• Textbox for additional information at the end of the section. |
| | 2 - Assets and barriers | • Number of treatment sessions with a client<br>• Psychological condition<br>• Fear around return to work<br>• Anxiety around return to work<br>• Pain<br>• Desire for compensation/ disability grant. | • Asset or barrier (could select both options).<br>• Textbox for additional assets and barriers |
| | 3, 4, 5 - Practice-related information | • Number of sessions with client<br>• Number of persons with serious hand injuries requiring assistance with return to work seen monthly<br>• Treatment of workman's compensation<br>• Use of legal framework to inform clinical practice | • Select by clicking on one or multiple provided options.<br>• Option to type a free text response.<br>• Binary scale (Yes or No).<br>• If yes, a 4-point rating scale (almost always, |

| | | | |
|---|---|---|---|
| | | | often, seldom, never) followed. |
| B | 1- 4 - General Information | • Province<br>• Sector<br>• Level(s) of care<br>• Setting | • Select from a list of options. |
| | 5-8 Biographical information | • Years of experience<br>• Postgraduate qualifications<br>• Number of years working in the areas of hands<br>• Number of years working in the areas of return to work | • Option to type a free text response<br>• Binary scale (Yes or No)<br>• Textbox for additional information at the end of the section. |

**Data Collection Method**

The questionnaire was developed as an online survey. An online survey was chosen as it was the most economical way of ensuring that participants from across the country could participate in the study. Additional benefits included the flexible formatting of the questionnaire; in which questions that were irrelevant to the respondent would remain hidden from them, and that there were only a few questions on each page of the survey. The use of the electronic survey was also beneficial as the respondents could answer the questionnaire at their convenience and could share the link with their colleagues. The final questionnaire included an information page, consent form and inclusion criteria.

The electronic platform, SUrveys.sun.ac.za, was used to conduct the online survey. A link to the survey was distributed to the entire population of occupational therapists to recruit as many respondents as possible. The survey was shared through the Occupational Therapists Association of South Africa (OTASA) and the Metropole Occupational Therapists in Health (MOTH) group mailing distribution lists. The link was also posted on LinkedIn, relevant Facebook groups and shared with occupational therapists known to the first author for further distribution. The occupational therapists who received the invitation to participate in the study were required to determine their eligibility by self-selecting options for the inclusion criteria.

**Data management and analysis**

Data from the completed questionnaires were exported from SUsurveys into Microsoft Excel for analysis. As the data were not normally distributed, medians and ranges were determined

for numerical variables. Descriptive statistics were used to calculate frequencies and percentages for the different strategies used to facilitate work-related transitions. No additional analyses were conducted as the aim of the study was to describe the current practice.

## ETHICS

The Human Research Ethics Committee of the University of Stellenbosch (HREC reference number: S18/05/098) and the University of Cape Town (HREC reference number: 537/2018) granted permission for this study. The research participants were anonymous as no identifying information was required.

## RESULTS

There were 762 incomplete responses indicated on the SUsurvey platform, where the participant either did not complete the survey in full or only realised while they were completing the survey that it was not relevant to them. Forty-three occupational therapists met the inclusion criteria and completed the survey. Respondent profiles are presented first, and the results are then presented according to the sections in the questionnaire, namely: direct occupational therapy treatment, indirect occupational therapy intervention, provision of emotional support, specific work-related strategies, and assets and barriers in work-related transitions.

### Respondent profile

*Table 2* presents the respondents' biographical and context-specific data. They had a median of 10 years (range: 5 months – 30 years) experience as an occupational therapist. The median for treating hand injuries was 8 years (range: 5 months – 26 years), facilitating work-related transitions 4 years (range: 5 months – 30 years) and slightly more than half (53.5%) did not have a postgraduate qualification in hands or vocational rehabilitation. Of all respondents, 67.8% saw fewer than ten persons (range: 2 – 200 clients) with serious hand injuries who required assistance with a work-related transition per month. The respondents worked predominantly in the private sector, and in urban areas in Gauteng or the Western Cape.

*Table 2.* Respondent characteristics (n=43)

| | **No. (%)** |
|---|---|
| **Province** | |
| Limpopo | 3 (7.1) |
| Free State | 4 (9.3) |
| Mpumalanga | 0 (0.0) |
| Western Cape | 13 (30.2) |
| Eastern Cape | 1 (2.3) |
| North West | 5 (11.6) |
| Gauteng | 12 (27.9) |
| KwaZulu Natal | 5 (11.6) |
| Northern Cape | 0 (0.0) |
| **Sector** | |
| Government | 7 (16.3) |
| Private | 36 (83.7) |
| NGO | 0 (0) |
| Military | 0 (0) |
| More than one | 0 (0) |
| Other | 0 (0) |
| **Level of Care** | |
| Primary | 9 (20.9) |
| Secondary/District | 7 (16.3) |
| Tertiary | 15 (34.9) |
| More than one level | 8 (18.6) |
| Other [I] | 12 (27.9) |
| **Setting** | |
| Rural | 4 (9.5) |
| Deep Rural | 1 (2.4) |
| Urban | 25 (59.5) |
| Peri-urban | 6 (14.2) |
| Urban, Peri-urban | 6 (14.2) |
| Urban, Peri-urban, Deep Rural [II] | 1 (2.4) |
| **Postgraduate qualification or course accreditation in return to work or hands** | |
| Yes | 20 (46.5) |
| No | 23 (53.5) |
| **Experience (years)** | |
| | **Median (Range)** |
| As an occupational therapist | 10 (0.5 – 30) |
| Treating hand injuries | 8 (0.5– 26) |
| Facilitating work-related transition | 4 (0.5 – 30) |
| | **No. (%)** |
| **Occupational therapy sessions** | |
| 1 | 0 (0) |
| 2-6 | 6 (14) |

| | |
|---|---|
| 7-11 | 8 (18.6) |
| 12-16 | 8 (18.6) |
| 17-20 | 14 (32.6) |
| 21-24 | 5 (11.6) |
| More than 24 | 2 (4.7) |
| **Occupational therapists treating workman's compensation clients (n=36)** | |
| *Use of a legal framework to guide clinical reasoning* | |
| Almost Always | 5 (13.9) |
| Often | 15 (41.7) |
| Seldom | 5 (13.9) |
| Never | 11 (30.6) |
| *Assist clients with workman's compensation application* | |
| Almost Always | 2 (5.6) |
| Often | 4 (11.1) |
| Seldom | 11 (30.6) |
| Never | 19 (52.8) |

[I] A primary level of care refers clinics and day hospitals in the community where the focus is usually rehabilitative, and services are provided on an outpatient basis. A secondary level of care refers to healthcare services offered on an in or outpatient basis for specific conditions. Tertiary level of care are specialised facilities with specialist skills and equipment. Clients treated in Tertiary levels of care are usually inpatients.

[II] A rural setting was defined as an area some distance away from a town or city, with a smaller population. Deep rural referred to large and isolated areas. These are the areas of open country in South Africa, with low population density. An urban area referred to a built-up town or city and a peri-urban setting referred to an area located directly next to a city.

## Occupational Therapy Strategies

### *Direct Occupational Therapy Treatment*

Respondents indicated how often they had used a range of techniques as part of a return to work protocol (refer to Figure 1). The least used techniques were issuing assistive devices for work. Addressing activities of daily living and issuing clients with a home program were almost always used to facilitate work-related transitions. The most used direct occupational therapy treatment strategy was addressing components of function; this was used by all

respondents. The hand therapy protocols used included: the SAM protocol, Solomon's protocol, Duran Kleinert early mobilisation protocol, early active motion for flexor and extensor tendon injuries, protocols for fracture healing and immobilization for fractures, intermittent immobilization with early active motion for ligament injuries, graded active range of motion for nerve injuries, sensory stimulation protocols for nerve injuries or during healing of flaps/grafts and desensitization protocols following amputations and scarring. Casting motion to mobilize stiffness (CMMS)**,** Manual Edema Mobilization (MEM) and Flexor /extensor tendon repair protocols were tailored according to the therapists clinical reasoning, the specifications of the treating surgeon and timeline of referral. Provincial protocols (Western Cape and Gauteng) or hospital-specific protocols were also used. Respondents primarily used the International Classification of Functioning (ICF) framework for patients in the acute phase of treatment and the Person, Environment and Occupation (PEO) model for those in the chronic phase. Other models used included the Model of Human Occupation, the Model of Creative Ability, Affolter Approach and the Biopsychosocial Model.

A high percentage (83.7%) of respondents treated workman's compensation clients. A legal framework was almost always used by most of the respondents (83.7%). A few respondents almost always assisted with the workman's compensation application (16.7%). Of the seven respondents working in the government sector, only two (North West and Gauteng) saw workman's compensation clients.

**[Insert Figure 1. here]**

***Indirect Occupational Therapy***

Respondents indicated how often they provided indirect occupational therapy services. Every respondent provided education as an indirect service and almost all contacted medical and rehabilitation professionals (93.0%) (see Figure 2 for frequencies for the indirect occupational therapy services provided).

**[Insert Figure 2 here]**

***Provision of emotional support***

The respondents identified how often they provided emotional support in a variety of ways (see Figure 3). Responding to their client's stages of grief (91.7%) and considering psychological and psychobiological components of function (86.0%) were almost always included in the respondents' provision of emotional support. Additionally, they used motivational strategies (81.40%) and coping strategies (79.1%) The types of motivational strategies they used included: identifying external and internal motivators; positive reinforcement and feedback; goal setting; measuring progress numerically with photographs and videos; re-education; motivational interviewing; the use of meaningful activities; planning a routine; choosing motivators according to a client's priorities and interests; applying principles of Vona du Toit's Level of Creative Ability; participation in fun leisure activities that require similar function as the clients work and making them aware of their capability and feeling of accomplishment; Cognitive Behavioural Therapy (CBT); using activities with a time component to put a numerical value to progress, projects with an end-product and goals that incorporate strengthening to be able to return to a favourite activity.

Pain was almost always treated proactively before it became a problem (76.7%) and treated as it became apparent (81.40%). The screening for the DSM-V (Axis 1) psychological diagnostic categories (e.g. Mood disorders such as major depression and anxiety disorders such as Post-Traumatic Stress Disorder) was seldom considered (76.7%). Respondents indicated that they would use: A Progressive Goal Attainment Program, the Depression, Anxiety Stress Scale (DASS) and the Beck's Depression Inventory Test among others to screen for psychological diagnostic categories.

*Table 3.* Provision of Emotional Support

| | Almost Always/Often No. (%) | Seldom/Never No. (%) |
|---|---|---|
| Responded to the stages of grief associated with loss of limb and associated function. | 39 (90.7) | 4 (9.3) |
| Addressed psychological and/or psychobiological components of function. | 37 (86.0) | 6 (14.0) |
| Facilitated the development of coping skills. | 34 (79.1) | 9 (20.9) |
| Supported the process of adaptation for the development of coping skills to prepare the patients | 30 (69.8) | 13 (30.2) |

| | | |
|---|---|---|
| early enough for long-term disability (where relevant). | | |
| Employ a proactive pain management approach (before it becomes a problem). | 33 (76.7) | 10 (23.3) |
| Treated pain as it becomes apparent. | 42 (97.7) | 1 (2.3) |
| Used motivational strategies. | 35 (81.4) | 8 (18.6) |
| Screened for the DSM-V (Axis 1) psychological diagnostic categories (e.g. Mood disorders such as major depression and anxiety disorders such as Post-Traumatic Stress Disorder). | 10 (23.3) | 33 (76.7) |

***Specific work-related strategies***

The respondents often obtained a job demand analysis based on information provided by the client (83.7%) and from the employer (55.8%). Of the respondents, 53.5% seldomly conducted worksite visits, 48.8% seldomly used actual work tasks and 62.8% seldomly observed a client (or proxy) completing actual work tasks. See Figure 4 for the frequency of specific work-related strategies that were used.

**[Insert Figure 3 here]**

***Work-related suggestions***

The occupational therapists almost always recommended: a graded return to work (88.4%), that client's return to work as soon as they are medically and functionally able (88.4%) and workplace accommodations to the client (81.4%). The respondents made fewer suggestions of workplace accommodations to the employer (67.4%). Additional suggestions included ergonomic education and discussions with various stakeholders which included the client's colleagues and employer. Four respondents explicitly noted that they would suggest job modifications or workplace accommodation and not "light duty" (see Figure 4).

**[Insert Figure 4 here]**

### Assets and Barriers in Work-Related Transitions

Figure 5. depicts the assets and barriers that respondents identified in work-related transitions.

**[Insert Figure 5 here]**

Anxiety around return to work (97.7%), pain (95.35%), fear around return to work (95.35%) and desire for compensation (90.7%) were the most frequent barriers identified. The number of treatment sessions with a client (55.8%) was indicated as the most common asset for work-related transitions. Respondents identified additional assets and barriers for work-related transitions in their settings; more barriers than assets were identified. Barriers mentioned were financial constraints, access to healthcare due to distance, the person's attitude and insight as well as work specific constraints. One respondent commented that personal protective equipment was a challenge in many industries as the job may require wearing gloves, which may not be possible for a client with finger amputations. Furthermore, the same respondent explained that "light duty" is not feasible in specific industries due to the risks involved.

## DISCUSSION

This survey aimed to capture the strategies used by occupational therapists to facilitate work-related transitions. The respondents used a variety of strategies to facilitate work-related transitions depending on the setting in which they worked. Occupational therapists employed in the government and private sectors fulfilled a central role in facilitating the rehabilitation of people with hand injuries. In the Western Cape, it appeared that private practice occupational therapists provide most of the treatment for workman's compensation clients.

The respondents mostly focused on treating components of function, addressing activities of daily living and issuing home programs as the direct strategies of their intervention to facilitate work-related transitions. Hand injuries that limit a person from engaging in their activities of daily living such as work, require rehabilitation to restore functional components or through adaptations in cases where function cannot be restored (Melvin, 1985). Adaptations occur over a long duration and require the integration of both physical and psychosocial components (Chan & Spencer, 2004).

One of the least used strategies was issuing assistive devices for work. Assistive devices, which include assistive technology in the workplace, have been found to be an expensive option for some people and have also been found to lead to feelings of isolation (De Jonger & Rodger, 2006). Education was provided by all the respondents. It has been established that informing a client of their diagnosis, precautions and adequately preparing the client for what to expect from the process of return to work contributes to successful work-related transitions (Melvin, 1985). Occupational therapists often discuss these aspects with their clients during a consultation or provide clients with an educational handout as a method to improve compliance (DeCleene & Ridgway, 2013). The least used work-specific strategies were conducting a worksite visit, observing a client (or proxy) completing work tasks in the workplace and implementing a work trial. This could be related to cost implications and time-constraints of the occupational therapist.

Pain has been identified as a factor which complicates a client's functional outcome in the short and long-term (Koestler, 2010). Most respondents in this study treated pain proactively and seldom addressed pain only as it became apparent. It is also well-documented that psychiatric comorbidities and psychosocial factors are of paramount importance for clients with pain and traumatic hand injuries (Koestler, 2010). The American Occupational Therapy Association (2016) stated that people with serious hand injuries that require worker role adaptations will need an occupational therapist to consider psychological factors in addition to workplace modifications and traditional biomechanical approaches. Most respondents in this study seldom screened for DSM-V (Axis 1) psychological diagnostic categories with their hand injured clients. Despite this, respondents addressed their client's stages of grief associated with the loss of limb and associated function, addressed psychological and psychobiological components of function and facilitated the development of coping skills.

Occupational therapists treating workman's compensation clients in the private sector may experience similar barriers to those found in the government sector. This would typically include aspects such as the distance clients have to travel to receive occupational therapy, cost implications to access occupational therapy among other economic and social challenges (McLauren, Ardington, Leibrandt, 2013). In addition to the direct costs incurred to clients, there are various indirect costs which may include a reduction in wages, time away from the workplace, transport costs to attend healthcare appointments and costs to the employer (Dias & Garcia-Elias, 2006). For patients who are breadwinners, the indirect costs to their family and

community are extensive. In a study conducted in a tertiary hospital in South Africa, it was noted that 85% of the hand injury patients interviewed, earned less than 600US$ monthly (range R1000.00 – R9,000/month), despite being the breadwinners of their family **(**Stewart & Firth, 2017**).** It is likely that a breadwinner in a South African family who is earning minimum or close to minimum wage, will experience significant financial stress if they are unable to work for any length of time.

Financial support and compensation were viewed as both an asset and a barrier. It is important to note that although occupational therapists identified a client's desire to obtain a disability grant as a barrier to their intervention, many South Africans are dependent on grants to survive and to access healthcare (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana and Chersich, 2011). Financial support likely assists clients with the means to attend occupational therapy treatment and alleviates the financial pressure of not being able to work. However, given the high rates of unemployment and the competitive labour market in the country, some people who have sustained a hand injury may want to receive compensation for a disability to ease their financial constraints, which may affect their motivation and compliance with occupational therapy treatment.

This study used a thorough procedure to develop the survey. Expert-driven pilot tests are crucial to assess the face validity and content validity of a survey. The occupational therapists who participated in the piloting of the survey had strong research and clinician-based backgrounds, which improved the face validity of the survey

**Limitations of this study**

The survey was only available electronically which may have prevented some therapists from participating. The number of survey responses is a limitation to the generalizability of the study, with some provinces not being represented at all.

This study only aimed to identify the strategies that were being used; an in-depth exploration of the effectiveness of these strategies would have been useful to inform clinical practice. The questionnaire used a four-point rating scale which is known to produce results that are clustered around extremes, which may have resulted in polarised results. In addition, the barriers considered in the questionnaire related only to the client and their context. Additional barriers such as those related to the occupational therapist's level of experience were not considered.

## CONCLUSION

It is clear that in a country with high levels of unemployment occupational therapists can contribute towards facilitating work-related transitions despite the numerous barriers identified. It is important to identify the barriers affecting work-related transitions to inform clinical practice, particularly within South Africa which has a specific economic, political and social context. Identifying which strategies are used in work-related transitions in South Africa could lead to improved service delivery and improved success rates in work-related transitions. While some strategies for work-related transitions appearing in studies conducted in high-income countries (such as issuing assistive devices for work) may not be feasible in contexts such as South Africa, others (such as facilitating early work-related transitions) may be easy to implement and therefore used more regularly. Fear, anxiety, pain and the desire for compensation were identified as the most prevalent barriers that occupational therapists are addressing in South Africa.

## RECOMMENDATIONS

It is also recommended that clinicians extensively consider the psychological factors that could impact on their client's work-related transitions and that occupational therapy students are exposed to these factors in the development of their clinical reasoning. A variety of motivational strategies are used. An exploration into motivational strategies used for hand therapy clients may be useful to develop evidence on the actual strategies used by occupational therapists to inform clinical practice. It is unclear why assistive technology or assistive devices for work are seldom used to facilitate work-related transitions. It is therefore recommended that occupational therapists research this area. It would also be useful to determine the barriers to worksite visits to better understand how these issues can be addressed in future research. It is recommended that occupational therapists conduct research to demonstrate the cost-effectiveness and savings that can be made by providing rehabilitation and intervention for hand injury clients. In Sweden, national insurance policy documentation has been developed specifically for work-related transitions (Ramel et al., 2013). It will be beneficial to define a similar policy for South Africa. It would also be useful to closely consider the assets and barriers of workman's compensation in rehabilitation to inform policy and service delivery.

**FUNDING STATEMENT**

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**CONFLICT OF INTEREST**

We declare that there is no conflict of interest.

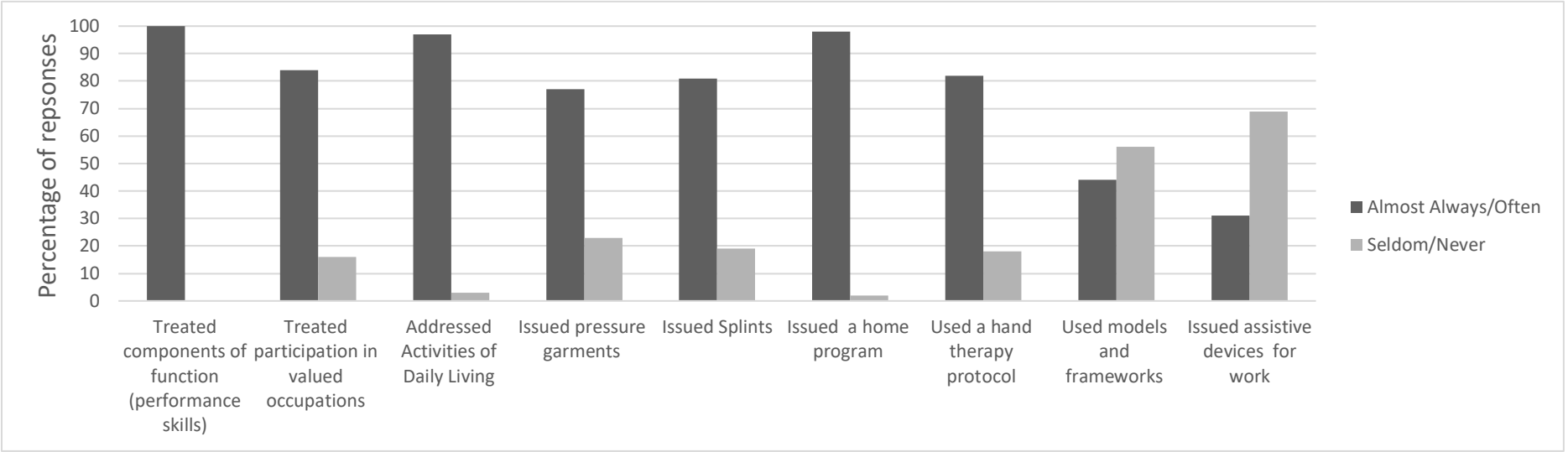


*Figure 1.* Frequency of providing Direct Occupational Therapy Services

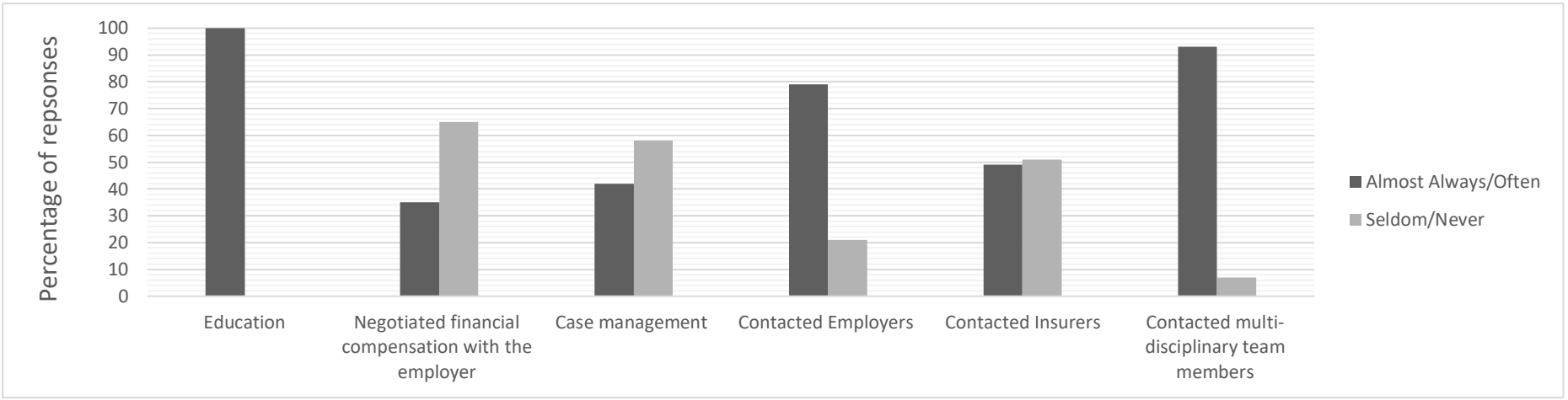


*Figure 2.* Frequency of providing Indirect Occupational Therapy Services

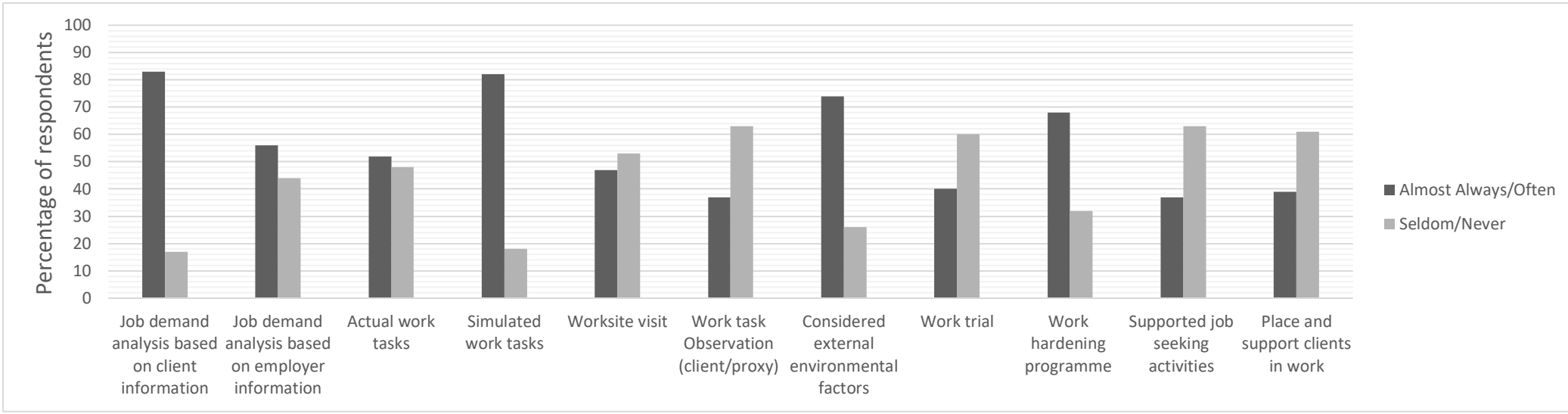


*Figure 3.* Utilization of specific work-related strategies

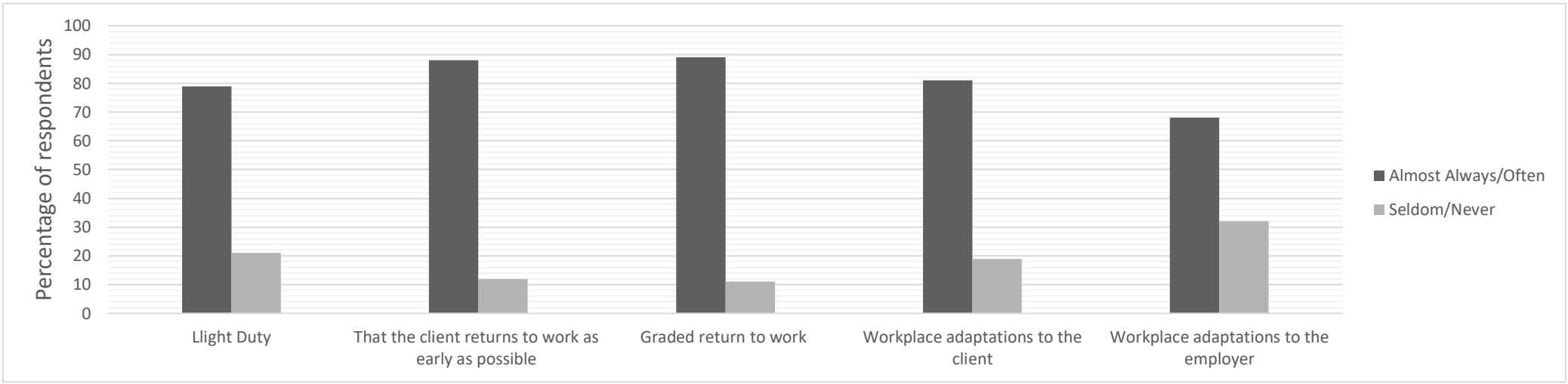


*Figure 4.* Specific work-related suggestion

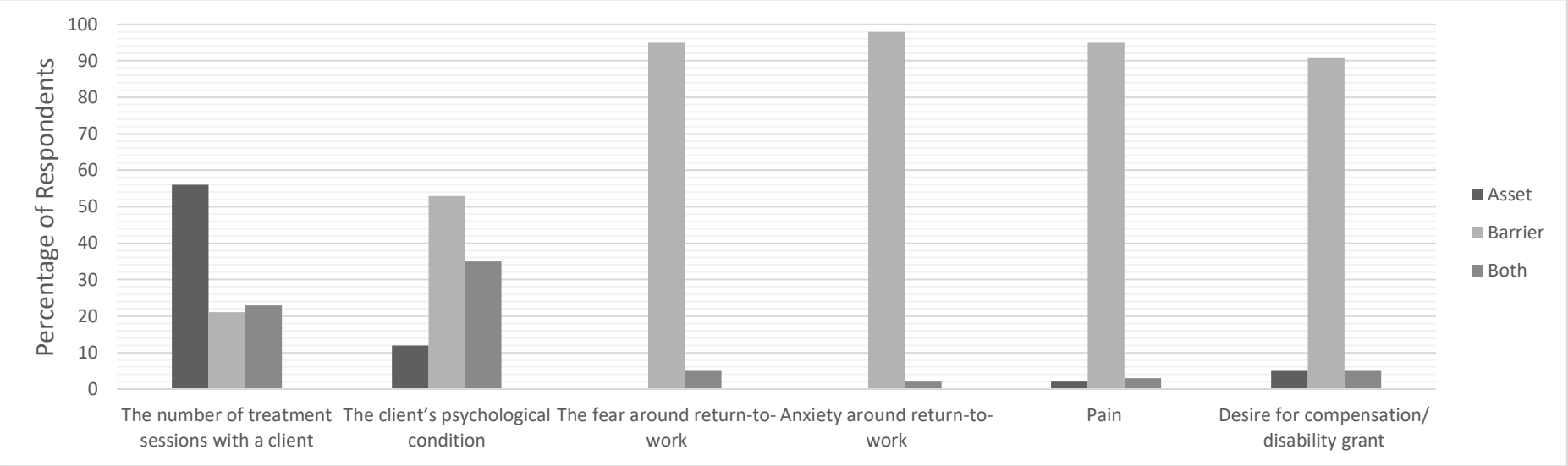


*Figure 5*. Assets and Barriers in work-related transitions

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# Chapter 5: Conclusionary Remarks and Considerations

## Summary of Thesis Findings and Discussion

### Future Research and Recommendations

This thesis has comprehensively understood the strategies employed by occupational therapists to facilitate the successful work-related transitions for people with serious hand injuries in both the government and private sectors of South Africa. This thesis aimed to understand the strategies employed by occupational therapists to facilitate successful work-related transitions for people with serious hand injuries in both the formal and informal employment sectors of South Africa. The findings contained in the manuscripts produced during my candidature have the potential to positively impact services offered to people with serious hand injuries in the future. They are likely to be useful for occupational therapists in practice, researchers and policymakers. The approach used to answer the research question has produced a multitude of implications for future research. The details are provided in the conclusionary sections of the manuscripts. Therefore, only a few ideas for future research and some recommendations to consider, will be listed here:

- It would be useful to consider the different types of work-related transitions that are possible. It may be helpful to consider the differences between work-related transitions made in the Global North versus those used in developing countries.
- An exploration into the types of assistive technology and assistive devices used in the workplace for hand injury clients would be useful. The difference in the extent to which and the types of assistive technology and assistive devices is used in developing countries and developed countries could be beneficial to explore.
- It is recommended that the efficacy of strategies occupational therapists could use to ensure the successful return to work of their clients is identified. The evidence for the effectiveness of strategies used is lacking.
- It is recommended that the barriers to worksite visits are explored. It is also recommended that strategies to address the identified problems are developed into a practice guideline that can be used by clinicians.
- It would be useful to conduct research to produce a variety of protocols for the work-related transitions of clients with different hand injuries.

- It is recommended that future research considers the differences in approach to facilitate work-related transitions for people who were injured at work and for people who are employed but were injured in a personal capacity. It may also be useful to consider differences in the psychological impact of the hand injury here.
- The role of the occupational therapist in the government sector needs to be determined. This will help to produce evidence for the value of occupational therapy services in resource constrained settings.

# Addendum 1: BMJ Open Submission Guidelines

All articles should include the following:

- **The article title should include the research question and the study design**. Titles should not declare the results of the study.
- **A structured abstract** (max. 300 words) including all the following where appropriate (please note that for RCTs there is a specific CONSORT extension for abstracts):
    - **objectives:** clear statement of main study aim and major hypothesis/research question
    - **design:** e.g. prospective, randomised, blinded, case control
    - **setting:** level of care e.g. primary, secondary; number of participating centres. Generalise; don't use the name of a specific centre, but give geographical location if important
    - **participants:** numbers entering and completing the study; sex and ethnic group if appropriate. Clear definitions of selection, entry and exclusion criteria
    - **interventions:** what, how, when and how long (this can be deleted if there were no interventions)
    - **primary and secondary outcome measures:** planned (i.e. in the protocol) and those finally measured (if different, explain why) – for quantitative studies only
    - **results:** main results with (for quantitative studies) 95% confidence intervals and, where appropriate, the exact level of statistical significance and the number need to treat/harm. Whenever possible, state absolute rather than relative risks
    - **conclusions:** primary conclusions and their implications, suggest areas for further research if appropriate. Do not go beyond the data in the article
    - **where applicable, trial registration:** registry and number (for clinical trials and, if available, for observational studies and systematic reviews)
- **An Article Summary, placed after the abstract, consisting of the heading 'Strengths and limitations of this study'**, and containing up to five short bullet points, no longer than one sentence each, that relate specifically to the methods. They should not include the results of the study.
- **The original protocol for the study**, as a supplementary file.
- **A funding statement,** preferably worded as follows. Either: 'This work was supported by [name of funder] grant number [xxx]' or 'This research received no specific grant

from any funding agency in the public, commercial or not-for-profit sectors'. You must ensure that the full, correct details of your funder(s) and any relevant grant numbers are included.

- **A competing interests statement**. See the BMJ Author Hub for details on what to include as competing interests.
- **Articles should list each author's contribution individually at the end**; this section may also include contributors who do not qualify as authors. Please visit the ICMJE website for more information on authorship.
- **Any checklist and flow diagram for the appropriate reporting statement**, e.g. STROBE (see below).
- **A patient consent form:** any article that contains personal medical information about an identifiable living individual requires the patient's explicit consent before we can publish it. We will need the patient to sign our consent form, which requires the patient to have read the article. This form is available in multiple languages.
- **A data sharing statement**, such as: "Technical appendix, statistical code, and dataset available from the Dryad repository, DOI: [include DOI for dataset here].
- **Word count,** we recommend your article does not exceed 4000 words, with up to five figures and tables. This is flexible, but exceeding this will impact upon the paper's 'readability'. Authors are encouraged to submit figures and images in colour – there are no colour charges. We require that you upload your figures as separate files rather than embedding them in the manuscript.
- **Supplementary and raw data** can be placed online alongside the article although we prefer raw data to be made publicly available and linked to in a suitable repository (e.g. Dryad, FigShare). We may request that you separate out some material into supplementary data files to make the main manuscript clearer for readers.

We also recommend, but do not insist, that the discussion section is no longer than five paragraphs and follows this overall structure (you do not need to use these as subheadings): a statement of the principal findings; strengths and weaknesses of the study; strengths and weaknesses in relation to other studies, discussing important differences in results; the meaning of the study: possible explanations and implications for clinicians and policymakers; and unanswered questions and future research.

At upload you will be asked to choose one general subject area that applies to your article – it will be published under this banner on the main table of contents. You will also be asked to select further subject headings to be used for the 'Browse by topic' section, and specific keywords for help with identifying reviewers.

Following the lead of The BMJ and its patient partnership strategy, *BMJ Open* is encouraging active patient involvement in setting the research agenda. As such, we require authors of Research Articles to add a Patient and Public Involvement statement in the Methods section. Please see more details above.

# Addendum 2: The Canadian Journal of Occupational Therapy Submission Confirmation

## Submission Confirmation

Print

Thank you for your revision

| | |
|---|---|
| **Submitted to** | Canadian Journal of Occupational Therapy |
| **Manuscript ID** | CJOT-19-0053.R2 |
| **Title** | Work-related Transitions Following Hand Injury: Occupational Therapy Scoping Review |
| **Authors** | Uys, Michelle<br>Van Niekerk, Lana<br>Buchanan, Helen |
| **Date Submitted** | 21-Jan-2020 |

# Addendum 3: The Canadian Journal of Occupational Therapy Submission Guidelines

CJOT AUTHOR GUIDELINES

PREPARING A MANUSCRIPT

Types of Manuscripts

Manuscripts are divided into four categories for review purposes: (1a) full-length research – quantitative/mixed methods; (1b) full-length research – qualitative; (2) brief research report; (3) non-research manuscript (brief or full-length); and (4) RCT Protocols.

1. Full-Length Research submissions must present new and important knowledge that has the potential to advance occupational therapy theory, practice, research, and policy through the (a) presentation of original research; or (b) critical review of existing evidence through systematic reviews, meta-analyses, or meta-syntheses. Scoping and rapid reviews will be considered.

a) Quantitative/mixed methods: This type of submission must have an abstract using the required headings and 3 to 5 key words that are different than the title. The manuscript must contain a brief separate introductory paragraph outlining the rationale and purpose of the paper, a strong up-to-date background/literature review, a strong rationale, and a clearly stated research question(s), purpose, and hypotheses, as relevant. The method section must clearly state the study design prior to describing the participants, recruitment, data collection, and data analysis. Strategies used for maintaining rigour must be discussed. A discussion section that presents the new knowledge derived from this study and compares it to published works, as well as implications for practice/policy, limitations, and future research, must be included as well as distinct conclusion and key messages sections.

b) Qualitative: This type of submission must have an abstract using required headings and 3 to 5 key words that are different than the title. The manuscript must contain a brief separate introductory paragraph outlining the rationale and purpose of the paper, a strong up-to date background/literature review as relevant to methodology used, a strong rationale, and clearly stated research question(s). The method section must clearly state/describe the paradigm and approach/design prior to describing the

participants, recruitment, data collection, and data analysis. Strategies used for maintaining rigour and a discussion of the positionality of the researcher(s)/author(s) must be provided. A discussion section that presents the new knowledge derived from this study and compares it to published works, as well as implications for practice/policy, limitations, and future research, must be included as well as distinct conclusion and key messages sections.

1. Brief Research Report submissions must present information and ideas that have the potential to identify promising new directions for thinking in occupational therapy theory, practice, research, and policy. Brief research reports are used to share (a) empirical findings from small scale pilot, preliminary, or exploratory research; or (b) research addressing focused questions with relevance to only a very specific sub-group or setting. Brief research reports must include the same sections as describe above in the full-length research manuscript. The difference is the focus of the manuscript and the detail provided. It is expected that enough detail will be provided for the readers to understand the research. References to other work without detailed explanation can be used to minimize the length of text.

Ethics Requirements

ALL research involving human participants or data originally generated from human participants (e.g., chart reviews, program evaluations, secondary data analyses) REQUIRES institutional review board or external review board ethical approval. If an IRB does not require approval for secondary data analysis or expert opinion, a letter from the IRB chair stating this must be provided to the editor-in-chief. A copy of ALL relevant ethics approval documents MUST be downloaded into the system before it will be considered for preliminary review – no exceptions. Manuscripts requiring ethical approval that are submitted without proof of ethics approval will be automatically UNSUBMITTED and authors will be asked to upload the relevant documents before the preliminary review will be initiated.

Funding Information Requirements

All funding received for work described within a submitted manuscript must be acknowledged in the funding disclosure section. Provide the name of the funder, the grant number, and the name of the principal investigator as applicable. To comply with the guidance for research funders, authors and publishers issued by the Research Information Network (RIN), CJOT

additionally requires all authors to acknowledge their funding in a consistent fashion under a separate heading, “Funding”. Please visit Funding Acknowledgements on the SAGE Journal Author Gateway to confirm the format of this text in the event of funding or state in the funding disclosure section that: “This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.”

Blinding of Manuscripts

Authors MUST ensure that their manuscripts are blind to reviewers. Do not include authorship or affiliation information within the main text, figures, or tables. Ensure that inclusion OR exclusion of references for manuscripts written by all authors will not allow the reviewer to identify the submitted manuscript’s author(s). In addition, please remove any initials used in place of any author’s name. When blinding a manuscript please delete the citation and insert << removed for blinding >> in its place. You may also choose to insert the word ‘location’ or ‘reference’, for example, to describe the type of information that has been removed. DO NOT use black highlighting to cover text. Black highlighting is searchable as it is ‘highlighting’ what is there and does not remove the text. Remove all references from the reference list that have been completely blinded in the text. Put the statement << references have been removed for blinding >> at the bottom below all the references; do not insert this phrase into the reference list at the point of the removed reference as this will decrease anonymity of the manuscript.

Formatting and Style

1. Manuscript Length

Manuscript lengths are specified below. The initial submission MUST adhere to the length guidelines below for each type of submission.

Full-length manuscripts/RCT protocols: A full-length manuscript/RCT protocol must be between 4000 to 5500 words in length and must not exceed 6850 words for the main text and references (with abstract 7000 words). Tables and figures should be restricted to ones that are essential to the manuscript, provide different information to what is already in the text, and add substantially to the content of the paper. Supplemental materials can be included with the manuscript and will be published online only. If the manuscript is accepted,
inclusion of tables, figures, and online only supplemental materials will be at the discretion of the editor.

2. Document Format

Manuscripts (main text and tables) MUST be submitted as a Microsoft Word or RTF file and use 12 point font (Times Roman preferred), 1" margins, double-spaced text, 8" (21.5cm) x11" (28cm) paper, left text justification only – do not fully justify, with indented paragraphs. Do not add extra lines between paragraphs or after/before headings or sections. Leave only one space after a period prior to a new sentence. Pages must be numbered sequentially in the bottom right corner. All files (text, tables, figures, references) must be created as documents reading left to right. Do not include a running header. Remove all reference management formatting from the references.

3. Terminology and Spelling

Manuscripts must be free of any sexual or social remarks. Choice of terminology used to describe a person with an impairment or disorder should reflect respect (e.g., do not use 'an autistic', 'the epileptics'), should protect dignity (e.g., do not use 'suffering', 'case'), and should be free of stereotypes (e.g., do not use 'confined to a wheelchair', 'victim').

Abbreviations or acronyms

- use sparingly throughout the text.
- when used they must be written in full the first time.
- use of the acronym 'OT' in manuscript is not acceptable. Use occupational therapist or occupational therapy, as appropriate.

Canadian spelling is used; examples,

- 'u' within words such as behaviour, colour,
- 're' spelling in words such as client-centred
- per cent (two words)
- focused, focusing (not focussed, focussing)
- program (not programme)
- analyze not analyse
- to practise (verb); the practice (noun)

4. Structure of Manuscript Sections

Title

The manuscript title must reflect its content, be succinct, and informative, and should not contain any abbreviations or acronyms. The title must not exceed 12 words.

Abstract

The structured abstract must be no longer than 150 words and presented in a single paragraph (no breaks between sections). All text must be in full sentences. Headings must be in bold and followed by a bold period. One of the following two formats must be used: Format 1 (for research manuscripts): Background, Purpose, Method, Findings, Implications. Format 2 (for non-research manuscripts): Background, Purpose, Key Issues, Implications. Background should introduce the topic and provide a rationale statement. Method must include design, sample, and a statement on data collection and data analysis. Implications must be written to provide specific information relevant to the implications of the findings. Do not provide a broad, general statement.

Key words

A key words list of over 1000 terms is provided within the online system. Choose from 3 to 5 key words in the language of the submitted manuscript that are NOT in the title. Please DO NOT provide different key words in English AND in French. At least 2 key words must be MESH terms (*designates MESH terms within the online submission system). Terms not included in the list can be added by typing them into an available text box. Key words are provided to increase the discoverability of your manuscript so ensure that they are useful for this purpose.

Main Text

The format for the main body of the text will vary depending on the type of manuscript submitted. Randomized control trials and RCT protocols must follow the CONSORT guidelines (http://www.consortstatement.org/). Nonrandomized trials of behavioural interventions should follow the TREND guidelines (www.trend-statement.org/). As of January 1, 2017 CJOT will require that trials be registered prospectively as a condition of publication; thus, potential authors are strongly encouraged to register their studies at: http://prsinfo.clinicaltrials.gov/. This registry can accommodate treatment, prevention, diagnostic, screening and quality of life (supportive care) trials. Registration must occur before the first participant is recruited into the study. Authors who have registered their trials must include the registry number and registration date at the end of the abstract.

All other types of research papers (either full-length or brief report) must contain the following section headings: (a) Introduction – comprising a separate introductory paragraph presenting a brief rationale and purpose of the paper; the background/literature review/theoretical framework; and the study purpose/research questions/hypotheses. (b) Method – comprising study design/approach (including discussion of the rationale for the design and paradigm, as relevant), participants (details of recruitment and selection), data collection (details of methods, tools, procedures used), data analysis (details of process used). (c) Findings. (d) Discussion – comprising the main arguments, study limitations, implications for practice or policy, and future research. (e) Conclusion – comprising a succinct paragraph summarizing the "bottom" line of the research. Additional headings can be added at the discretion of the author(s) as long as the above details are covered. Subheadings in the introduction and discussion should be used sparingly, but are encouraged if it improves clarity and flow. Non-research manuscripts must contain the following section headings: (a) Introduction – comprising a separate introductory paragraph presenting the rationale and purpose of the paper; the background/literature review/theoretical framework (as applicable); and the refinement of the rationale and purpose of paper. (b) Argument and Critical Discussion – comprising the new knowledge/ideas being presented, limitations of the arguments, implications for practice/policy, and future steps/research. These arguments must be related to relevant literature. (c) Conclusion – comprising a succinct paragraph summarizing the "bottom" line of the critique. The specific headings, except for conclusion, do not have to be used as such but the sections should be apparent.

Key messages

Provide a maximum of 3 key messages in sentence format of no longer than 75 words total. Use bullet points (do not indent) to differentiate each message and include the full text at first instance within the key messages for any acronyms. Place this section immediately after the Conclusion section. Key messages must reflect the journal's mission above and must not simply restate the findings. Instead, authors should provide integrated key messages that reflect the direct implications of the findings and not the broader, potential implications. Do not provide key messages that relate to other people's work and not your own.

References

References must be used to support the arguments made in the manuscript but should not overtake the manuscript. The use of secondary sources is greatly discouraged; authors will be

asked to attempt to retrieve primary sources. When discussing commonly held beliefs or general definitions, authors may also be asked to use sources that are classical in nature, or none, versus more recent references that may or may not reference the classical works as these are viewed as secondary sources as well. Typically, if an idea is commonly held within the profession, such as "humans are occupational being," you will be asked to remove the reference. Please ensure that referencing is accurately conveyed by using 'see' or e.g. as needed. For example, "There is an abundance of literature describing occupational engagement (Reference)" – this phrasing implies that the Reference stated that "there is an abundance of literature …" "There is an abundance of literature describing occupational engagement (e.g., Reference)" – this phrasing implies that the Reference is an example of the literature describing occupational engagement. Consistent with the guidelines of the International Committee of Medical Journal Editors, authors should:

- Avoid citing personal communications as references,
- Avoid using conference presentations or abstracts as references, and
- Cite manuscripts under review as "unpublished observations" and provide written permission from the source.

Acknowledgments

Acknowledgements should contain information on individuals who have contributed to this work but did not meet the criteria for authorship or declined to be included as an author. All those individuals who are named in the acknowledgements must be contacted and agree to have their name included. Each individual's specific contribution to the work must be briefly stated. Acknowledgements of general support or mentorship will be deleted by the editor as acknowledgements are only for those individuals who have provided a specific contribution to this work. In addition, the authors must provide information on previous dissemination of this work, in part or whole, at conferences or workshops.

Table/figures/supplemental files

Tables and figures must be used sparingly and must not duplicate information in the text. The tables/figures should be used to provide clarity or help to condense the information. All tables and figures must follow APA 6th guidelines. Supplemental files can be provided and will be posted online at the discretion of the editor. All supplemental files must be provided at time of submission. These files may include assessment manuals or scoring sheets, detailed tables from

critical or scoping reviews, additional figures or tables. These files will not be included as part of the manuscript review.

5. APA 6th Formatting

CJOT uses American Psychological Association 6th (APA 6th) edition for headings, quotations, and referencing (as well as a basis for writing style). Submissions that do not follow the heading, quotation, and referencing guidelines will be 'UNSUBMITTED' and authors will be asked to revise their work and resubmit.

a. Headings (please refer to APA 6th ed. manual for details – text and a visual depiction is provided below as example only)

Level 1: Centred, Bold, Capitalization of All Main Words

Level 2: Left Margin, Bold, Capitalization of All Main Words

Level 3: Indented, bold, capitalization of first word only, period at the end.

Level 4: Indented, bold, italics, capitalization of first word only, period at the end.

b. References (please refer to APA 6th ed. manual for details)

General Rules

1) One and 2 authors: Reference list: List all authors; In text: List all authors.

2) Three to 5 authors: Reference list: List all authors; In text: first reference all authors; subsequent references first author and et al.

3) *Six or more authors: Reference list: The first 6 authors and last author in full (7 in total). If more than 7 authors, place . . . (A
spaced ellipsis) in between 6th and last author. In text: First author then et al. every time.

4) Author and Date: Always include author and date together. For subsequent references in the same paragraph ONLY IF the
reference is non-parenthetical (i.e., when author is not included in parenthesis) you don't need to include the date again.

5) Book Chapters in Edited Texts: Be sure to reference the author and chapter/page numbers of chapter as well as the editor and
book title.

6) Secondary Sources: Only use when the primary source is not available to an author who has made an attempt to retrieve it.

7) Spaces: a) between authors initials; b) between the p. and the page number, (e.g. p. 46 [NOT p.46])

8) NO spaces: a) between volume and issue; b) between page #s and – (en dash) e.g., p. 46–47 [note: en dash are medium length]

9) Ampersands (&) – Used ONLY in parenthetical in-text references and reference list.

10) Capitals – a) journal titles.

11) Issue number – remove when the page numbering of a volume is continuous (i.e., each issue does not begin again at p. 1)

12) Electronic sources retrieved from the internet – a) websites/webpages: No retrieval dates unless the source material may change

over time. The complete URL is required in the reference. Use this format: Retrieved from http://www.xxxxxxxx . b) Journal

articles or book/book chapters: A URL is typically not required when a DOI is provided. Do not provide the location and publisher

when citing an electronic book. When provided, the URL should be a link to the journal homepage (i.e., where it can be/was

retrieved or purchased) or to the main site where a book was downloaded (e.g., books.google.com/books)

13) DOIs for Journal Articles: When available digital object identifiers (doi) are required. They can be found on the individually

published manuscript OR on the journal's webpage of the specific article. Most papers published within the past 5 years have dois

and most OT journals now have dois, with many having dois back to their first volume.

# Addendum 4: The Australian Occupational Therapy Journal Submission Guidelines

***Research Reporting Guidelines***

Accurate and complete reporting enables readers to fully appraise research, replicate it, and use it. The *Australian Occupational Therapy Journal* will publish positive, negative and inconclusive results as long as the research is rigorous.

Authors must adhere to research reporting standards presented in the EQUATOR network (**http://www.equator-network.org/**).

Authors must submit the relevant EQUATOR reporting guideline checklist as a not-to-be-published supplementary document to the submission. If authors do not believe one of these guidelines is appropriate a rationale must be provided in the cover letter and an alternative standards benchmark provided.

***Data Sharing and Data Accessibility***

The journal encourages authors to share the data and other artefacts supporting the results in the paper by archiving it in an appropriate public repository. Authors should include a data accessibility statement, including a link to the repository they have used, in order that this statement can be published alongside their paper.

***Roles and Responsibilities of Authors***

An author is someone who demonstrates roles and responsibilities defined by the International Committee of Medical Journal Editors (ICMJE) (**http://www.icmje.org/**). A declaration must be made to this effect.

The ICMJE recommends that authorship be based on the following criteria: (i) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; ( ii) Drafting the work or revising it critically for important intellectual content; (iii) Final approval of the version to be published; and ( iv) Agreement to

be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### *Conflict of Interest*

Authors should disclose any actual or perceived conflicts of interest. Any interest or relationship, financial or otherwise that might be perceived as influencing an author's objectivity is considered a potential source of conflict of interest. These must be disclosed when directly relevant or directly related to the work that the authors describe in their manuscript. Potential sources of conflict of interest include, but are not limited to, patent or stock ownership, membership of a company board of directors, membership of an advisory board or committee for a company, and consultancy for or receipt of speaker's fees from a company. The existence of a conflict of interest does not preclude publication. If the authors have no conflict of interest to declare, they must also state this at submission. It is the responsibility of the corresponding author to review this policy with all authors and collectively to disclose with the submission ALL pertinent commercial and other relationships.

### *Funding*

Authors must make a funding statement. This will appear at the end of the paper before the reference section. Authors should list all funding sources. All funding received for work described within a submitted manuscript must be acknowledged in the funding disclosure section. Provide the name of the funder, the grant number, and the name of the principal investigator as applicable. If there was no specific study funding, then the authors should report the following statement: “This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.”

### *Acknowledgements*

The contribution of colleagues or institutions can be acknowledged. Personal thanks and thanks to anonymous reviewers are not appropriate. Acknowledgements should contain information on individuals who have contributed to this work but did not meet the criteria for authorship or decline to be included as an author. All those individuals who are named in the acknowledgements must be contacted by the author and agree to have their name included. Each individual’s specific contribution to the work must be briefly stated. Acknowledgements

of general support or mentorship will be deleted by the editor as acknowledgements are only for those individuals who have provided a specific contribution to this work. In addition, the authors must provide information on previous dissemination of this work, in part or whole, at conferences or workshops. Prior presentation of the paper at a meeting should be briefly described last.

## 4. ARTICLE TYPES AND REQUIREMENTS

| Type of Article | Word limit (excluding abstract, references, tables and figures | Abstract required - word limit | Number of references allowable | No. of tables or figure files |
|---|---|---|---|---|
| **Feature** | 5000 | 300 | 35 | 4 |
| **Review *** | 5000 | 300 | 35 | 4# |
| **Letter to Editor** | 300 | NA | 3 | 0 |

* Refer to full detail regarding length, references and tables for Review Articles below

# Usually published in online-only format

### All articles

All articles must be accompanied by a cover letter that addresses how the paper complies with conditions of submission.

If content is derived from a larger study, study series or previously published work, the authors must explain in the cover letter how their submission makes an original and substantial contribution to new knowledge and they must include citations and doi links for all related/ derivative studies.

The cover letter should include a statement regarding written permissions for photographs, personal communications, and copyrighted material. These written permissions should be

attached to the cover letter. The cover letter should confirm that any person or institution named in the acknowledgements has given permission

**Feature Articles**

Feature Articles can be in the form of research papers, theoretical papers, case reports or descriptive articles. Manuscripts should not exceed 5000 words including Key Points, Author Declaration and conflict of interest, funding and acknowledgement. The Title, Abstract and References are not included in the word count. The journal does not publish articles that present only study protocols without results.

Feature articles should contain the following:

*Title page*: This will be a separate file to the main document – upload using the "title page" option in Scholar One. The title page should contain:

(i) a short informative title that contains the major content concepts. The title should not contain abbreviations (see our best practice SEO tips);

(ii) the full names, qualifications and designations of the authors;

(iii) the full addresses of the authors' affiliations;

(iv) a short running title (no more than 40 characters, abbreviations are permitted);

(v) authors' declaration of authorship contribution*;

(vi) funding statement*;

(vii) conflict of interest statement*;

(viii) acknowledgements*;

(ix) word length for the main text excluding references, abstract and tables;

(x) word length of the abstract;

(xi) the number of references, figures and tables include as part of article;

(xii) Designate the corresponding author by providing his or her full address, telephone and fax numbers, and e-mail address.

(xiii) A minimum of five MeSH or CINAHL terms should be included as key words

*In the printed publication these will appear at the end of the paper before "references" – they are included here in the title page because this is not sent out to reviewers.

*Structured abstract*: 300 word limit including Introduction, methods, results and conclusion.

*Introduction:* The aims of the article should be clearly stated and a theoretical framework (if applicable) should be presented with reference to established theoretical model(s) and background literature. A succinct review of current literature should set the work in context. The introduction should not contain findings or conclusions. The aim of the research should be stated at the end of the introduction section.

*Methods:* This should provide a description of the method (including recruitment of subjects, study procedures, instruments and data analysis) in sufficient detail to allow the work to be repeated by others. Name (but de-identify for review) the Human research Ethics Committee/s or equivalent if human participants were involved, and provide the approval reference number/s. The ethics statements must appear in the first paragraph of the methods section.

*Results:* Results should be presented in a logical sequence in the text, tables and figures. Participant characteristics are presented in results. The same data should not be presented repetitively in different forms.

*Discussion:* The discussion should consider the results in relation to the study purpose, practice and scholarly context. The relationship of your results to the work of others and relevant methodological points could also be discussed. Limitations of the study should be identified. Implications for practice and future research should be considered. A conclusion section may be used but is not mandatory.

*Key Points for Occupational Therapy:* This is included at the end of the paper, before "references". It comprises a bulleted list of three points summarising implications of the paper for occupational therapy practice/ policy or and or education. These should not exceed 45 words in total (that is, 10-15 words each). Each point should reflect the journal's aim and scope above and must not simply restate the findings.

*References:* No more than 35 references.

*Standard inclusions of Author Declaration including conflict of interest, funding statement, acknowledgement if appropriate:* This will be a separate file to the Main Document – upload as "supplementary file" not for review. Normally no more than 100 words.

*Tables and/or Figures:* No more than 4 will be included. Large Tables or Figures may be published as on-line only files to permit efficient production of the print-version of the journal. The file link will be published in the print version.

Appendices are not permitted.

(Reporting Guidelines will normally be included as a non-published supplementary file in the submission. In some cases, e.g., CONSORT flow-chart, aspects of the guidelines may be included in the main document)

**Viewpoints**

As of February 2019, the Viewpoint Department is no longer a feature of the *Australian Occupational Therapy Journal*. Existing submissions will be managed, but no new submissions will be received. OT Australia members have access to expert opinion in the association magazine *Connections*.

**Letters to the Editor**

Letters to the Editor will only be published online.

*Main Document:* No more than 300 words

*References:* No more than 3 references using APA format including doi numbers.

*Author declaration including conflict of interest:* This should be supplied, to be published at the discretion of the Editorial Board

**5. PREPARING THE MANUSCRIPT**

**Writing for Search Engine Optimization**

Optimize the search engine results for your paper, so people can find, read and ultimately cite your work. Simply read our best practice SEO tips – including information on making your title and abstract SEO-friendly, and choosing appropriate MESH keywords.

**http://www.wiley.com/legacy/wileyblackwell/pdf/SEOforAuthorsLINKSrev.pdf**

**Spelling.** The journal uses Australian spelling and authors should therefore follow the latest edition of the **Macquarie Dictionary.** Note spelling of the following commonly used words spelled based on Australian standards: centre, standardise, hospitalise, analyse, civilise, ageing, colour, honour, program, paediatrician, install. Please note the difference between practice as a noun and practise as a verb.

**APA Style.** Manuscripts should follow the style of the American Psychological Association (6th edition), except in regards to spelling. The APA website includes a **range of resources for authors learning to write in APA style**, including **An overview of the Publication**

**Manual of the American Psychological Association, Sixth Edition** ; **free tutorials on APA Style basics** and an **APA Style Blog.** Please note APA referencing style requires that a DOI be provided for all references where available.

**Footnotes and Endnotes** are not to be used.

**Terminology.** Choice of terminology used to describe a person with an impairment or disorder should reflect respect (e.g., do not use 'an autistic', 'the epileptics', ‘the mentally retarded’), should protect dignity (e.g., do not use 'suffering', 'case'), and should be free of stereotypes (e.g., do not use 'confined to a wheelchair', 'victim').

**Units.** All measurements must be given in the **International System of Units (SI)** or SI-derived units, being the modern form of the metric system.

**Statistics.** Exact p values should be given to no more than three decimal places. Wherever possible give both point estimates and confidence intervals for all population parameters estimated by the study (e.g. group differences, frequency of characteristics). Identify the statistical package used. Identify the statistical package used.

**Abbreviations.** Abbreviations should be used sparingly - only where they ease the reader's task by reducing repetition of long, technical terms. Initially use the word in full, followed by the abbreviation in parentheses. Thereafter use the abbreviation only. Do not use abbreviations in the title or abstract of the article. The abbreviation of OT referring to occupational therapist or occupational therapy is not acceptable in the manuscript. Use occupational therapist or occupational therapy, as appropriate.

**Supporting Information** Supporting information is not essential to the article but provides greater depth and background and may include tables, figures, videos, datasets, etc. This material can be submitted with your manuscript, and will appear online, without editing or typesetting. Guidelines on how to prepare this material and which formats and files sizes are acceptable can be found at: **http://authorservices.wiley.com/bauthor/suppmat.asp** Please note that the provision of supporting information is not encouraged as a general rule. It will be assessed critically by reviewers and editors and will only be accepted if it is essential.

# Addendum 5: The South African Journal of Occupational Therapy Submission Guidelines

## GENERAL GUIDELINES FOR CONDUCTING A REVIEW OF A SCIENTIFIC ARTICLE

1. **Title** – this is concise and descriptive of the topic on which the research has been conducted.
2. **The abstract** is a true reflection of the content of the paper and provides a summary of the full research process including aim, the research method used and the research population, the outcome and the conclusions.
3. **The introduction** should provide information about the topic and its relevance to Occupational Therapy.
4. **A review of the relevant literature** covering previous opinions on the topic is provided with arguments for and against the literature findings.
5. The section on **research methods** should include: the aim of the study, the research design used, the population and manner of selecting the population sample, the research tools used, the method of data collection, the methods used to analyse the data including details of the statistical methods and details of the ethical clearance and the consent obtained.\
6. The **results** should be clear and must relate to the aims of the research and research methods. The **results** should be clear and must relate to the aims of the research and research methods.
7. The **discussion** should summarise the main findings and explore the reasons for these. New knowledge must be highlighted and the limitations of the study given.
8. **The conclusion** must be brief, drawing the article to a close by relating the results to the aim of the research.
9. The position of **the tables and figures** should be indicated in the text.

## GUIDELINES FOR CONDUCTING A REVIEW OF AN OPINION PIECE

Please consult the author Guidelines for writing an Opinion Piece

1. **Title** – this is concise and descriptive of the topic on which an Opinion is being expressed

2. **The abstract** is concise and is descriptive of the point under discussion. The pros and cons are given for the selection of the opinion and the conclusion reached.
3. **The introduction** should provide information about the topic and its relevance to Occupational Therapy
4. **A review of the relevant literature** covering previous opinions on the topic is provided with arguments for and against the literature findings.
5. **The author's opinion** is presented and backed up by the literature and by personal experience. In addition the author points out where previous opinions have been faulty and why they have proved to be so.
6. There is a conclusion which supports the author's opinion.

# Addendum 6: Informed Consent for Interviews Template

UNIVERSITY OF STELLENBOSCH: DIVISION OF OCCUPATIONAL THERAPY

UNIVERSITY OF CAPE TOWN: DIVISION OF OCCUPATIONAL THERAPY

STUDY TITLE: The strategies and barriers addressed by occupational therapists in the process of successful return to work in clients who have sustained serious hand injuries

I (PRINT NAME)..... have read the information sheet.

- I understand what is required of me.
- I have had all my questions answered.
- I do not feel that I am forced to take part in this study and I am doing so of my own free will.
- I know that I can withdraw at any time if I so wish and that it will have no negative consequences for me.
- I agree to the individual interviews being audio-recorded (please tick appropriate option).

| Yes | No |
|---|---|

SIGNED:

..... .....

Participant Date and Place

..... .....

Researcher Date and Place

# Addendum 7: Interview Information Sheets for Client-Participants

**Information Sheet Clients' Interview**

UNIVERSITY OF STELLENBOSCH: DIVISION OF OCCUPATIONAL THERAPY

UNVIVERSITY OF CAPE TOWN: DIVISION OF OCCUPATIONAL THERAPY

INVITATION TO PARTICIPATE IN A RESEARCH STUDY:

I am an occupational therapist completing my master's degree at Stellenbosch University and am collaborating with the University of Cape Town for the purposes of this study. You are invited to participate in a study entitled *"the strategies and barriers addressed by occupational therapists in the process of successful return to work in clients who have sustained serious hand injuries".*

WHAT IS THE RESEARCH ADDRESSING?
The study will investigate what people who have sustained serious hand injuries identify as having facilitated their successful return to work. The focus of the interview will be on what factors you identify as having been important in your transition back to work in terms of strategies used by occupational therapists. You have been asked to participate in this study since you are an individual who has sustained a serious hand injury and have successfully returned to work after receiving occupational therapy intervention.

WHAT WILL BE REQUIRED OF PARTICIPANTS?

The research will take the form of a mixed methods, concurrent study design. As you have been selected for the interview, you will be asked to participate in two interviews that is expected to last between 60 and 90 minutes. The interview will focus on your successful return to work after the hand injury you obtained. The interview will take place at a convenient time and location of your choice and will be conducted between August 2018 and June 2019.

If you agree, the interview will be audio recorded. A statement has been added to the consent form along with check-boxes in which you can indicate whether you agree to the audio-recordings or not.

RISKS INVOLVED
There are no known risks involved in participating in this study.

BENEFITS OF THE STUDY
You may benefit indirectly by gaining greater insight into their own practice with regard to the work transition process. The findings have potential to positively impact people with serious hand injuries in the future, as it will provide information about current practice and might be used to inform further research to explore how practice may be strengthened to achieve positive return to work outcomes in people with serious hand injuries.

WHAT PAYMENTS WILL BE RECEIVED?

You will be financially compensated R150 for your contribution of time and travel (should travel be required).

VOLUNTARY PARTICIPATION

Participation in this study is voluntary and you are under no obligation to participate.

THE RIGHT TO WITHDRAW FROM THE STUDY

You have the right to withdraw from the study at any time and there will be no repercussions as a result of that decision.

CONFIDENTIALITY

Privacy will be addressed by using alternative names and details to refer to any information acquired during the interviews. Your place of employment and details that could identify you will be kept confidential. Audio-recordings and transcripts will be kept in a locked folder on a password protected computer, accessible only to the researcher. Audio-recordings will be destroyed once the data have been analysed. While every effort will be made to protect the identity of participants, there is no guarantee of absolute confidentiality due to the relatively small population of occupational therapists working in this area.

HOW WILL THE STUDY FINDINGS BE DISSEMINATED?

A summary of the study findings will be sent to you once the data analysis has been completed. The study will be written up and submitted for publication in an international peer-reviewed journal.

WHO TO CONTACT FOR FURTHER INFORMATION?

Please feel free to contact the researcher or the researcher's supervisors if you have any questions about this study

CONTACT DETAILS OF THE RESEACRHERS:

- Ms Michelle Elizabeth Uys (co-investigator), master's Student, Division of Occupational Therapy, Stellenbosch University. Email: michelleelizabethuys@gmail.com. Telephone: 0729399527.
- Associate Professor Lana van Niekerk (co-investigator), Division of Occupational Therapy, Stellenbosch University. Email: lanavn@sun.ac.za. Telephone: +27 21 938 9307.
- Associate Professor Helen Buchanan (principal investigator), Division of Occupational Therapy, University of Cape Town. Email: helen.buchanan@uct.ac.za. Telephone: +27 21 406 6383.

# Addendum 8: Interview Information Sheets for Occupational Therapist-Participants

UNIVERSITY OF STELLENBOSCH: DIVISION OF OCCUPATIONAL THERAPY

UNVIVERSITY OF CAPE TOWN: DIVISION OF OCCUPATIONAL THERAPY

INVITATION TO PARTICIPATE IN A RESEARCH STUDY:

I am an occupational therapist completing my master's degree at Stellenbosch University and am collaborating with the University of Cape Town for the purposes of this study. You are invited to participate in a study entitled *"the strategies and barriers addressed by occupational therapists in the process of successful return to work in clients who have sustained serious hand injuries".*

WHAT IS THE RESEARCH ADDRESSING?

The study will explore what strategies occupational therapists use to facilitate the successful return to work process for people who have sustained serious hand injuries. The clinical reasoning underpinning the various strategies in enabling return to work will be identified. We will also address the barriers that you have encountered in the process of returning your clients with serious hand injuries back to work. You have been asked to participate in this study since you are an occupational therapist who is working in the field of return-work and are considered to be an expert in the field.

WHAT WILL BE REQUIRED OF PARTICIPANTS?

The research will take the form of a mixed methods, concurrent study design. As you have been selected for the interview, you will be asked to participate in two interviews that are expected to last between 60 and 90 minutes. The focus of the interview will be on what factors you identify as having been important in facilitating your clients' return to work, the clinical reasoning underpinning the strategies prioritised in facilitating return to work and the barriers encountered in the return to work process in the context of where you work. The interview will take place at a convenient time and location of your choice and will be conducted between August 2018 and June 2019. The interview will be audio recorded and I require your permission to do so; a statement has been added to the consent form along with check-boxes in which you can indicate whether you agree to the audio-recordings or not.

RISKS INVOLVED

There are no known risks involved in participating in this study.

BENEFITS OF THE STUDY

You may benefit indirectly by gaining greater insight into your own practice with regards to the work transition process. The findings have potential to positively impact people with serious hand injuries in the future as it will provide information about current practice and might be used to inform further research to explore how practice may be strengthened to achieve positive return to work outcomes in people with serious hand injuries.

WHAT PAYMENTS WILL BE RECEIVED?

You will be compensated R150 for your contribution of time and travel (should travel be required).

VOLUNTARY PARTICIPATION

Participation in this study is voluntary and you are under no obligation to participate.

THE RIGHT TO WITHDRAW FROM THE STUDY

You have the right to withdraw from the study at any time and there will be no repercussions as a result of that decision.

CONFIDENTIALITY

Privacy will be addressed by using alternative names and details pseudonyms to refer to any information acquired during the interviews. Your place of employment and details that could identify you will be kept confidential. Audio-recordings and transcripts will be kept in a locked folder on a password protected computer, accessible only to the researcher. Audio-recordings will be destroyed once the data have been analysed. While every effort will be made to protect the identity of participants, there is no guarantee of absolute confidentiality due to the relatively small population of occupational therapists working in this area.

HOW WILL THE STUDY FINDINGS BE DISSEMINATED?

A summary of the study findings will be sent to you once the data analysis has been completed. The study will be written up and submitted for publication in an international peer-reviewed journal.

WHO TO CONTACT FOR FURTHER INFORMATION?

Please feel free to contact the researcher or the researcher's supervisors if you have any questions about this study.

CONTACT DETAILS OF THE RESEACRHERS:

- Ms Michelle Elizabeth Uys (co-investigator), master's Student, Division of Occupational Therapy, Stellenbosch University. Email: michelleelizabethuys@gmail.com. Telephone: 0729399527.
- Associate Professor Lana van Niekerk (co-investigator), Division of Occupational Therapy, Stellenbosch University. Email: lanavn@sun.ac.za. Telephone: +27 21 938 9307.
- Associate Professor Buchanan (principal investigator), Division of Occupational Therapy, University of Cape Town. Email: helen.buchanan@uct.ac.za. Telephone: +27 21 406 6383.

# Addendum 9: Interview Questions for Clients and Therapists

**Occupational Therapists' Interview Questions:**

When you look back and consider the rehabilitation journey you undertook with Mr/Ms X's (for him/her to return to work);

- what would you highlight as having been the most important aspects of the service you offered?
- what would you have wanted to do differently?

**Clients' Interview Questions:**

1. What in the rehabilitation process made your return to work successful?
    - What did your occupational therapist do to help you to return to work?
    - How did the occupational therapist help you to understand the process to go back to work?
2. Which barriers do you think that your occupational therapist had to overcome to ensure your successful return to work?
3. How did you overcome the barriers to your own rehabilitation?

# Addendum 10: National Survey Information Sheet and Informed Consent

**INFORMATION & INFORMED CONSENT:** this survey will be used to understand the strategies occupational therapists employ to facilitate successful return to work for people with serious hand injuries and the factors that contribute to successful work transitions.

If you are an occupational therapist who is working within the upper limb and vocational rehabilitation / work practice fields, please consider participating in this research. (Link to full Information Sheet).

Click here to participate in the research

INFORMATION SHEET

**Researcher's Name:** Michelle Elizabeth Uys (16138864)

**Supervisors:** Associate Professors Lana Van Niekerk and Helen Buchanan
**Institutions:** Stellenbosch University (SU) and the University of Cape Town (UCT)

I am an occupational therapist registered for a master's degree in occupational therapy at Stellenbosch University. My research fits into a broader collaborative study between the University of Cape Town and Stellenbosch University. The title of the broader study is *strategies and barriers addressed by occupational therapists in the process of successful work-related transitions in clients who have sustained serious hand injuries.*

The focus of the survey is to explore the frequency with which work-related strategies are used by occupational therapists to facilitate work-related transitions by therapists working in both the government and private sectors. Additional research objectives include an exploration of the clinical reasoning of occupational therapists underpinning strategies prioritised in facilitating return to work.

If you agree to participate, you will be asked to complete an electronic questionnaire which should take no longer than 20 minutes. Responses will be anonymous; therefore, you will not need to indicate your name or contact details on the questionnaire. No questions about the name of your employer will be requested and no identifying information will be required.

You may benefit indirectly by gaining greater insight into your own practice with regards to the work transition process. The findings will provide information about current practice and may be used to inform further research to explore how occupational therapy practice may be strengthened to achieve positive return to work outcomes in people with serious hand injuries. Findings will be disseminated by means of an article in an occupational therapy journal.

Participation in this study is voluntary and you are under no obligation to participate. You have the right to withdraw from the study at any time and there will be no repercussions as a result of that decision.

The Human Research Ethics Committee of the University of Stellenbosch (HREC reference number: S18/05/098) contact no: 021 938 9819 and the University of Cape Town (HREC reference number: 537/2018) contact no: 021 406 6338 have granted permission for this study.

Please feel free to contact the researcher or the researcher's supervisors if you have any questions about this study:

- Ms Michelle Elizabeth Uys, master's Student, Division of Occupational Therapy, Stellenbosch University. Email: michelleelizabethuys@gmail.com. Telephone: 0729399527.
- Associate Professor Lana van Niekerk, Division of Occupational Therapy, Stellenbosch University. Email: lanavn@sun.ac.za. Telephone: +27 21 938 9307.
- Associate Professor Buchanan, Division of Occupational Therapy, University of Cape Town. Email: helen.buchanan@uct.ac.za. Telephone: +27 84 388 0078.

Thank you for your consideration.

Kind Regards,

Michelle Uys

LANDING PAGE – FOR THOSE WHO CLICKED 'Click here to participate in the research'.

CONFIRMATION OF ELIGIBILITY TO PARTICIPATE:

- Are you practicing as an occupational therapist in South Africa? Yes No
- Are you working in the field of upper limb and vocational rehabilitation / work practice? Yes No

{Set form up to proceed only if all inclusion criteria were satisfied. If the person is not eligible to proceed, a thank you message should appear}

If inclusion criteria are not met the following pop-up message will appear: *Thank you for your willingness to participate in this study. Regrettably, you do not meet the research inclusion criteria.*

CONFIRMATION OF CONSENT:

- Do you understand what will be required of you based on the information sheet? Yes No
- Have you had all your questions answered by the information sheet? Yes No
- Do you know that you can withdraw at any time if you wish to do so and that it will have no negative consequences for you? Yes No
- Do you agree to take part in the research? Yes No

{Form set up to proceed only if all options are 'Yes'. If the person clicks no on the first two, they should be taken to the information sheet. If they click 'no' on the third option a statement to show that they can withdraw at any stage appears. All these should have an option at the top and bottom of the sheet 'PROCEED WITH THE STUDY' and 'OPT OUT OF PARTICIPATION IN THE STUDY'.}

# Addendum 11: National Survey Questionnaire

DEFINITION OF TERMS – PLEASE KEEP THESE IN MIND

- ✓ A serious hand injury is defined as an injury requiring a person to be out of work for 6 weeks or more with a variety of possible work-related outcomes ranging from returning to the same job in the same capacity to finding alternative employment.

- ✓ The reason for the person being out of work for six weeks or longer due to a variety of causes including physical and psychological causes related to the hand injury.

SECTION A: QUESTIONNAIRE

**When answering these questions, consider the entire journey with your client from the acute phase up until discharge.**

1. How often have you used the following techniques as part of a return-to-work protocol?

**Direct occupational therapy treatment**

Treated components of function (performance skills)

Almost Always Often Seldom Never

Treated participation in valued occupations

Almost Always Often Seldom Never

Addressed the client's Activities of Daily Living (personal management)

Almost Always Often Seldom Never

Issued pressure garments

Almost Always Often Seldom Never

Issued Splints

Almost Always Often Seldom Never

Issued clients with a home program

Almost Always  Often  Seldom  Never

Used a hand therapy protocol

Almost Always  Often  Seldom  Never

Please name the hand therapy protocols that you use.

Used models and frameworks to guide RTW

Almost Always  Often  Seldom  Never

Please name the models and frameworks that you use.

Issued assistive devices specifically for work

Almost Always  Often  Seldom  Never

**Indirect occupational therapy services**

Education (e.g. diagnosis, principles, precautions, the process of return-to-work, the client's rights etc)

Almost Always  Often  Seldom  Never

Negotiated financial compensation with the employer on behalf of the client (while they are not yet back at work)

Almost Always  Often  Seldom  Never

Acted as a case manager

Case Management is the process of assessment, planning, facilitation, care coordination, evaluation and advocacy to promote patient safety and quality of care by liaising with team members, insurers, employers, family members and other stakeholders (Case Management Society of America, 2019).

Almost Always Often Seldom Never

**Communicated with key stakeholders**

Contacted Employers

Almost Always Often Seldom Never

Contacted Insurers

Almost Always Often Seldom Never

Contacted medical and/or allied health staff

Almost Always Often Seldom Never

**Provided emotional support**

Responded to the stages of grief associated with loss of limb and associated function

Almost Always Often Seldom Never

Addressed psychological and/or psychobiological components of function

Almost Always Often Seldom Never

Responded to anxiety related to return to work.

Almost Always Often Seldom Never

Facilitated the development of coping skills

Almost Always Often Seldom Never

Supported the process of adaptation for the development of coping skills to prepare the patients early enough for long-term disability (where relevant).

Almost Always Often Seldom Never

Employ a proactive pain management approach (before it becomes a problem)

Almost Always Often Seldom Never

Treated pain as it becomes apparent.

Almost Always Often Seldom Never

Used motivational strategies.

Almost Always Often Seldom Never

Please list the motivational strategies that you use.

Do you screen for the DSM-V (Axis 1) psychological diagnostic categories (e.g. Mood disorders such as major depression and anxiety disorders such as Post-Traumatic Stress Disorder)?

Almost Always Often Seldom Never

Please name the psychological diagnostic categories that you screen for.

**Utilised specific work-related strategies**

Job demand analysis based on information provided by the client.

Almost Always Often Seldom Never

Job demand analysis based on information provided by the employer.

Almost Always Often Seldom Never

Used actual work tasks

Almost Always Often Seldom Never

Used simulated work tasks

Almost Always Often Seldom Never

Conducted a worksite visit

Almost Always Often Seldom Never

Observed the client (or a proxy) completing work tasks in the workplace

Almost Always Often Seldom Never

Considered external environmental factors (e.g. lighting, temperature, vibration, materials to perform work tasks etc)

Almost Always Often Seldom Never

Work trial

Almost Always Often Seldom Never

Work hardening programme

Almost Always Often Seldom Never

Supported job seeking activities for clients who do not have work to return to.

Almost Always Often Seldom Never

Placed and supported clients in work.

Almost Always Often Seldom Never

**Made specific work-related suggestions**

Suggested 'light duty' until full duty can be resumed

Almost Always Often Seldom Never

Suggested that the client returns to work as early as is safe

Almost Always Often Seldom Never

Suggested graded return-to-work (e.g. in terms of graded work tasks, time spent at work etc)

Almost Always  Often  Seldom  Never

Suggested workplace adaptations to the client.

Almost Always  Often  Seldom  Never

Suggested workplace adaptations to the employer.

Almost Always  Often  Seldom  Never

If there are any other specific work-related suggestions not mentioned above, please add them here.

2. Which of the following factors were assets or barriers for your clients' RTW. Multiple options may be selected.

The number of treatment sessions with a client

Asset  Barrier

The client's psychological condition

Asset  Barrier

The fear around return-to-work

Asset  Barrier

Anxiety around return-to-work

Asset  Barrier

Pain

Asset  Barrier

Desire for compensation/ disability grant

Asset Barrier

**Other important assets not listed here**

| |
|---|
| |

**Other important barriers not listed here**

| |
|---|
| |

3. How many sessions do you typically have, to return someone with a serious hand injury successfully to work?

1 Session 2-6 Sessions 7-11 Sessions 12-16 Sessions 17 – 20 Sessions

21-24 Sessions More than 24 Sessions

4. Approximately how many persons with serious hand injuries that require assistance with return to work do you see per month? _____.

5. Do you see workman's compensation clients? Yes No {If yes, continue to next two Qs} If no, then the next 2 questions should not appear}

Do you assist with the workman's compensation application?

Almost Always Often Seldom Never

Do you use a legal framework to guide your clinical reasoning?

Almost Always Often Seldom Never

SECTION B: GENERAL INFORMATION

1. Which Province are you working in? Multiple options may be selected.

Limpopo Free State Mpumalanga Western Cape

Eastern Cape  North West  Gauteng  Kwa Zulu Natal

2. Which sector are you working in?

   Government  Private  NGO  Military

   More than one  Other

3. At what level(s) of care do you provide services? Multiple options may be selected.

   Primary  Secondary/ District  Tertiary  Other

   If Other selected: please list the other level(s) of care where you provide services - _____.

4. In which setting are you working? Multiple options may be selected.

   Rural (an area some distance away from a town or city, with a smaller population)

   Deep Rural (large and isolated areas. These are the areas of open country in South Africa, with low population density)

   Urban (a built-up town or city)

   Peri-urban (an area located directly next to a city)

5. How many years of experience do you have _____.

6. Do you have any postgraduate qualifications or course accreditations in return to work or hands? Yes  No

- If yes, please name the course _____.

7. For how many years have you been treating hands? _____.

8. For how many years have you been facilitating return to work? _____.

Thank you for your participation in this questionnaire. Your responses will be analysed in the hopes of positively impacting people with serious hand injuries in their return to work process in the future. Please provide your email address should you want to receive feedback on the results _____.

# Addendum 12: Pilot Study Feedback and Improvements

| Question/ statement | Pilot participant 1 | Pilot participant 2 | Pilot participant 3 | My response |
|---|---|---|---|---|
| A serious hand injury is defined as an injury requiring a person to be out of work for 6 weeks or more with a variety of possible work-related outcomes ranging from returning to the same job in the same capacity to finding alternative employment. | | Very NB to have this definition. | | Keep the definition in final version of the survey. |
| | NB to state: I am conceptually addressing return to work happening in the acute recovery phase, as well as between the rehabilitation and RTW phases. | | | The following was added to before question 1: When answering these questions, consider the entire journey with your client, from the acute phase to discharge. |
| Treated components of function | | Treated components (performance skills) of function – may be trained to use performance skills | With these first two questions I find myself looking for a comment box. When I was seeing patients in a hand surgery clinic I would often treated mostly components but then when seeing patients came for follow-up outpatient OT appointments I was able to have a more holistic focus. I realise that comment columns add a lot of data but it also allows for further insight into responses. I would recommend some optional comment boxes for key | Included (performance skills). It now reads Treated components of function (performance skills). |

| | | | | |
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| | | | questions but appreciate that this depends on the focus of your research. (performance skills and client factors | |
| Addressed the client's ADLS | | Addressed the client's ADLs (consider IADLS and BADLs) might want to split it and write it in full. The person's work may be IADLs. | Are you interested in other areas / categories of occupation? Eg. Leisure, social participation. Or, Are you interested in occupational performance or 'participation in occupations' as a whole?<br>With these first two questions I find myself looking for a comment box. When I was seeing patients in a hand surgery clinic, I would often treated mostly components but then when seeing patients came for follow-up outpatient OT appointments I was able to have a more holistic focus. I realise that comment columns add a lot of data, but it also allows for further insight into responses. I would recommend some optional comment boxes for key questions but appreciate that this depends on the focus of your research. | I have broken this up into two questions. Question 1 is as follows:<br><br>Treated participation in valued occupations AND Addressed the client's activities of daily living (personal management)<br><br>The distinction between iadls and badls is too detailed for my study and falls outside the scope of my study. |
| Issued therapeutic modalities such as pressure garments and splints | | | I understand "therapeutic modalities" to be the full range of modalities that we use. Wondering what specific information, you would like to get from this question.<br>Also – I probably issued splints a lot more frequently than pgs – does this matter ito the information you are hoping to obtain? | I have now separated pressure garments and splints. I have also removed the word therapeutic. It now reads:<br><br>Issued pressure garments AND Issued splints |

| | | | | |
|---|---|---|---|---|
| How often have you used the following techniques as part of a return-to-work protocol? | | | In answering this question, I find myself looking for a "frequently" or "sometimes" or "often" Likert Scale option. It feels like there is one 'grade' missing between 'in most cases' and 'hardly ever' | I have changed the scale throughout to:<br>- Almost always<br>- Often<br>- Seldom<br>- Never |
| Used a hand therapy protocol | Elaborate on and ask which protocol to use. | | Hhmmm.. This is a tricky one. Do I use strict protocols – almost never. Do I adapt/adjust and use treatment principles embedded in protocols – yes – frequently. Perhaps a comment column may help here? Or a tweak to how the question is phrased. Comment Box<br>Gail Kingston's research → reality in government (patient presents much later in rural/underserviced areas. Experienced people have more clinical reasoning therefore don't depend on a protocol. Less experienced therapists use the recipe). | I have included the following comment box:<br><br>Please name the hand therapy protocols that you use unless "never" was selected. |
| Used models and frameworks to guide | | Used models and frameworks to guide RTW (e.g. ICF and examples for guiding Rx). | My voc expertise is very limited but I find myself looking for an example here. Are you referring to models/frameworks that apply to VOC specifically? Perhaps giving an example may be helpful.<br><br>Want to distinguish between voc frameworks and biomechanical models (want to figure out which school of thought the person is in). | I won't provide an example as was suggested by the pilot participant, as I don't want to lead my participants on.<br><br>I have, however, added the following textbox:<br><br>Please name the models and frameworks that you use unless "never" was selected. |

| | | | | |
|---|---|---|---|---|
| Acted as a case manager | | | Will all participants be familiar with this role? (include basic definition) plus comment box → what settings people are acting as case managers (not answering research question). Assumed to be acting in case managers at work. | I have added in the following definition of case management:<br><br>Case Management is the process of assessment, planning, facilitation, care coordination, evaluation and advocacy to promote patient safety and quality of care by liaising with team members, insurers, employers, family members and other stakeholders (Case Management Society of America, 2019) |
| Dealt with grief associated with loss of limb and associated function. | | Dealt with stages of grief associated with loss of limb and associated function. | Wondering if 'addressed' or 'responded to' is preferable here?<br><br>About identifying warning signs and referring on). What we are meant to be doing. Sensitive to where they're at along the stages. | I have changed this question so that it now reads as follows:<br><br>Responded to the stages of grief associated with loss of limb and associated function. |
| Addressed anxiety related to return to work | | | Addressed anxiety related to return to work. (Responded to) | I have changed this question so that it now reads as follows:<br><br>Responded to anxiety related to return to work. |

| | | | | |
|---|---|---|---|---|
| Facilitated the development of coping skills | | | Speaks to adaptation process. Prepare patients early enough for long-term disability. Severity of injuries chronic disability – not responding well enough, never start to get them to accept that the hand will never be the same. Additional about early adaptation. | This will now have two questions as follows:<br><br>Facilitated the development of coping skills AND Supported the process of adaptation for the development of coping skills to prepare the patients early enough for long-term disability (where relevant). |
| Implemented pain management strategies. | | | Employ a proactive pain management approach (before it becomes a problem). Is this the same as 'treated pain'. This feels like management strategies for residual/non-remediable pain. Treated pain (pain is part of the lived experiences of pain, early mirror therapy, need to treat pain proactively. Pain as a key indicator as a long-term disability. Should be part of our strategy. Proactive pain management and occupation run parallel).<br>Chronic pain (aggressive, proactive → prevent maladaptive patterns). | I have changed this question so that it now has two parts which reads as follows:<br><br>Employ a proactive pain management approach (before it becomes a problem) AND Treated pain as it becomes apparent |
| Considered external environmental factors (e.g. Lighting, temperature, vibration etc). | | Considered external environmental factors (e.g. Lighting, temperature, vibration, materials used to | | I have rephrased the question as follows:<br><br>Considered external environmental factors (e.g. |

| | | | | |
|---|---|---|---|---|
| | | perform work tasks etc) | | Lighting, temperature, vibration, materials used to perform work tasks etc). |
| Work hardening programme | | Work hardening programme (e.g. For different hand conditions) | | I don't require the level of detail that will be acquired should I ask about work hardening programs for different hand conditions. |
| Screened for Post-Traumatic Stress Disorder | | | You mention anxiety earlier but giving the evidence, would you include screen for anxiety and depression as well? | |
| Used motivational strategies | | | I'm not quite sure what you mean by this but perhaps its commonly understood within voc circles.<br>Used motivational strategies. Clarify and add a comment box. What is being used. (From interview analysis: motivation for compliance to do hand exercises, to take more ownership of their recovery, motivation to return to work). | I don't want to lead participants on. Therefore, I will ask what kind of strategies are used. I have added a comment box. |
| Do you screen for anxiety | | | You mention anxiety earlier but giving the evidence, would you include screen for anxiety and depression as well? Add depression. Anxiety (phobic and depression) | I have distinguished between normal psychological components e.g. Anxiety around return to work and pathological (medical intervention needed) psychological problems. I have included the following question: |

| | | | | |
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| | | | | Do you screen for the DSM-V (Axis 1) psychological diagnostic categories (e.g. Mood disorders such as major depression and anxiety disorders such as Post-Traumatic Stress |
| Utilised specific work-related strategies | | | | Added textbox: If there are any other specific work-related suggestions not mentioned above, please add them |
| Perceived pain | | | Is "perceived' necessary – given that pain is a product of perceived stimuli? | The word perceived has been removed.<br><br>I will not add a comment box as it is outside the scope of my research objectives for this study. |
| Desire for compensation/ disability grant (should be able to choose asset or barrier) | | | Add comment box (because can be helpful for the person. Temporary vs full) | I will not add a comment box as it is outside the scope of my research objectives for this study. |
| Which of the following factors were assets or barriers for your clients' RTW. Multiple options may be selected. | | | Work place support seems to be a key element missing here. By this I mean willingness of the employer to follow labour law; accommodate employer, provide support and accommodations; enable/support clinic/hospital/rehab visits; views of employer and colleagues around competence<br>Any other environmental factors? | I have added a textbox for the following:<br><br>Other important assets not listed here, and other important barriers not listed here |

| | | | | |
|---|---|---|---|---|
| | | | Many 'client-factors' seem to have been included. I'm wondering if there are any other work/employer related factors that are important to capture.<br><br>Other factors that come to mind from RTW evidence:<br>• Type of job (physical demand)<br>• Employment status (contracted, or not, sick leave, temporary incapacity etc)<br>• Severity of injury<br>• Types of impairments<br>• Physical appearance of hand<br>• Social and work support (you have touched on this)<br>Perhaps an "OTHER:" option that allows participants to fill in additional items would be beneficial | |
| Made specific work-related suggestions | | | → give people opportunity to check if there isn't anything else not captured in the survey. Add a comment box. | A comment box will be added.<br><br>If there are any other specific work-related suggestions not mentioned above, please add them here. |
| Which of the following factors were assets or barriers for your clients' RTW. Multiple options may be selected. | | | Workplace support<br><br>Other factors (e.g. Colleague support) | Textboxes added:<br><br>other important assets not listed here, and other important barriers not listed here. |

| | | | | |
|---|---|---|---|---|
| Which sector are you working in? | | Both | NGO, Military, Other | Participants can now choose more than one option. I have added in NGO, Military and more than one as options. |
| | | How old are you? _____. Age range of participants might be useful for median and SD. | | I have not included this question as it is irrelevant to my research objectives and is therefore outside the scope of my study. |
| Do you have any postgraduate qualification or course accreditation in return to work or hands? | | Do you have a postgraduate qualification or course accreditation in return to work or hands? (remove any) | | I have removed the word any. It now reads as follows:<br><br>Do you have a postgraduate qualification or course accreditation in return to work or hands? |

STELLENBOSCH UNIVERSITY
FACULTY OF MEDICINE AND HEALTH SCIENCES

# DISSERTATION RELEASE FORM

## ASSIGNMENT/THESIS/DISSERTATION RELEASE

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| Title of assignment/thesis/dissertation: **THE STRATEGIES AND BARRIERS ADDRESSED BY OCCUPATIONAL THERAPISTS IN THE PROCESS OF SUCCESSFUL WORK-RELATED TRANSITIONS FOR CLIENTS WHO HAVE SUSTAINED SERIOUS HAND INJURIES** | | | |
| Faculty | Medicine and Health Sciences | | |
| Division/Department | Occupational Therapy / Rehabilitation Sciences | | |
| Degree | Masters in Occupational Therapy – Thesis Only | | |
| Supervisor (s) | Lana van Niekerk | | |

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- I and the co-supervisor(s) (if applicable) have read the final draft of the assignment/thesis/dissertation
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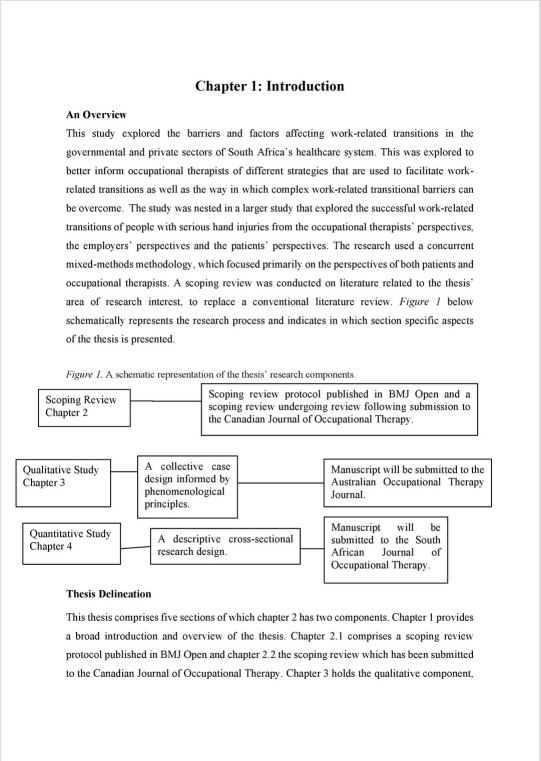

**Chapter 1: Introduction**

**An Overview**

This study explored the barriers and factors affecting work-related transitions in the governmental and private sectors of South Africa's healthcare system. This was explored to better inform occupational therapists of different strategies that are used to facilitate work-related transitions as well as the way in which complex work-related transitional barriers can be overcome. The study was nested in a larger study that explored the successful work-related transitions of people with serious hand injuries from the occupational therapists' perspectives, the employers' perspectives and the patients' perspectives. The research used a concurrent mixed-methods methodology, which focused primarily on the perspectives of both patients and occupational therapists. A scoping review was conducted on literature related to the thesis' area of research interest, to replace a conventional literature review. *Figure 1* below schematically represents the research process and indicates in which section specific aspects of the thesis is presented.

*Figure 1.* A schematic representation of the thesis' research components.

Scoping Review Chapter 2 — Scoping review protocol published in BMJ Open and a scoping review undergoing review following submission to the Canadian Journal of Occupational Therapy.

Qualitative Study Chapter 3 — A collective case design informed by phenomenological principles. — Manuscript will be submitted to the Australian Occupational Therapy Journal.

Quantitative Study Chapter 4 — A descriptive cross-sectional research design. — Manuscript will be submitted to the South African Journal of Occupational Therapy.

**Thesis Delineation**

This thesis comprises five sections of which chapter 2 has two components. Chapter 1 provides a broad introduction and overview of the thesis. Chapter 2.1 comprises a scoping review protocol published in BMJ Open and chapter 2.2 the scoping review which has been submitted to the Canadian Journal of Occupational Therapy. Chapter 3 holds the qualitative component,

# MOT Thesis (Partial)

Portal for submission of research thesis for purposes of Turnitin (excluding title page and appendices).

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| Grading status | Not graded |
| Due date | Sunday, 1 December 2019, 00:00 |
| Time remaining | Assignment was submitted 2 days 9 hours late |
| Last modified | Tuesday, 3 December 2019, 09:40 |
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