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UNDERSTANDING THE COMPLIANCE OF PATIENTS WITH HAND INJURIES IN SOUTH AFRICA: A QUANTITATIVE STUDY OF OCCUPATIONAL THERAPISTS' VIEWS.

Emily Makhlouf

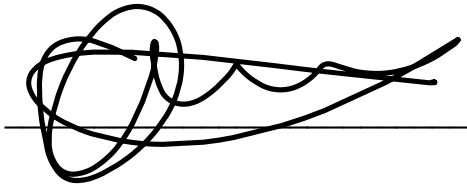
Supervisor: Kirsty van Stormbroek

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Occupational Therapy.

3 August 2022, Johannesburg

DECLARATION

I, Emily Makhlouf (student number: 820826) hereby declare that this research report is my own work. It is being submitted for the degree of Master of Science (Occupational Therapy) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.



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DEDICATION

To my parents, for personifying hard work and sacrifice to ensure I receive the education that I have. For instilling in me a hunger for knowledge and a passion for healthcare. I owe every success in my life to you.

ABSTRACT

Background: Patient compliance has been reported to have a substantial impact on hand rehabilitation outcomes in South Africa. In a low to middle-income country (LMIC), where a hand injury may cost a patient their livelihood, it is essential to develop local evidence to support patient compliance. This study aimed to describe how South African occupational therapists understand the compliance of hand-injured patients and their perceptions of the factors affecting, and strategies, used to facilitate patient compliance.

Method: A descriptive quantitative cross-sectional survey was employed. The online survey questionnaire was based on a review of the literature and its content validity was strengthened through expert review and refinement. Descriptive statistics and quantitative content analysis were employed.

Results: A response rate of 52.7% (n=99) was achieved. Participants who work in the private (48.5%) and public (46.5%) health sectors were represented. Most of the participants (61.2%) believed *'compliance'* to be the most appropriate term. Socio-economic and healthcare system/team-related factors were more frequently perceived to influence compliance than condition, therapy, and patient-related factors. However, the latter factors were more frequently targeted for intervention by therapists and their respective departments/practices.

Conclusion: Participants continue to prefer the use of the term 'compliance' despite literature dissuading this. Several socio-economic and healthcare system/team-related factors were identified, and therapy-related strategies were recommended. It is recommended that a collaborative workshop with South African occupational therapists be used to discuss results and collectively formulate realistic avenues for action.

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- I would like to extend my thanks to Dr. Denise Franzsen, for your assistance and expertise with the statistical analysis and results chapter. It is greatly appreciated!
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TABLE OF CONTENTS

DECLARATION i
PLAGIARISM DECLARATION ii
DEDICATION iii
ABSTRACT iv
ACKNOWLEDGEMENTS v
TABLE OF CONTENTS vi
LIST OF FIGURES x
LIST OF TABLES xi
NOMENCLATURE xii
LIST OF ABBREVIATIONS xiv
CHAPTER 1: INTRODUCTION 1
1.1 Introduction and background to the study 1
1.2 Statement of the problem 2
1.3 Purpose of the study 3
1.4 Justification of the study 4
1.5 Research question 4
1.6 Aim of the research 4
1.7 Objectives of the research 5
1.8 Layout of the report 5
1.8.1 Chapter 1: Introduction 5
1.8.2 Chapter 2: Literature review 5
1.8.3 Chapter 3: Methodology 5
1.8.4 Chapter 4: Results 6
1.8.5 Chapter 5: Discussion 6
1.8.6 Chapter 6: Conclusion and Recommendations 6
CHAPTER 2: LITERATURE REVIEW 7
2.1 Introduction 7
2.2 The importance of compliance 8
2.2.1 The importance of compliance in the medical literature 8
2.2.2 The importance of compliance in hand therapy 9
2.2.3 The importance of compliance within a South African context 11
2.3 Defining compliance 12
2.3.1 Historical overview of the term compliance 12
2.3.2 Implications of the term 14
2.3.3 Implications in the field of hand therapy 17
2.3.4 Alternative terms 18
2.4 Factors affecting compliance 20
2.4.1 Patient, condition, and therapy-related factors affecting compliance 21
2.4.2 Healthcare team/system and socio-economic-related factors affecting compliance 22

2.5 Strategies to facilitate compliance in hand therapy 24
2.5.1 Strategies used internationally 24
2.5.2 Strategies used in South Africa 26
2.6 Conclusion 27
CHAPTER 3: METHODOLOGY 28
3.1 Introduction 28
3.2 Study design 28
3.3 Population/ participants 28
3.3.1 Inclusion criteria 29
3.3.2 Sample and sample size 30
3.3.3 Sampling 30
3.4 Instrument development 30
3.5 Research procedure 31
3.5.1 Recruitment 31
3.5.2 Permissions 32
3.5.3 Data collection 33
3.5.4 Data management 33
3.6 Data analysis 34
3.7 Ethical considerations 37
3.7.1 Informed consent 37
3.7.2 Anonymity and confidentiality 38
3.7.3 Beneficence and non-maleficence 38
3.7.4 Justice 38
3.7.5 Veracity 38
3.8 Conclusion 38
CHAPTER 4: RESULTS 40
4.1 Introduction 40
4.2 Response rate 40
4.3 Demographic information 40
4.3.1 Personal demographic information 40
4.3.2 Educational demographic information 41
4.3.3 Work demographic information 42
4.4 Understanding compliance in hand therapy 45
4.4.1 The extent to which compliance impacts treatment outcomes 45
4.4.2 The level of importance attributed to the therapist understanding their patients' compliance and the factors affecting it 47
4.4.3 Participants' views on predicting a patient's compliance at their initial visits 49
4.4.4 Typical characteristics of a non-compliant patient 50
4.4.5 Typical characteristics of a compliant patient 51
4.4.6 What does the definition of compliance, in hand therapy, refer to? 52
4.4.7 Responsibility for patient compliance 53
4.4.8 Compliance: the most appropriate term? 53
4.4.9 Statements that best describe patient compliance 55
4.4.10 Summary 57
4.5 Factors affecting compliance 57

4.5.1 Socio-economic-related factors 58
4.5.2 Healthcare team/system-related factors 61
4.5.3 Condition-related factors 64
4.5.4 Therapy-related factors 66
4.5.5 Patient-related factors 68
4.5.6 Summary 70
4.6 Strategies used to support patients' compliance 70
4.6.1 Strategies used by occupational therapists to facilitate compliance 70
4.6.2 Strategies used by healthcare teams to facilitate compliance 72
4.6.3 Summary 73
4.7. Summary 73
CHAPTER 5: DISCUSSION 77
5.1 Introduction 77
5.2 Demographic information 77
5.3 Perceptions of compliance 79
5.3.1 Importance and impact of compliance 79
5.3.2 Predictability of compliance 80
5.3.3 Characteristics, responsibilities, and definitions of the compliant and non-compliant patient 81
5.3.4 Compliance as the most appropriate term 83
5.4 Supports and barriers to the compliance of hand-injured patients 85
5.4.1 Socio-economic-related factors 85
5.4.2 Healthcare team/system-related factors 87
5.4.3 Therapy-related factors 88
5.4.4 Condition-related factors 89
5.4.5 Patient-related factors 90
5.5 Strategies used to facilitate patient compliance 90
5.6 Strengths and limitations 92
5.7 Summary 95
CHAPTER 6: CONCLUSION AND RECOMMENDATIONS 97
6.1 Introduction 97
6.2 Answering the research aim and objectives 97
6.3 Recommendations 99
6.3.1 Education 99
6.3.2 Clinical practice 100
6.3.3 Further research 101
REFERENCES 104
APPENDIX A: SURVEY QUESTIONNAIRE 115
APPENDIX B: QUESTIONNAIRE RATIONALE 132
APPENDIX C: CONTENT REFINEMENT – EXPERTS' FEEDBACK 141
APPENDIX D: LAYOUT REFINEMENT – OCCUPATIONAL THERAPISTS' FEEDBACK 161
APPENDIX E: PARTICIPANT INFORMATION SHEET 165

APPENDIX F: ETHICAL CLEARANCE 167
APPENDIX G: RESPONSE RATE TABLE 169
APPENDIX H: FACTORS AFFECTING COMPLIANCE 170
APPENDIX I: TYPICAL CHARACTERISTICS OF NON-COMPLIANCE 186
APPENDIX J: TYPICAL CHARACTERISTICS OF COMPLIANCE 188
APPENDIX K: PARTICIPANTS VIEWS ON WHOSE RESPONSIBILITY PATIENT COMPLIANCE IS. 190
APPENDIX L: PARTICIPANTS' VIEWS ON STATEMENTS THAT BEST DESCRIBE PATIENT COMPLIANCE. 191
APPENDIX M: CPD JOURNAL CLUB REGISTER 192
APPENDIX N: CONGRESS ACCEPTANCE LETTER 194
APPENDIX O: ACCEPTANCE OF TITLE 196
APPENDIX P: 'TURNITIN' REPORT 197
..... 199

LIST OF FIGURES

Figure 4.1 Number of years since undergraduate qualifications obtained (n=99) 41
Figure 4.2. The frequency that therapists treat patients with hand injuries (n=99) ... 43
Figure 4.3. Number of years treating patients with hand injuries (n=99) 43
Figure 4.4 Impact of compliance on treatment outcomes (n=99) 46
Figure 4.5. Frequency of typical characteristics (n=258) of non-compliance..... 51
Figure 4.6. Frequency of typical characteristics (n=262) of compliance 52
Figure 4.7 With whom the responsibility lies for patient compliance (n=96) 53
Figure 4.8 Statements that best describe patient compliance (n=99)..... 56
Figure 4.9 Socio-economic-related factors perceived to act as supports and/or barriers to compliance (n=99)..... 59
Figure 4.10 Condition-related factors perceived to act as supports and/or barriers to compliance (n=99)..... 65
Figure 4.11 Patient-related factors perceived to act as supports and/or barriers to compliance (n=99)..... 69

LIST OF TABLES

Table 3.1 Data analysis of each objective 34
Table 4.1 University from which undergraduate qualifications obtained (n=99) 41
Table 4.2 Educational demographics of postgraduate qualifications (n=45) 42
Table 4.3. Work demographics: provinces, sectors, settings, and levels of care (n=99) 44
Table 4.4 Summary of the participants' comments when reporting a perceived 'moderate' and 'severe impact' of compliance on outcomes (n=46) 47
Table 4.5 Summary of the participants' comments when reporting their understanding of their patients' compliance to be 'very important' (n=83) 48
Table 4.6 Predictability of compliance (n=99) 49
Table 4.8 Patient-related and therapist/therapy-related factors for participants 'sometimes' being able to predict compliance (n=59) 49
Table 4.7 Reasons for being able to predict patient compliance (n=12) 50
Table 4.9 The definition of compliance in hand therapy (n=94) 52
Table 4.10 Compliance as the most appropriate term in hand therapy (n=99) 53
Table 4.11 Comments on statements that best describe compliance (n=20) 56
Table 4.12 Reasons/comments for socio-economic-related factors (n=16) 60
Table 4.13 Healthcare team/system-related factors perceived to act as supports and/or barriers to compliance (n=99) 62
Table 4.14 Therapy-related factors perceived to act as supports and/or barriers to compliance (n=99) 67
Table 4.15 Frequency of strategies (n=182) used by occupational therapists 71
Table 4.16 Frequency of strategies (n=135) used by healthcare teams 72

NOMENCLATURE

Activities of daily living

“Activities that are oriented toward taking care of one’s own body such as bathing/showering” (Schell, Gillen & Scaffa, 2014: 1229).

Biomedical approach

An approach to healthcare that views the patient as an ill or unwell person that can be treated independently from their mind and other external factors (Gilbert, Selikow & Walker, 2009).

Client-centered

“Practice that emanates from the client’s perspective” (Whalley Hammell, 2013: 175).

Compliance

Compliance refers to patients’ active engagement in therapy (Groth & Wulf, 1995). Although ‘adherence’ is the recommended term (O’Brien, 2012), the term ‘compliance’ is used in this study as it remains the term more commonly used in South Africa (van Stormbroek, 2020).

Hand injuries

The hand is used to refer to the entire upper limb in this study. This choice of the term was used as it is most commonly used in the field of hand therapy. Hand injuries and conditions will be referred to as hand injuries in this study.

Hand therapy

In this study, the term hand therapy is used to describe occupational therapy provided to patients with hand injuries. The use of this term does not imply specialist practice.

High-income country (HIC)

A country with “a gross national income per capita exceeding $12,056” (The World Bank, 2021a).

Home exercise program (HEP)

In this study, a home exercise program refers to, hand or upper limb exercises prescribed to the patient by the occupational therapist to execute in addition to the exercises executed during therapy sessions.

Home program (HP)

“Individualised multimodal interventions that target body structure, activities, and participation problems identified collaboratively by the (patient) and therapist, informed by diagnoses and referral instructions” (Novak, Cusick & Lannin, 2009: 607). For the purposes of this study, the targeted body structure is the upper limb.

Low to middle-income country (LMIC)

The World Bank categories the world’s economies into four groups: “low, lower-middle, upper-middle, and high-income” (Hamadeh, van Rompaey & Metreau, 2021). High-income countries are defined above. For the purposes of this study, low to middle-income countries will be used to refer to low-income and lower-middle-income countries. A low-income country is a country with “a gross national income per capita of $1,045 or less” (The World Bank, 2021b) and a lower-middle-income country is a country with “gross national income per capita between $1,046 and $4,095” (The World Bank, 2021b).

Multi-disciplinary team (MDT)

“A group of professionals from one or more clinical disciplines who together make decisions regarding recommended treatment of individual patients” (NHS Data Model and Dictionary, 2021).

Occupation based hand therapy

“An approach to practice that integrates multiple frames of reference, while remaining rooted in an occupational therapy perspective” (de Klerk et al., 2017: 10). This occupational therapy perspective can be understood as “the use of occupation as a means to an end and an end itself” (de Klerk et al., 2017: 10).

LIST OF ABBREVIATIONS

ADLs	Activities of daily living
CSOT	Community Service occupational therapist
HEP	Home exercise program
HIC	High-income country
HP	Home program
HPCSA	Health Professions Council of South Africa
LMIC	Low to middle-income country
MDT	Multi-disciplinary team
OT	Occupational therapist
OTASA	Occupational Therapy Association of South Africa
PHC	Primary healthcare
REDCap	Research Electronic Data Capture
RuReSA	Rural Rehab South Africa
SASHT	South African Society of Hand Therapists
WHO	World Health Organisation

CHAPTER 1: INTRODUCTION

1.1 Introduction and background to the study

South Africa's high violence and trauma incidences contribute to a substantial burden of hand injuries among the South African population (van Stormbroek & Buchanan, 2018). This creates a demand for effective hand rehabilitation services within the South African context (van Stormbroek & Buchanan, 2018). Effective hand rehabilitation rests on a variety of factors – most importantly, the rehabilitation program itself, facilitated by the occupational therapist, and the compliance of the patient (Mncube & Puckree, 2017). Although 'adherence' is the recommended term in hand therapy (O'Brien, 2012), the term 'compliance' is used in this study as it remains the term more commonly used in South Africa (van Stormbroek, 2020) and refers to patients' active engagement in therapy (Groth & Wulf, 1995).

Compliance plays a vital role in a patient's rehabilitation journey. It is emphasised that "the best constructed rehabilitation program can be only as effective as the degree to which the patient complies with the treatment recommendations of the healthcare professional" (Kirwan, Tooth & Harkin, 2002: 31). If optimal outcomes in rehabilitation are being pursued, it becomes necessary to interrogate this concept of 'patient compliance'.

Literature demonstrates the spectrum of how compliance is understood (Haynes, 1979; Trostle, 1988; Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008). It emphasises that this concept is dynamic and complex and is influenced by the social context in which it is used (Bissonnette, 2008). The result of a dynamic concept is that individuals may conceptualise this concept differently (Trostle, 1988). How one conceptualises a concept manifests in their actions (Donovan & Blake, 1992; Holm, 1993). A healthcare professional's actions affect their interpersonal relationships with their patients, that in turn affect a patient's compliance (Feinberg, 1988).

Literature also extensively explores the factors affecting compliance. These factors are both external and internal. The external factors are related to the patient's context (Sabaté, 2003), for example, the patient's and their country's socio-economic status, their country's socio-political climate and healthcare system, the availability of transport, their country's resources (financial, physical and human) (Harms &

Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2020). Due to these external factors, studying compliance becomes challenging between contexts that vary (Sabaté, 2003). Thus a conclusion reached in one context, cannot necessarily be inferred to another (Kyngäs, Duffy & Kroll, 2000; Harms & Kobusingye, 2003).

Literature explored on the topic of compliance largely comes from high-income countries (HICs) which typically have different contextual factors to that of low to middle-income countries (LMICs) (Harms & Kobusingye, 2003; Harris et al., 2011). There is only one study reporting on compliance and hand therapy within the South African context (van Stormbroek, 2020). Studies that have been conducted on specific hand injuries have however highlighted the substantial influence of external factors on the outcomes of hand rehabilitation (Harris et al., 2011; Wentzel, 2014; de Klerk et al., 2017).

1.2 Statement of the problem

Patient compliance in healthcare has been researched since the 1950s (Trostle, 1988; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001) but remains one of healthcare's greatest problems and concerns (Lasagna, 1973; Kontz, 1989; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001; Bissonnette, 2008). This is because of its impact on treatment regimens, recovery results, and healthcare costs (Vermeire & Hearnshaw, 2001; Sabaté, 2003; Bissonnette, 2008; Cole, Underhill & Kennedy, 2016). Donovan & Blake (1992) proposed that this is a result of healthcare workers displaying limited understanding into patients' *reasoned decision making* (Donovan & Blake, 1992) and Holm (1993) notes that this results in a poor-quality relationship between the healthcare professional and the patient (Holm, 1993).

An abundance of literature has been published within the healthcare fields of medicine, pharmacology, and behavioural science (Donovan & Blake, 1992; Bissonnette, 2008; Bailey et al., 2020) while literature in the field of hand therapy is growing (van Stormbroek, 2020) and lacking within the South African context. A South African explorative study, by van Stormbroek (2020), explored how nine South African occupational therapists conceptualized compliance and the factors that affect patient compliance within South Africa (van Stormbroek, 2020). This study was done to bridge the gap in how compliance is understood and to further understand the factors that affect it in South Africa in order to improve hand rehabilitation services (van

Stormbroek, 2020). There is currently no other published research that support or oppose the results presented in this study.

Consequent to the above, principles for practice are taken from international literature (de Klerk et al., 2017; Mncube & Puckree, 2017). This international literature does not have the socio-political history, diversity of contexts, and cultures that South Africa has, (Harris et al., 2011; Sidanius, Brubacher & Silinda, 2019) nor the barriers and challenges faced when accessing rehabilitation services in a LMIC (Harms & Kobusingye, 2003). Mncube and Puckree (2017) have identified the need to modify the already existing guidelines for practice in hand therapy in order for them to be "relevant and suitable to the South African community" (Mncube & Puckree, 2017: 37).

The need to investigate compliance with hand injuries specifically arises from the burden of hand injuries in South Africa (van Stormbroek & Buchanan, 2018). The hand and its functioning are needed to participate in daily activities and occupations (Grice, 2015; de Klerk et al., 2017). Therefore, for most people within a LMIC, such as South Africa, this means a loss of remuneration for this period of time (Harms & Kobusingye, 2003) and decreased participation in culturally expected activities and responsibilities (Adams, 2009).

Thus, it can be concluded that South African occupational therapists' principles for practice (for hand injuries) need to be enriched with local evidence in order to better facilitate patient compliance.

1.3 Purpose of the study

The purpose of this study is to conduct a quantitative study that builds on a previous qualitative explorative study. The latter was conducted in 2017 and 2018 by the research supervisor (HREC M170841). Through in-depth interviews, this study gathered in-depth information from nine occupational therapists who routinely treat hand-injured patients from diverse contexts and practice settings in South Africa (van Stormbroek, 2020). This study generated an understanding of how South African occupational therapists understand compliance and how compliance is hindered and supported within the unique South African healthcare context (van Stormbroek, 2020).

The qualitative study achieved *depth* of understanding from a small purposive sample of South African occupational therapists. The purpose of *this* quantitative study is to

contribute evidence on hand-injured patients' compliance that reflects the *breadth* of views across the population of occupational therapists who routinely treat hand-injured patients in South Africa's diverse context and practice settings.

1.4 Justification of the study

The study will enable an improved understanding of the contextual components that affect a South African patient's health behaviour. Within clinical practice, an improved understanding of compliance will support appropriate and contextually responsive rehabilitation for patients. As a result, improved engagement in daily activities and occupations will be achieved as well as enabling patients to return to earning a livelihood (O'Brien, 2012). Additionally, this improved understanding can be used to make adjustments to the content taught to undergraduate students. This arises from the growing need to refine undergraduate training, specifically in the field of hand therapy (van Stormbroek & Buchanan, 2018).

To the researcher and supervisor's knowledge, this is only the second study of this nature to be conducted within the South African context. There is a third study that is currently being concluded at a South African university on approaches used by rural therapists, to facilitate adherence to home programs. Along with results from the latter study, the findings of this study provide further guidance for future research, as gaps in the evidence became evident through the process of conducting this research. It is acknowledged that it is essential for compliance to be explored from the perspective of both patients and therapists (Kirwan, Tooth & Harkin, 2002; van Stormbroek, 2020). This study will only focus on the latter.

1.5 Research question

How do South African occupational therapists understand and manage hand-injured patients' compliance?

1.6 Aim of the research

To describe how South African occupational therapists understand and manage hand-injured patients' compliance.

1.7 Objectives of the research

1. To describe how South African occupational therapists understand the concept of compliance.
2. To describe the factors which facilitate the compliance of hand-injured patients, as perceived by South African occupational therapists.
3. To describe the factors which are barriers to the compliance of hand-injured patients, as perceived by South African occupational therapists.
4. To describe the strategies used by South African occupational therapists to facilitate the compliance of hand-injured patients.

1.8 Layout of the report

1.8.1 Chapter 1: Introduction

This chapter introduces the concept of compliance in the health profession and hand therapy. It provides an overview of the South African context and the factors that may affect compliance in the South African context. The statement of the problem, purpose, and justification of the study as well as the research question, aim of the research, and objectives of the research are also discussed in this chapter.

1.8.2 Chapter 2: Literature review

This chapter provides a comprehensive description of the concept of compliance and its development in the health profession and hand therapy. It provides a detailed description of the South African context and the factors that may affect compliance in the South African context.

1.8.3 Chapter 3: Methodology

This chapter outlines and explains the study design used, how the participants were selected for the study, how the population was delineated, and how the sample size was calculated. The development and use of the research instrument are described and the research procedure is outlined. Lastly, the data analysis and ethical considerations are described.

1.8.4 Chapter 4: Results

This chapter reports on the results obtained from the questionnaire, including the demographic information of the participants, participants' understanding of patient compliance in hand therapy, the factors that affect compliance, and the strategies used by therapists to support patients' compliance.

1.8.5 Chapter 5: Discussion

This chapter uses existing literature to discuss the study results and provide an interpretation of these. The discussion is structured according to the research objectives. The strengths and limitations of the study are presented.

1.8.6 Chapter 6: Conclusion and Recommendations

The final chapter provides a summary of the previous chapters of the study. Recommendations and implications for further research, education, and practice are outlined.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter will provide a critical review of the literature related to the problem under investigation and illustrates how this study has been situated within the gaps found in the literature. The problem under investigation is how South African occupational therapists understand and manage hand-injured patients' compliance.

The importance of compliance (2.2), specifically in the medical literature (2.2.1) then within the context of hand therapy (2.2.2), and lastly within the context of South Africa (2.2.3) will be explored. The definition of compliance (2.3) will then be explored by outlining the historical context of compliance (2.3.1) and the implications of the term compliance (2.3.2) with specific reference to the field of hand therapy (2.3.3). Alternative terms proposed by the literature (2.3.4) will be reviewed. Factors affecting compliance (2.4) will then be addressed. This will be done by first describing the patient, condition, and therapy-related factors (2.4.1) and secondly the healthcare team/system and socio-economic-related factors (2.4.2). Lastly, the strategies (2.5) proposed by literature to facilitate and improve compliance internationally (2.5.1) and in South Africa (2.5.2) will be reviewed.

This literature was obtained through a search that was conducted from March 2019 to November 2021 using the following databases and search engines: Google Scholar, University of the Witwatersrand Lib Guides (including Pubmed and Clinical Key), Science Direct, and EBSCOhost (including Academic Search Ultimate, Africa-Wide info, APA Psychinfo, CINAHL complete, Dentistry and Oral Health source, eBook collection, Global Health, Health source: nursing/ academic edition, Library reference centre, MasterFILE Premier, MasterFILE reference eBook collection, MEDLINE complete, Mental measurement year book, Psychology, and behavioural sciences collection and SPORTDiscus with full text). Key words used during the searches included *compliance, adherence, patient compliance, patient adherence, defining compliance, hand therapy, hand injuries, hand-injured patients,* and *occupation-based therapy.* The above searches were inclusive of both local and international literature. Additional literature was located by using literature referenced in related articles.

2.2 The importance of compliance

Patient compliance has been noted as one of healthcare's greatest problems and concerns (Lasagna, 1973; Kontz, 1989; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001; Bissonnette, 2008). It has been the subject of intense study since the 1950s (Trostle, 1988; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001). An abundance of literature has been published within the healthcare fields of medicine, pharmacology, and behavioural science (Donovan & Blake, 1992; Bissonnette, 2008; Bailey et al., 2020) while literature in the field of hand therapy is growing (van Stormbroek, 2020). The research within these, and now many more, fields of healthcare, have highlighted the impact of patient compliance on treatment regimens, recovery results, and healthcare costs (Vermeire & Hearnshaw, 2001; Sabaté, 2003; Bissonnette, 2008; Cole, Underhill & Kennedy, 2016). It is evident, that from the extensive publications on the subject, compliance has become an important part of healthcare research today.

Additionally, understanding the concept of patient compliance is essential as a lack of understanding of patient compliance influences the therapeutic relationship between the healthcare worker and the patient (Feinberg, 1988; Donovan & Blake, 1992; Holm, 1993). A poor therapeutic relationship between the healthcare worker and the patient may affect how services are provided as well as the patient's motivation to engage in therapy (Feinberg, 1988; Holm, 1993; Palmadottir, 2006) – further contributing to the above mentioned categories: treatment regimens, recovery results, and healthcare costs (Vermeire & Hearnshaw, 2001; Sabaté, 2003; Bissonnette, 2008; Cole, Underhill & Kennedy, 2016). It therefore becomes necessary to understand this concept of 'patient compliance'.

2.2.1 The importance of compliance in the medical literature

In a review article, Trostle (1988) highlighted that studying and understanding compliance is important for three reasons. Firstly, for its clinical implications and determining the appropriateness and effectiveness of medication (Trostle, 1988). Trostle (1988) believed that non-compliance led to patients having to take medication for prolonged periods of time, decreasing their health instead of improving it. This then meant that the effectiveness or appropriateness of a drug could not be determined. Later literature (Taytard, 1992; Holm, 1993; Vermeire & Hearnshaw, 2001) was in

agreement with this reason proposed by Trostle (1988).

The second reason Trostle (1988) proposed was for the impact it has on the economy. Trostle (1988) believed that pharmaceutical companies used compliance as a way in which to promote their product and increase sales and therefore contribute to the economy. Later, literature proposed additional effects on the economy. It proposed that non-compliance increases healthcare costs as non-compliance to medication increases illness severity or prolongs illness, increasing the healthcare a person seeks (Playle & Keeley, 1998; Vermeire & Hearnshaw, 2001; O'Brien, 2010).

Lastly, Trostle (1988) reports the rise in articles published on the topic, specifically between 1960 and 1985. This rise in published literature illustrates that compliance has drawn great attention (Trostle, 1988) and debate (Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008) in the academic world. However, literature has limited impact if it is not applied to practice.

2.2.2 The importance of compliance in hand therapy

Research on patient compliance has continued to grow since Trostle (1988) highlighted the growth in published literature between the 1960s and 1980s (Kyngäs, Duffy & Kroll, 2000). During this growth, occupational therapists in the field of hand therapy identified the need to also conduct research on the topic (Kirwan, Tooth & Harkin, 2002; van Stormbroek, 2020). Hand therapy literature echoes much of what has been said in other healthcare fields regarding the importance of compliance (Kirwan, Tooth & Harkin, 2002; O'Brien, 2010, 2012; van Stormbroek, 2020). In the field of hand therapy, compliance is said to be of great importance. This is because non-compliance has the potential to compromise the livelihoods of individuals (van Stormbroek, 2020), restrict the efficacy of treatment programs and protocols (Wentzel, 2014; Cole, Underhill & Kennedy, 2016), negatively impact treatment outcomes (van Stormbroek, 2020) - including secondary complications (Feinberg, 1988; Cole, Underhill & Kennedy, 2016) – and produce skewed research results (Cole, Underhill & Kennedy, 2016). The conclusion is thus drawn that because this becomes problematic for the individual and the healthcare system, it warrants investigation.

de Klerk et al. (2017) have noted person's hands be an essential instrument of the body. The hand is needed to participate in daily occupations (Grice, 2015; de Klerk et

al., 2017) and is strongly linked to a person's livelihood (van Stormbroek, 2020). For hands to function in the multi-faceted way in which they do, they have an intricate anatomy (Bell-Krotoski & Fess, 1995). When this intricate anatomy is compromised, it requires specific and specialised rehabilitation. This rehabilitation needs commitment to ensure functional recovery of the hand (Kirwan, Tooth & Harkin, 2002). As a result, it is further concluded that investigating and interrogating compliance is of paramount importance in the field of hand therapy (van Stormbroek, 2020).

van Stormbroek (2020) noted that the commitment to the specialised rehabilitation program in hand therapy rests with both the therapist who co-authors the treatment program with the patient and the patient who executes it (van Stormbroek, 2020). As important as it is for the healthcare professional to aid in the development of the rehabilitation program, most of the work is done by the patient at home (Kirwan, Tooth & Harkin, 2002). This work done at home is known as a home exercise program (HEP) and/or home program (HP), which in the field of hand therapy is deemed crucial to optimise the effectiveness of the rehabilitation process (Scott, Castelli & Valdes, 2019). This, therefore, raises the importance of the patient's compliance, which in hand therapy literature is predominantly spoken of as adherence (O'Brien, 2012; Cole et al., 2019).

Hand therapy research has often drawn the conclusion that compliance rates have affected outcomes. Various studies have been conducted on a patient's compliance with specific hand injuries (Feinberg, 1988, 1992; Dobbe, Van Trommel & Ritt, 2002; Lyngcoln et al., 2005; Sandford, Barlow & Lewis, 2008; O'Brien, 2010; Sudhagar & Leblanc, 2012; Cole, Underhill & Kennedy, 2016; Murphy, 2016; Sandford, Sanders & Lewis, 2017; Gangatharam, 2018; Scott, Castelli & Valdes, 2019) as well as on the general concept of compliance in hand therapy (Codori, Nannis & Pack, 1992; Groth & Wulf, 1995; Chen et al., 1998; Wielandt & Strong, 2000; Kirwan, Tooth & Harkin, 2002; O'Brien, 2012; Cole et al., 2019). However, all of these have been conducted in HICs where the factors affecting compliance and the nature of rehabilitation may differ from that offered in the South African context (Harris et al., 2011; de Klerk et al., 2017). Understanding how compliance affects treatment outcomes in a LMIC, like South Africa, then becomes important.

Within the South African context, the above was emphasised in a study conducted by

Wentzel (2014). The quantitative single-blinded comparative controlled trial was not designed to explore compliance specifically however after analysing the results, it was evident that the participants' abilities to comply affected the treatment outcomes of the intervention under investigation. This led the researcher to acknowledge the importance and effect of compliance (Wentzel, 2014). In addition, another South African study also referred to the importance and effect of compliance throughout the study, with specific reference to its impact in under-resourced areas (Mncube & Puckree, 2017). These two studies continue to draw attention to the need to study patient compliance in South Africa.

2.2.3 The importance of compliance within a South African context

It is not enough to merely acknowledge the importance of compliance in the rehabilitation process and develop an appropriate definition. An understanding of the patient as an individual is of paramount importance (Palmadottir, 2006; Short et al., 2019; van Stormbroek, 2020). In order to understand the individual, an understanding of their context needs to be developed. Thus, understanding the individual means also understanding their context. This will then inform what affects each patient's ability to comply (van Stormbroek, 2020). Each person is different with different reasons for their actions, in their health behaviour, and daily lives (Donovan & Blake, 1992; Scott, Castelli & Valdes, 2019). Therefore, Scott, Castelli and Valdes (2019) in their review article, highlighted that when a patient seeks healthcare services they have different needs and priorities from the patient before and after them (Scott, Castelli & Valdes, 2019). Each person evaluates the gains and losses of participating in a medical regimen, within the context of their daily lives (Donovan & Blake, 1992).

Without understanding the patient's context and therefore the factors that affect a patient's compliance, there will be restricted change that can be made to the facilitation of compliance - particularly in the context of hand therapy in South Africa (van Stormbroek, 2020). South Africa has a large population of manual labourers (van Stormbroek & Buchanan, 2018; van Stormbroek, 2020). A loss of function of the hand, therefore, decreases a South African manual labourer's ability to receive a wage (van Stormbroek, 2020). Due to a person not being able to work, they may seek a temporary or permanent disability grant and may prioritise this financial aspect to maintain their livelihood at the expense of their hand's function (van Stormbroek, 2020). Additionally,

the loss of function of their hand may compromise their quality of life as they are unable to engage appropriately in any of their daily occupations that bring them meaning (Adams, 2009; van Stormbroek, 2020).

As there is only one published study (van Stormbroek, 2020) exploring the understanding of compliance and the factors that affect it in South Africa, the results of the study by van Stormbroek (2020) have been central to the execution of the researcher's study.

2.3 Defining compliance

2.3.1 Historical overview of the term compliance

Seminal authors of compliance literature explain that non-compliant behaviour was identified by Hippocrates (Lasagna, 1973; Haynes, 1979; Trostle, 1988; Kontz, 1989; Playle & Keeley, 1998; Vermeire & Hearnshaw, 2001; Bissonnette, 2008) before it was formally researched in the 1950s (Trostle, 1988; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001). Hippocrates described non-compliant behaviour as the patient lying to the healthcare professional about taking their medication (Lasagna, 1973; Haynes, 1979; Trostle, 1988; Playle & Keeley, 1998; Vermeire & Hearnshaw, 2001; Bissonnette, 2008). Hippocrates identified this behaviour of 'not taking medication' but did not assign a term or concept to it (Playle & Keeley, 1998).

The formal research around compliance developed when there was an increase in the interest and concern about compliant behaviour (Trostle, 1988; Playle & Keeley, 1998; Vermeire & Hearnshaw, 2001; Bissonnette, 2008). This interest and concern began at the time of the development of antibiotics in the 1950s (Trostle, 1988). It was only around this time that an effective (Playle & Keeley, 1998) form of antibiotic medication was developed (Trostle, 1988). With this development, doctors needed to ensure this medication was taken in order to monitor its effectiveness (Lasagna, 1973). Thus, doctors needed to ensure patients were compliant (Trostle, 1988).

The concern with the effectiveness of medication became the main justification for the study of compliance in the 1950s (Trostle, 1988; Playle & Keeley, 1998; Vermeire & Hearnshaw, 2001; Bissonnette, 2008) and the 1970s (Lasagna, 1973; Sackett & Snow, 1979; Vermeire & Hearnshaw, 2001). In later years, however, this motivation was challenged. In 1992, Taytard (1992) critiqued the common thought that those who

pass away are those who are non-compliant. When critiquing this thought, he asks if these patients really did pass away from non-compliance to medical treatment (their medication) or was their passing a result of other factors affecting their non-compliance and therefore their passing (Taytard, 1992). A worthy challenge to the concept of compliance that forms the foundation of more recent literature (Kyngäs, Duffy & Kroll, 2000; O'Brien, 2012; Cole, Underhill & Kennedy, 2016; van Stormbroek, 2020).

Despite the increase of research published in the 1960s (Vermeire & Hearnshaw, 2001), authors of seminal texts do not identify when the term 'compliance' was used to label a patient's health behaviour. Lasagna (1973) spoke of *non-compliance* and *drug defaulting* (Lasagna, 1973) as nothing new to the healthcare profession. He draws attention to the fact that prior academic publications seemed to not change what was being done about non-compliance (Lasagna, 1973). He highlights that doctors need to be mindful non-compliance and its consequent effects (Lasagna, 1973) - a point that more recent literature also warns the healthcare profession about (Wielandt & Strong, 2000; Sabaté, 2003; Bissonnette, 2008; van Stormbroek, 2020).

In 1974, a symposium was held at McMaster University, on *compliance with therapeutic regimens* (Dimatteo et al., 1998; Vermeire & Hearnshaw, 2001). This resulted in the publishing of a book on compliance (Vermeire & Hearnshaw, 2001) and an increase in compliance research (Dimatteo et al., 1998; Vermeire & Hearnshaw, 2001).

Kyngäs, Duffy and Kroll (2000) then reported that in 1976, Sackett and Snow (1979) were the first to introduce a formal definition of compliance (Kyngäs, Duffy & Kroll, 2000). In 1979, given the advancement in the knowledge of compliance, Haynes (1979) identified the shortcomings of Sackett and Snow's (1979) initial work. In an attempt to improve the understanding of compliance from Sackett and Snow's (1979) introduction, Haynes (1979) defined compliance as "the extent to which a person's behaviour (taking medications, following a recommended diet or executing lifestyle changes) coincides with medical or health advice" (Haynes, 1979: 1–2). This is now the most cited definition of compliance (Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008; Bailey et al., 2020). And although by the end of the 1970s, this provided the

healthcare profession with a definition of compliance, it was, however, a complex concept that required further research (Vermeire & Hearnshaw, 2001).

Haynes' (1979) definition has been strongly critiqued for its implication of the authoritarian and paternalistic posture of the healthcare professional and the passive role of the patient (Trostle, 1988; Holm, 1993; Dimatteo et al., 1998; Playle & Keeley, 1998; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001). Further critiques comment on its applicability to only certain healthcare professions (Bissonnette, 2008; Bailey et al., 2020) and its inability to aid in both the measurement of compliance and the interventions to improve non-compliance (Playle & Keeley, 1998; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001; Bissonnette, 2008). As a result of this, alternative definitions and terms have been offered (Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008; Bailey et al., 2020), in an attempt to improve the understanding and application of compliance. However, the complex nature of this phenomenon continues to elicit much debate, with no consensus on a single definition (Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008; Bailey et al., 2020).

Due to the varying nature of the healthcare fields, a universal definition cannot be used (Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008; Bailey et al., 2020). Cole, Underhill and Kennedy (2016) noted that the term compliance generalises complex human behaviour that is influenced by numerous factor (Cole, Underhill & Kennedy, 2016). Additionally, Bissonnette (2008) noted that compliance differs according to context, both social and which health profession it is referred to in (Bissonnette, 2008). This phenomenon, despite the depth of research, has been described as; ill-defined (Kyngäs, Duffy & Kroll, 2000), fragmented (Vermeire & Hearnshaw, 2001), and too complex to narrow down to a single definition (Trostle, 1988). Thus, there is still no blanket solution to one of healthcare's major problems (Lasagna, 1973; Kontz, 1989; Donovan & Blake, 1992; Playle & Keeley, 1998; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001; Bissonnette, 2008).

2.3.2 Implications of the term

The term compliance has been said to have severe implications for the patient's role in their healthcare. It has been highlighted that the term implies an authoritative role of the healthcare professional and a passive participant role of the patient (Trostle, 1988; Taytard, 1992; Holm, 1993; Dimatteo et al., 1998; Playle & Keeley, 1998;

Vermeire & Hearnshaw, 2001). The result of this is the loss of the patient's autonomy and their ability to take part in the decision-making process of their healthcare (Taytard, 1992; Holm, 1993) – a vital consideration in the occupational therapy profession (Palmadottir, 2006). The definition presented by Haynes (1979) does not account for the healthcare professional-patient relationship to be a partnership but rather an, *I say and you do* relationship (Trostle, 1988; Taytard, 1992; Holm, 1993). Thus, when the patient does not follow the advice, recommendations, or 'orders' of the healthcare professional, they are seen in a negative light and labelled non-compliant (Trostle, 1988; Taytard, 1992; Holm, 1993).

Taytard (1992) speaks of Haynes' (1979) definition to only make reference to the patient and not to either the provider or the quality delivered by the provider (Taytard, 1992). He highlights that the consequence of this is that it puts the blame on the patient and gives reassurance to the healthcare professional (Taytard, 1992). A consequence agreed upon by later literature (Taytard, 1992; Playle & Keeley, 1998).

Thus, not only the definition of compliance is challenged but so too the concept itself. With specific reference to the poor understanding of the patient's role and what is actually trying to be achieved by compliance (Taytard, 1992; Holm, 1993). This is illustrated by a concrete example suggesting that compliance is more complex than merely assigning the label of non-compliance (Holm, 1993). This example refers to a patient with diabetes: Holm (1993) asks, what is worse? A person who prior to his diabetic diagnosis ate healthy meals and exercised, a lifestyle which now aligns with the lifestyle recommended to manage his diabetes but who is thoughtless with his insulin. Or the person who identifies a good life to comprise of a good book, box of chocolates and sitting by the fire and who makes great effort to reject his natural dispositions but is unable to do so. Holm (1993) highlights that both of these people have poor control, but with whom does most of the blame lie? (Holm, 1993). Here, it is highlighted that no single action can be deemed or labelled non-compliant. What if a patient does not attend their appointments but takes their medication accurately and appropriately (Taytard, 1992)? This example illustrates the complex nature of compliant and non-compliant behaviour.

The implications of the term compliance have raised the need to explore this term as an ideology (Trostle, 1988). Trostle (1988) noted that ideologies "help transform power

(potential control) into authority (legitimate control)" (Trostle, 1988: 1300). However, despite the shift of this control, the healthcare professional is still holding the power role, whether potential or legitimate, this control still holds back the patient's autonomy in their healthcare journey (Taytard, 1992; Holm, 1993). The benefit, however, of the ideology is its role in understanding the complexity of compliance (Trostle, 1988). In a concept analysis using the evolutionary analytic method, Bissonnette (2008) explains that conceptualising compliance as an ideology provides a conceptual and theoretical framework that cannot otherwise be done for such a complex concept. Both concept analyses by Kyngäs, Duffy, and Kroll (2000) and Bissonnette (2008) emphasise the need for a conceptual or theoretical framework for this phenomenon but that its complex nature does not allow for it. Bissonnette (2008) did however believe that compliance as an ideology is the closest literature will get to providing this framework.

Where the above called for an ideology, Taytard (1992) and later Holm (1993) challenged the core reason for needing to understand compliance. Holm (1993), in a review article raised the concern that there is a lack of true understanding of compliance and a misplacement of the emphasis on researching compliance (Holm, 1993). If there is a restructuring of this emphasis, a change in health behaviour may be seen (Holm, 1993).

Compliance is a behaviour which is a result of a combination of complex attitudes (Taytard, 1992; Cole, Underhill & Kennedy, 2016) and decisions (Donovan & Blake, 1992). Donovan and Blake (1992), in a qualitative study, challenge and investigate compliance as a form of health behaviour, stating that non-compliance is a process of *reasoned decision-making* (Donovan & Blake, 1992) – a thought-through process executed by patients. A process whereby patients consider both the advantages and disadvantages of complying with a certain treatment. They (the patient) consider this within their context and whether or not this is feasible in their everyday lives (Donovan & Blake, 1992). Taytard (1992) agreed with the above and made specific mention of the complexity of this behaviour and that it comprises of an intricate grouping of a person's attitudes and their beliefs (Taytard, 1992). Thus, for appropriate health behaviour to be implemented, be it compliance or non-compliance, patients need to understand all components of the healthcare provided to them for them to make their decision on how to act (Donovan & Blake, 1992; Taytard, 1992). This understanding *should* be facilitated by the healthcare professional providing the healthcare (Donovan

& Blake, 1992; Taytard, 1992).

Later, Groth and Wulf (1995) echoed the latter in the context of hand therapy in their review article. They elaborate that it is the therapist's role to ensure that patients are making informed decisions when it comes to their health behaviour – specifically their compliance with rehabilitation (Groth & Wulf, 1995). In order for therapists to facilitate this, they need to understand the limitations within the patient's context that may present as hindrances to their *reasoned decision-making* (Donovan & Blake, 1992). Thus, instead of passing judgement on the patient, the focus needs to be on trying to understand this health behaviour (Trostle, 1988).

2.3.3 Implications in the field of hand therapy

The implications of the term 'compliance' within hand therapy are unclear, due to the scarcity of literature on compliance in this field (Kirwan, Tooth & Harkin, 2002). Thus, the general implications mentioned above are inferred to hand therapy. The below indicate that there are proposed definitions that have components of occupational therapy's core values in them, but none encapsulate compliance in the field of hand therapy appropriately.

Playle and Keeley (1998) highlight that the term 'non-compliance' also labels all patients as non-compliant even if they are partially compliant or compliant with some treatment and not others (Playle & Keeley, 1998). This is justified by another piece of literature which spoke of two types of non-compliance: the "inadequate understanding of the disease or condition being treated (unintentional non-compliance)" and "a conscious choice by the patient to find another method of treatment or not to comply (intentional non-compliance)" (Hussey & Gilliland, 1989: 606). This draws attention to compliance in hand therapy where compliance is referred to as "active engagement in the rehabilitation process" (Groth & Wulf, 1995: 18). The 'rehabilitation process' includes, but is not limited to, executing HEPs and/or HPs and attending appointments (van Stormbroek, 2020). Therefore, this proposed 'definition' can relate to either attending appointments or executing HEPs/HPs, or both. Thus, does attendance to appointments but not executing HEPs/HPs mean the patient is non-compliant? A valid question in the context of literature where compliance is yet to be defined formally.

Cameron (1996) conceptualised compliance as a process of motivation of a person's

individual intents and their attitudes (Kyngäs, Duffy & Kroll, 2000). Emphasising that it is the result of the relationship between the healthcare professional and the patient (Cameron, 1996; Kyngäs, Duffy & Kroll, 2000). This definition addressed that compliance is not only influenced by the patient's motivation but also by the interaction between the patient and the healthcare professional (Kyngäs, Duffy & Kroll, 2000). It is highlighted that to maintain a patient's trust (Trostle, 1988; Taytard, 1992; Holm, 1993; Dimatteo et al., 1998), the healthcare professional should have less authority (Kyngäs, Duffy & Kroll, 2000).

Kontz's (1989) take on compliance was noted as a "shared responsibility between patients and healthcare personnel" (Kyngäs, Duffy & Kroll, 2000: 7) – a perspective that coincides with the client-centred approach adopted by the occupational therapy profession (de Klerk et al., 2017). An approach that aids in the development of the therapeutic relationship that promotes a partnership between the occupational therapist and the patient (Palmadottir, 2006). The importance of this relationship is further emphasised by the fact that this relationship has been considered a contributing factor to a patient's compliance (Kirwan, Tooth & Harkin, 2002).

It is noted that the above-mentioned definitions (in sections 2.3.1, 2.3.2, and 2.3.3) are not as applicable in the context of hand therapy (O'Brien, 2010). For this reason, a term that encompasses the concept of collaboration – the basis of client-centred therapy – needs to be adopted by occupational therapists (Palmadottir, 2006).

2.3.4 Alternative terms

Due to the authoritarian health professional posture implied by the term compliance (Trostle, 1988; Playle & Keeley, 1998), the complexity of this concept (Vermeire & Hearnshaw, 2001; O'Brien, 2012) and a lack of consensus on a given definition, alternative terms have been sought (Meichenbaum & Turk, 1987; Kyngäs, Duffy & Kroll, 2000). The most commonly used alternative term is 'adherence'. Various studies have emphasised that the term 'adherence' promotes an active contribution from the patient (Cole, Underhill & Kennedy, 2016) in the patient-healthcare professional relationship and a collaborative effort from both parties. It lessens the implication of the biomedical model which implies passive participation from the patient (Cameron, 1996; Dimatteo et al., 1998; Kyngäs, Duffy & Kroll, 2000; O'Brien, 2012). Despite this relative improvement in the choice of term, the term 'adherence' may continue to

reinforce a skewed power relationship between patient and practitioner.

Bissonnette (2008) argues that the introduction of alternative terms has only further complicated an already complex concept. This is evident from the literature that uses the term ‘compliance’ and ‘adherence’ interchangeably (Kyngäs, Duffy & Kroll, 2000) but reports that each term has different implications (O’Brien, 2010; Bailey et al., 2020). Do these terms really have different implications or is there a great deficit in the understanding of this phenomenon? What stands out, is that authors have chosen to conduct conceptual analyses of both the terms compliance (Kyngäs, Duffy & Kroll, 2000) and adherence (Bissonnette, 2008) but the latter uses the term compliance after the introduction of the article, as it states that majority of the literature reviewed for the analysis uses the term compliance and not adherence (Bissonnette, 2008). Here, the development of the research on compliance needs to be critiqued. If literature proposes the use of an alternative term, academics need to endure the fight of ensuring the use of this alternative term remains. If academics continue to use the term compliance, it is argued if research on this phenomenon has developed or if a different term is being used with the same definition (Bailey et al., 2020).

At this point in the literature review, the definition and/or explanation of adherence needs to be reviewed. Both conceptual analyses mentioned above report that the term adherence is poorly defined (Kyngäs, Duffy & Kroll, 2000) or not defined at all (Bissonnette, 2008). The universal definition of adherence currently, is the definition presented by the World Health Organisation (2003) (Bailey et al., 2020). This definition is as follows: “the extent to which a person’s behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider” (Sabaté, 2003: 3). It is believed that this definition implies the active involvement of the patient as well as the recognition of the many factors that affect compliance (Cole, Underhill & Kennedy, 2016). This belief as well as the reasoning provided by the World Health Organisation (2003) on how this definition was developed is acknowledged. However, it is still necessary to ask if the term adherence truly provides different connotations and implications than the term compliance.

Due to the belief in the *positive* implications provided by the term adherence (Meichenbaum & Turk, 1987; O’Brien, 2010; O'Brien 2012) and its ability to capture

the core values of the profession (Palmadottir, 2006; O'Brien, 2012), the field of hand therapy is calling for the use of this term (O'Brien, 2012). As outlined above, this needs to be challenged.

2.4 Factors affecting compliance

Through defining compliance, it is understood that various factors affect a patient's ability to be compliant (Cameron, 1996; Kyngäs, Duffy & Kroll, 2000). These factors have been divided into facilitators and barriers and further classified and categorised into: social and economic, healthcare team/system, condition, therapy, and patient-related factors – as outlined by the World Health Organisation's (2003) multidimensional adherence model (Sabaté, 2003). As each healthcare field has its unique processes and treatments, the needs required of a patient vary in every field (Bissonnette, 2008). Furthermore, the context in which this is executed also plays an important role in understanding a patient's compliance (van den Berg, Mokhehle & Raubenheimer, 2019). Varying contexts present varying barriers and facilitators to a patient's compliance (Harris et al., 2011; de Klerk et al., 2017).

Although there is limited literature within hand therapy regarding the definition of compliance, hand therapy authors have largely discussed the factors affecting compliance. This has been done in the form of studies that have been conducted on the compliance of specific hand injuries (Feinberg, 1988, 1992; Dobbe, Van Trommel & Ritt, 2002; Lyngcoln et al., 2005; Sandford, Barlow & Lewis, 2008; O'Brien, 2010; Sudhagar & Leblanc, 2012; Cole, Underhill & Kennedy, 2016; Murphy, 2016; Sandford, Sanders & Lewis, 2017; Gangatharam, 2018; Scott, Castelli & Valdes, 2019). The importance of factors affecting compliance is highlighted as part of these studies' conclusions. As previously highlighted, a majority of these studies have been conducted in HICs whose socio-economic climate is different from that of South Africa. It has been said that the social context of the patient has a great influence on their compliant or non-compliant behaviour (Harms & Kobusingye, 2003; Wentzel, 2014; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2020). Therefore, the social and economic, healthcare team/system, condition, therapy, and patient-related factors affecting compliance will be discussed.

2.4.1 Patient, condition, and therapy-related factors affecting compliance

Patient-related factors were one of the more commonly identified factors by hand therapy authors (Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2012). They comprise of various components. The component which was consistently noted was a patient's motivation and attitude toward therapy and their injury (Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2012; van Stormbroek, 2020). Although, a concern has been raised that by identifying this, healthcare professionals run the risk of attributing all non-compliance to patient-related factors (Sabaté, 2003; O'Brien, 2012). It was acknowledged that the therapist's attitude and behaviour are just as important, if not more important.

Condition-related factors were factors that were the least spoken of in literature (Kyngäs, Duffy & Kroll, 2000; Case-Smith, 2003; O'Brien, 2012). These factors included: severity of the injury, education, and understanding of the injury, its prognosis and the rehabilitation process as well as identification of psychosocial co-morbidities (O'Brien, 2012).

Therapy-related factors included the correct and continual execution of HPs, the correct and appropriate wear of splints, and the appropriate use of assistive devices (O'Brien, 2010). Although these are all considered as factors affecting compliance, two have stood out in literature: splint wear and HPs.

Treatment programs in hand therapy are often long and require extra input from the patient outside of treatment sessions (Kirwan, Tooth & Harkin, 2002). Patients have reported that they sometimes forget the programs and the pain and discomfort these programs cause as well as the interference to their life (social and family) contributes to their compliance (Groth & Wulf, 1995; Kirwan, Tooth & Harkin, 2002). Furthermore, splints may often be uncomfortable in order to facilitate the right improvement (O'Brien, 2010). This discomfort may cause a patient to not wear their splint (O'Brien, 2010). In addition to this, patients may not find splints aesthetically pleasing (Wielandt & Strong, 2000; O'Brien, 2010) and as a result, may not wear them.

South Africa's diverse culture and socio-political history impact how therapy is given and how it is received (therapy-related factors) (de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2020). The socio-political history refers to the

apartheid period in South Africa. This period was characterised by an authoritarian political culture which undoubtedly influenced the culture of the healthcare system and services (Coovadia et al., 2009). Poor treatment of various racial groups also affected trust of healthcare services (Coovadia et al., 2009). Although South Africa has moved past the apartheid period, some beliefs from both the healthcare worker and patient remain (van Stormbroek, 2020). Furthermore, South Africa's multi-cultural population becomes an important consideration when providing and receiving healthcare (van Stormbroek, 2020). Both of the afore mentioned components were explored in a local study conducted (van Stormbroek, 2020) on compliance. This local study conducted by van Stormbroek (2020) draws attention to the importance of taking an accurate history, assessing the injured hand, the patient, *and* their context as well as understanding the patient's narrative and the impact of the injured hand within their context (van Stormbroek, 2020). Prior international literature (Donovan & Blake, 1992; Holm, 1993; Groth & Wulf, 1995) agreed with these therapy-related factors put forward by the South African study (van Stormbroek, 2020). In addition to this, another local study emphasised the importance of occupation-based intervention (de Klerk et al., 2017). Together with international literature (O'Brien, 2012), both agreed on the importance of treatment being geared towards meaningful engagement in activities to facilitate compliance (O'Brien, 2012; de Klerk et al., 2017).

2.4.2 Healthcare team/system and socio-economic-related factors affecting compliance

Healthcare team/system and the socio-economic-related factors have been reported to frequently affect compliance in South Africa (Harris et al., 2011). Mncube and Puckree (2017), a couple of local researchers, give a contextual lens of how South African healthcare is given and accessed. This cross sectional survey reported that in South Africa, healthcare teams provide therapy within the constraints their settings allow (Mncube & Puckree, 2017). They make specific reference to the fact that therapists in rural areas treat injuries symptomatically due to how often patients can physically and financially access healthcare (Mncube & Puckree, 2017). While therapy in urban areas is driven by protocols as the accessibility of healthcare services is not as much of a challenge (Mncube & Puckree, 2017).

In a systematic review, it was concluded that not enough research has been conducted

in the exploration of the category, healthcare team/system (O'Brien, 2010). This systematic review analysed research in HICs with only one study from a LMIC, India (O'Brien, 2010) – thus limiting the relevance to the South African context. The lack of research in this category was supported by a South African study which stated that there is less that is known about the barriers to accessing healthcare in South Africa (Harris et al., 2011).

A commentary piece of literature written on the challenges and opportunities of occupation-based hand therapy (OBHT) in South Africa touched on these healthcare system/team and socio-economic-related factors (de Klerk et al., 2017), namely: patient follow up and the factors affecting this (finances, getting time off work and transport availability), language barriers, cultural sensitivity and a lack of space in both government and private settings (de Klerk et al., 2017). This study also mentioned the differences in the application of OBHT in HICs and South Africa as a LMIC, further validating the difference in contexts and application of therapy (de Klerk et al., 2017).

Given the above, van Stormbroek (2020) conducted a qualitative descriptive study to explore South African hand therapists' understanding of compliance. These participants placed great emphasis on the contextual factors (including healthcare team/system and socio-economic-related factors) that affect compliance (van Stormbroek, 2020).

"Accessible and effective communication" (van Stormbroek, 2020: 35) was highlighted with language barriers largely affecting patient compliance (van Stormbroek, 2020). "Systems and services that work" (van Stormbroek, 2020: 36) was another important factor highlighted by these participants. Elaborating that this includes a "dynamic multi-disciplinary team" and the "systems and services" (van Stormbroek, 2020: 36), where the multi-disciplinary team (MDT) communicates effectively, roles of each member are made clear and inconsistencies between MDT members are mitigated (van Stormbroek, 2020). The "systems and services" (van Stormbroek, 2020: 36) that were outlined, were the prudent application of temporary disability grants, managing waiting times, seeing all MDT members on the same day at similar times, availability of hospital transport, clinic outreach, and successful referral pathways (van Stormbroek, 2020).

The category, "a fractured society" (van Stormbroek, 2020: 35), provided rich

contextual insights. Participants reported that “bad weather, violence in the communities, long distances to facilities, transport difficulties and severely restricted patient resources” (van Stormbroek, 2020: 35) were all factors relating to the South African context that affect patient compliance (van Stormbroek, 2020). Furthermore, factors related to the South African healthcare system were also highlighted as factors affecting compliance (van Stormbroek, 2020). These included: “conflicting appointments, waiting times, poor hospital resources, late or lost referrals, delayed surgeries, absence of therapists at primary level facilities, previous high workloads and time constraints and the state disability grant” (van Stormbroek, 2020: 35).

Although there is limited research conducted on the above-mentioned factors, it is clear that these factors are specific to a LMIC. These factors add different dimensions and aspects to compliance that need to be considered.

2.5 Strategies to facilitate compliance in hand therapy

Literature reporting strategies to facilitate patient compliance in the field of hand therapy is limited. South African and Ugandan authors (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2020), highlight that in order for compliance to be improved, strategies need to be put in place that address the accessibility of healthcare on a therapist, departmental and government level. International literature provides a framework (Sabaté, 2003) of how strategies can be categorised and furthermore practical examples of strategies that can be implemented (Becker & Maiman, 1980; Groth & Wulf, 1995; O’Brien, 2012; Cole et al., 2019). Strategies will be discussed below according to their similarities and differences.

2.5.1 Strategies used internationally

Groth and Wulf (1995), O’Brien (2012) and Cole et al. (2019) are known for their work on the strategies needed to facilitate patient compliance. Groth and Wulf (1995) and O’Brien (2012) present a few strategies that coincide while Cole et al. (2019) present findings that both agree with and contradict the former literature. It can be argued that this is a result of the development of compliance over the years, however, the limited literature available on the strategies used to improve compliance may offer an opposing argument.

Coinciding strategies presented by Groth and Wulf (1995) and O’Brien (2012) included

facilitating patients' self-management skills, integrating meaningful activities/activities of daily living (ADLs) into therapy, identifying and addressing psychosocial co-morbidities and/or concerns, providing the patient with the appropriate information regarding the prognosis of their injury and facilitating the patient's positive attitude (Groth & Wulf, 1995; O'Brien, 2012). There was only one strategy that all authors, Groth and Wulf (1995), O'Brien (2012) and Cole et al. (2019), reported: making use of behavioural approaches (Groth & Wulf, 1995; O'Brien, 2012; Cole et al., 2019). It is evident that the common strategies identified, relate to the patient themselves and to the therapist ensuring they facilitate meaningful care during therapy. In comparison to strategies suggested by a local study that emphasise the accessibility of therapy (van Stormbroek, 2020).

An additional, less common, strategy is the therapist and patient signing a contract. This is said to be a tool used to improve adherence to HEP (Murphy, 2016). Although this is considered a useful tool, it is argued that a therapist's ability to understand their patient is a more impactful tool. Understanding what drives a patient's compliant or non-compliant behaviour (Cole, Underhill & Kennedy, 2016; Sandford, Sanders & Lewis, 2017) empowers a therapist to better facilitate compliance (Sandford, Sanders & Lewis, 2017). The latter argument is evident from the strategies offered by Groth and Wulf (1995), O'Brien (2012), and Cole et al. (2019).

Cole, Robinson, and O'Brien (2019) conducted a systemic review on the effectiveness of interventions to improve therapy adherence in people with upper limb conditions. Their findings concluded that behavioural approaches were most effective in facilitating patient adherence, specifically using adult learning principles, repetition and practicing techniques, providing feedback to patients on their performance, and ensuring solutions to challenges in therapy are tailored solutions (Cole et al., 2019). It was found that the material used for orthoses had no influence on patient adherence and nor did the method used to educate the patient (Cole et al., 2019). Furthermore, it was highlighted that there is little evidence on other methods to improve patient adherence. However, consideration for the influence of therapy on daily activities, patients' preferences, and their comfort, have in the past proven to be important in improving patient adherence (Cole et al., 2019).

2.5.2 Strategies used in South Africa

After providing a contextual outline of the South African context in the above review of literature, it becomes evident that the above strategies outlined in international literature are not closely aligned to those that can be used in the South African context (Mncube & Puckree, 2017; van Stormbroek, 2020). There is a study currently being concluded at a South African university on approaches used by rural therapists, to facilitate adherence to home programs. This study should provide further insight into the strategies needed to facilitate patient compliance in South Africa. Currently, however, the below literature is used to inform the strategies that can be employed in the meantime.

Authors from South Africa and Uganda draw attention to the need to ensure that therapy is accessible, both financially and physically (Harms & Kobusingye, 2003; Sherry, 2015; Mncube & Puckree, 2017; van Stormbroek, 2020). Primary healthcare (PHC) facilities are often easier to access (financially and physically) due to their geographical location (Ned et al., 2020; van Stormbroek, 2020). Thus, the first concern to physically and financially accessible healthcare is the lack of PHC facilities with occupational therapy services (Gray & Vawda, 2015; Ned et al., 2020).

Secondly, it is further highlighted that therapy needs to be contextually responsive (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2020). Therapists need to adapt the manner in which they execute therapy (van Stormbroek, 2020) – with specific reference to the use of language as a result of the language barriers (van Stormbroek, 2020). Therapy needs to be culturally appropriate, remembering the demands of the patient's home environment (Harms & Kobusingye, 2003; van Stormbroek, 2020). Therapists need to understand their patients and the context from which they come, listening to them and assessing them holistically (van Stormbroek, 2020). The above needs to be done to ensure tailored therapy is provided. As tailored therapy is likely to facilitate patient compliance (van Stormbroek, 2020). Lastly, the therapy that therapists are able to provide is confined to the setting in which they provide it (Mncube & Puckree, 2017). Mncube and Puckree (2017) give insight into therapy in rural areas being symptomatically driven and therapy in urban areas being protocol driven.

Thus, authors from the African region advise that occupational therapy services be

made more readily available both, financially and physically through improved rehabilitation services at PHC facilities (Harms & Kobusingye, 2003; Gray & Vawda, 2015; Ned et al., 2020; van Stormbroek, 2020). Furthermore, treatment programs need to be tailored to the patient and their context (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2020). For example, among others, decreasing frequency of visits (Mncube & Puckree, 2017).

2.6 Conclusion

It is evident from the above review of literature that the definition of compliance and the factors that affect it are not well understood within South Africa. Therefore, the current literature available on compliance may lack the appropriate clinical application needed to optimise patient outcomes. At this level of research, it is not possible to redefine compliance in its entirety, but it is possible to ascertain South African hand therapists' conceptualisation.

To the knowledge of the researcher and the research supervisor, in South Africa, there has been only one piece of literature published (van Stormbroek, 2020) that explores the understanding of patient compliance in hand therapy and the factors that affect it. There is another study that is currently being concluded at a South African university on approaches used by rural therapists, to facilitate adherence to home programs. Thus, this research report aims to improve the understanding of patient compliance to create contextually responsive strategies to facilitate patient compliance.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The following chapter explains the study design used, how the participants were selected for the study, how the population was delineated, and how the sample size was calculated. The development and use of the research instrument are described and the research procedure is outlined. Lastly, the data analysis and ethical considerations are described.

3.2 Study design

A descriptive quantitative cross-sectional survey study design was used. A descriptive quantitative study design was chosen to describe as many participants' opinions across the diverse contexts and settings of South Africa as possible - in order to infer the results to the population of South African occupational therapists who routinely treat patients with hand injuries (Creswell, 2014). A cross-sectional study design was used as data was collected at one point in time (Creswell, 2014). Although a therapist's understanding of compliance may change over time, a cross-sectional design was chosen to capture a snapshot of this understanding. A survey questionnaire allowed the collection of data from a population that is widely spread (geographically) across the country. This method was convenient in inviting participants, via the internet and social media, and it was used to facilitate a relatively quick turnaround time (Creswell, 2014). The quick turnaround time was however impacted by the COVID-19 national and international pandemic and in turn presented as a limitation to the study. A survey questionnaire was used as a cost-effective method of data collection (Creswell, 2014).

3.3 Population/ participants

At the time that the study was proposed, there were 5 457 occupational therapists registered to practice in South Africa with the Health Professions Council of South Africa (HPCSA) (Y Daffue 2019, personal communication, 14 June). The population of focus within this study are occupational therapists who routinely treat patients with hand injuries (please refer to 3.3.1 inclusion criteria). This constitutes a relatively small portion of the total number of occupational therapists registered with the HPCSA. It was not known how many of the 5 457 registered occupational therapists routinely

treat patients with hand injuries, thus the size of the population needed to be extrapolated from available information.

At the time that the study was proposed, there were 105 occupational therapy clinicians (L Robinson 2019, personal communication, 18 July) who were members of the South African Society of Hand Therapists (SASHT) (South African Society of Hand Therapists, 2019), who were assumed to routinely treat patients with hand injuries and thus form part of the research population. SASHT is largely represented by occupational therapists working in the private sector and thus, this number did not capture the public sector occupational therapists who routinely treat patients with hand injuries.

According to the President of the Occupational Therapy Association of South Africa (OTASA), the public sector occupational therapy population in 2019 included 235 Community Service occupational therapists (CSOTs) (P de Witt 2019, personal communication, 11 June). According to the National Department of Health, the public sector population also included 616 independent practitioners (IPs) (M Tshivhase 2019, personal communication, 24 June). It has been reported that 30.54% of CSOTs routinely treat patients with hand injuries (van Stormbroek, 2015), and thus considering the 235 occupational therapy graduates who registered for community service in 2019, 72 CSOTs would have formed part of the research population. Due to the burden of hand injuries in South Africa (van Stormbroek & Buchanan, 2018) and specifically among patients who access public healthcare (Ned et al., 2020), the above percentage (30.54%) was also used to calculate the portion of IPs that would also form part of this population. Thus, 188 IPs formed part of the research population. The population for this study was therefore 365 (i.e., 105 SASHT members + 72 CSOTs + 188 IPs).

3.3.1 Inclusion criteria

Occupational therapists who are registered with the HPCSA and who routinely (preferably weekly, but at least monthly) treat patients with hand injuries.

3.3.2 Sample and sample size

With an estimated population of 365 occupational therapists, a 5% margin of error, 95% confidence level, and 50% response distribution, a sample size of 188 participants was required (Raosoft, 2004).

3.3.3 Sampling

A total population sampling approach was used as occupational therapists who treat patients with hand injuries were selected and invited to participate (Creswell, 2014). Occupational therapists who were reached, were asked to forward the information letter and invitation to participate to colleagues who may not have been reached (Creswell, 2014). This was done to ensure that as many occupational therapists who treat patients with hand injuries were reached and given an opportunity to participate.

3.4 Instrument development

Due to the unique context of the research project described above, a survey questionnaire (Appendix A) was developed. Questions were designed to address the research objectives and were based on a review of the literature (Creswell, 2014) and the findings of a qualitative study conducted by the research supervisor, van Stormbroek (2020). The questionnaire included dichotomous questions, single and multi-select multiple choice questions, single row text and numeric textbox text questions, Likert scale questions, comment box open-ended questions, and matrix table questions (Burgess, 2001; QuenstionPro, 2021).

The use of both existing literature and the results from the analysed in-depth interviews of the study conducted by van Stormbroek (2020) strengthened the content validity of this instrument (Creswell, 2014). Please see Appendix B for the rationale for the inclusion of each question. In addition to this, content validity was strengthened by requesting five expert practitioners and/or researchers who have insight into patient compliance to conduct survey refinement (Creswell, 2014). Their feedback was considered, discussed with the researcher supervisor and appropriate changes were made to the survey questionnaire. The frequent feedback received was that the questionnaire consisted of great depth and value, but this made it lengthy. This is discussed as a limitation in Chapter 5. Please see Appendix C for all these experts' comments and refinements as well as the researcher's final decisions on the change

to be made as discussed with her research supervisor. This was a cross-sectional study and thus did not require any tests for intra-rater reliability.

Furthermore, five additional occupational therapists who do not treat patients with hand injuries were asked to comment on the layout of the online survey questionnaire on Research Electronic Data Capture (REDCap). This was done to improve its accessibility and format to ensure it was easy to complete and understand. Please refer to Appendix D for these occupational therapists' comments and revisions made.

The online survey questionnaire was only developed and distributed in English. This was done as it is the most frequently used language across all therapy settings. However, in the information sheet (Appendix E) participants were informed that if they experienced any difficulty accessing the survey questionnaire to contact the researcher for assistance.

3.5 Research procedure

3.5.1 Recruitment

Invitations to participate in the study were sent out via the relevant professional organisations namely OTASA, Rural Rehab South Africa (RuReSA), SASHT, and the National Occupational Therapy Forum. Invitations to participate were also placed on social media – *Facebook and WhatsApp*. Snowball sampling (Creswell, 2014) was also used with participants being requested to distribute the invitation to other occupational therapists who may not have received the invitation, to ensure as many occupational therapists as possible were reached.

While proposing this study, it was anticipated that occupational therapists who routinely treat patients with hand injuries attend courses offered by SASHT and that the researcher/her supervisor would attend these courses to distribute hard copies of the survey questionnaire. Permission had been obtained from the SASHT Executive Committee for this. However, this was not possible due to data collection (15 April – 8 November 2020) being conducted during the national and international COVID-19 pandemic, where restrictions were put in place that did not allow 'in person' courses to take place. Thus, all courses took place virtually and thus did not allow for any hard copies of the questionnaire to be distributed. Most courses, including those offered on

a virtual platform, were postponed thus removing the opportunity to distribute questionnaires in this way.

Interested participants were informed (Appendix E) that they were able to request a different form (e.g., hardcopy) of the survey questionnaire. There were no known participants who had difficulty accessing the survey questionnaire online or who requested an alternative form of the questionnaire. Therefore, it was not required of the researcher to arrange for any alternative methods of accessing and completing the survey questionnaire.

The survey questionnaire was sent out three times over a period of six months (April, June, and October 2020). The data collection period was extended from the original length of time that was planned (four months) due to the COVID-19 pandemic. The researcher was concerned that this disruption to life would affect the response rate to the survey questionnaire.

Due to participants not being asked any identifying or personal contact detail questions, the researcher could not contact them to complete their incomplete responses. Therefore, incomplete survey questionnaire responses remained incomplete and were documented in Chapter 4.

3.5.2 Permissions

The researcher's protocol and survey questionnaire were submitted to the Human Research Ethics committee (HREC) at the University of the Witwatersrand and ethical clearance was obtained (HREC: M190915) (Appendix F). This research was not commenced until this ethical clearance was granted.

Once ethical clearance was obtained, the researcher sent out the survey questionnaire, that she had developed, for survey refinement. After which the researcher contacted the administrators of SASHT, RuReSA, and OTASA to request that they send out her online survey questionnaire to their members. All three organisations agreed to do so and sent the invitation to participate and the link to the online survey questionnaire to their members and contacts. To ensure the inclusion of occupational therapists in the public sector, the executive committee of the National Occupational Therapy Forum was contacted to distribute the invitation to their members.

Participants were provided with an information letter, explaining the research project as well as their anonymity and ability to withdraw at any time (Appendix E), prior to them starting the survey questionnaire. Thus, by the participants starting the survey questionnaire, the researcher had obtained implied consent from the participants to participate in the study.

3.5.3 Data collection

Data collection commenced on the 15th of April 2020 and was terminated on the 8th of November 2020. The data collection period was extended from the original length of time that was planned (four months) due to the COVID-19 pandemic – as the COVID-19 pandemic increased the demands on therapists, potentially making it more difficult to participate. When participants were invited to participate in the study, they were requested to base their responses on their practice experience before the COVID-19 pandemic.

Participants were able to answer in whatever language they preferred – this was not however stated in the information sheet. Occasionally responses were provided in Afrikaans. These responses were translated by the research supervisor.

3.5.4 Data management

Throughout data collection, data was stored anonymously by REDCap. On the completion of data collection, all responses were downloaded and exported from REDCap in the format of Microsoft Excel on the researcher's personal computer which is password protected. Each participant was given a number by REDCap and thus remained anonymous even once data was downloaded and exported from REDCap. This raw data was then cleaned by the researcher to prepare the data for analysis. The cleaning of the data included omitting incomplete responses. These incomplete responses included the following: responses by participants who reported to 'never treat patients with hand injuries', responses by participants who only answered the first question and responses by participants who only answered the demographics section in whole or in part. Please see detailed table in Appendix G. The researcher was unable to omit responses that may have been duplicated by one participant as all responses were anonymous. However, no obvious duplications were noted by the researcher. Upon completion of data cleaning, data was disaggregated in preparation

for analysis: data was separated by section and then further by question. Each section was saved in a Microsoft Excel document and each question had its own tab in the 'section' document. Thus, responses from the same participant could no longer be identified across questions.

Raw research data will be kept securely for six years on the researcher's personal computer that is password protected, in order to protect the data, should the computer be stolen or misplaced. Should the researcher get a new computer during the six years, raw data will be transferred to the new computer and deleted from the old one. No summary of results will be sent to any participants as no participants requested them.

Anonymised raw data, as well as the raw data that was cleaned and coded, will be made available to reviewers on request as supplementary files.

3.6 Data analysis

Please refer to table 3.1 for a breakdown of the analysis of each objective and further explanation for each type of analysis below table 3.1.

Table 3.1 Data analysis of each objective

Objective	Questions	Question types	Analysis
Demographics: analysed to provide an understanding of participants' demographics	Section A: 1	Single select multiple choice.	Not analysed – inclusion criteria
	2		Frequencies and percentages.
	3 – 5	Numeric textbox text.	Frequencies, percentages, medians, and ranges.
	6	Single select multiple choice.	Frequencies and percentages.
		AND single row text (for 'other' option).	Content analysis.
	7	Dichotomous	Frequencies and percentages.

		AND single row text (for name of qualification).	Content analysis.
	8 – 11	Multi-select multiple choice	Frequencies and percentages.
		AND single row text (for 'other' option in questions 8 and 10).	Content analysis.
	12	Single select multiple choice.	Frequencies and percentages.
1. To describe how South African occupational therapists understand the concept of compliance.	Section B: 13 – 15; 20	Single select multiple choice.	Frequencies and percentages.
		AND comment box open-ended questions.	Content analysis.
	16 - 17	Single row text.	Content analysis.
	18 - 19	Comment box open-ended questions.	Content analysis.
	21	Likert scale.	Frequencies and percentages.
		AND comment box open-ended questions.	Content analysis.
2. To describe the factors which facilitate the compliance of hand-injured	Section C: 22-26	Likert scale.	Frequencies and percentages.

patients, as perceived by South African occupational therapists. 3. To describe the factors which are barriers to the compliance of hand-injured patients, as perceived by South African occupational therapists.		AND comment box open-ended questions.	Content analysis.
4. To describe the strategies used by South African occupational therapists to facilitate the compliance of hand-injured patients.	Section D 27 - 28	Single row text	Content analysis.

Descriptive statistics (using REDCap) were used to analyse and describe the quantitative data obtained (closed ended questions). This was done by obtaining frequencies and percentages, using a statistics program (TIBO Statistica version 13.2), to formulate measures of central tendencies (medians) and measures of variability (ranges) within the demographics section (section A) (Creswell, 2014). For the remainder of the sections (sections B-D), frequencies and percentages were used only. Quantitative content analysis was used to analyse data from open-ended questions. Data were sorted into codes and categories and the frequencies of these were reported (Joffe & Yardley, 2004). The following steps were followed: responses to open-ended questions were read by the researcher, and similar topics were identified/delineated. These topics or units were then labelled as codes. Similar codes were then grouped together and categories of each group of codes were developed. Frequencies were obtained by counting the number of responses within the code. The frequency of each category was calculated by the summation of the frequencies of the codes within the respective categories. The coding and category development were done by the researcher and then sent to the research supervisor who then provided feedback to the student and changes were made accordingly. This was done to ensure reliability (Potter & Levine-Donnerstein, 1999). Answers to open-ended questions that did not fall within any of the codes and categories or did not speak to the question, were reported as such and written out within the paragraphs of the section (of the

results chapter) or direct quotes of these responses were added into the necessary section. Direct quotes were used to highlight consensus views. Furthermore, direct quotes of some minority responses were reported to emphasise them as outliers and create an understanding as to why they did not agree with the majority. This allowed for variance within responses to be illustrated. Lastly, graphs and tables were used to appropriately illustrate the data.

Questions 22 to 26 in section C of the online survey questionnaire were asked using a nine-point Likert Scale. For data analysis, the nine-point Likert Scale was condensed to a five-point Likert Scale and reported as such in Chapter 4, section 4.5. This was done to simplify the analysis and communicate the findings effectively and efficiently. Scale ratings labelled ‘always a support’, ‘often a support’, and ‘sometimes a support’ were condensed to ‘support’. ‘Never a support’, ‘neither a support nor a barrier’, and ‘never a barrier’ remained while ‘sometimes a barrier’, ‘often a barrier’, and ‘always a barrier’ were condensed to ‘barrier’. Please refer to Appendix H for the table of responses with the nine-point Likert Scale. Once data was condensed to a five-point Likert scale, they were tabulated in the same manner that the questions appeared and frequencies of each factor as a ‘support’., ‘never a support’, ‘neither a support nor a barrier’, and ‘never a barrier’ and ‘barrier’ were identified.

All qualitative data that was sorted into codes and categories will be made available to reviewers as supplementary files on request.

3.7 Ethical considerations

In addition to the obtainment of ethical clearance from the HREC, the following ethical principles (Connelly, 2014; Glasgow Caledonian University, 2015) described below were applied within the research project to ensure ethical practice:

3.7.1 Informed consent

In communicating with potential participants, an information letter was provided (Appendix E) explaining the research and that there were no direct risks or benefits of participating. It was communicated that there may be potential indirect benefits, such as knowledge gained from the study either in the process of it or at the end of it. In this letter, it was communicated that any participant may withdraw from the study at any point and may choose not to answer questions they wish to not answer. The

researcher's details were provided in this letter so that the participants were able to contact the researcher with any questions or concerns and if they wished to receive a letter reporting the results of the study. The participant's action of completing the questionnaire constituted implied consent.

3.7.2 Anonymity and confidentiality

The participants remained anonymous as they were not required to give their names or any other personal information when completing the questionnaire. Participants were not asked to give their hospital names but rather the level of care that they work in and their province (for contextual understanding). All data were stored on a password-protected laptop and/or a confidential file.

3.7.3 Beneficence and non-maleficence

This research was proposed and has been conducted to improve the understanding of patients and specifically their compliance, to improve the healthcare provided to the patients of South Africa.

3.7.4 Justice

The bigger overarching goal of this research has been to improve hand rehabilitation services in South Africa and ensure the same quality of care is given despite the varying contexts throughout the country. To ensure this applies to South Africa at large, the perspective of as many occupational therapists as possible around South Africa needed to be obtained, analysed, and reported on.

3.7.5 Veracity

The researcher has committed to reporting (on request) her findings accurately to the participants at the end of the study and to the rest of the professionals in her field by publishing her work in a peer-reviewed journal, presenting her findings at an international congress and her place of work.

3.8 Conclusion

A descriptive quantitative cross-sectional survey study design was used. The population of occupational therapists who routinely treat patients with hand injuries in South Africa was calculated at 365 and a sample size of 188 participants was

determined (n=188). A total population sampling approach and snowball sampling were used. An online survey questionnaire was developed by the researcher using existing literature and results from a local study by van Stormbroek (2020). The online questionnaire was administered using REDCap. Data collection occurred over six months in 2020. Upon completion of data collection, quantitative descriptive analysis was undertaken, then data was analysed using frequencies and percentages (using REDCap and TIBO Statistica version 13.2). Quantitative content analysis was used to analyse the results from open-ended questions.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter will report on the results obtained from the questionnaire. The questionnaire consisted of four sections and thus this results chapter will be presented in these sections. Before reporting on each section, a summary of the response rate will be described (4.2). The demographic information of the participants will be reported first (4.3) to provide context. Participants' understandings of patient compliance in hand therapy (4.4) are addressed next, to address the first objective. Results that pertain to factors that affect compliance (4.5) follow, to address objectives two (perceived facilitators) and three (perceived barriers). Finally, the strategies used by therapists to support patients' compliance (4.6) are reported to address objective four.

4.2 Response rate

One hundred and seventy-four (174) occupational therapists responded to the questionnaire. Seventy-five (n=75; 43,1%) of these therapists only completed the demographics section or reported to "never treat patients with hand injuries or conditions". These responses were thus discarded. A total of 99 (56,9%) responses were therefore included in the analysis. This represented a response rate of 52.7% according to the sample size calculation.

Throughout the chapter, missing responses are reported per question. Therefore, where 99 responses are recorded it can be assumed that there were zero missing responses.

4.3 Demographic information

4.3.1 Personal demographic information

A majority (n=96; 97%) of the participants were female with two participants being male (2%). One participant did not indicate their gender (1%). The median age of participants was 28 years (Range: 21-59).

4.3.2 Educational demographic information

The education demographics of the participants are illustrated in Figure 4.1 and Tables 4.1 and 4.2. Participants reported a median of six years (Range: 0-37) since graduation. Forty-six participants (46.5%) had graduated five years ago or less. Where participants reported a value of less than 12 months, it was reported as zero years.

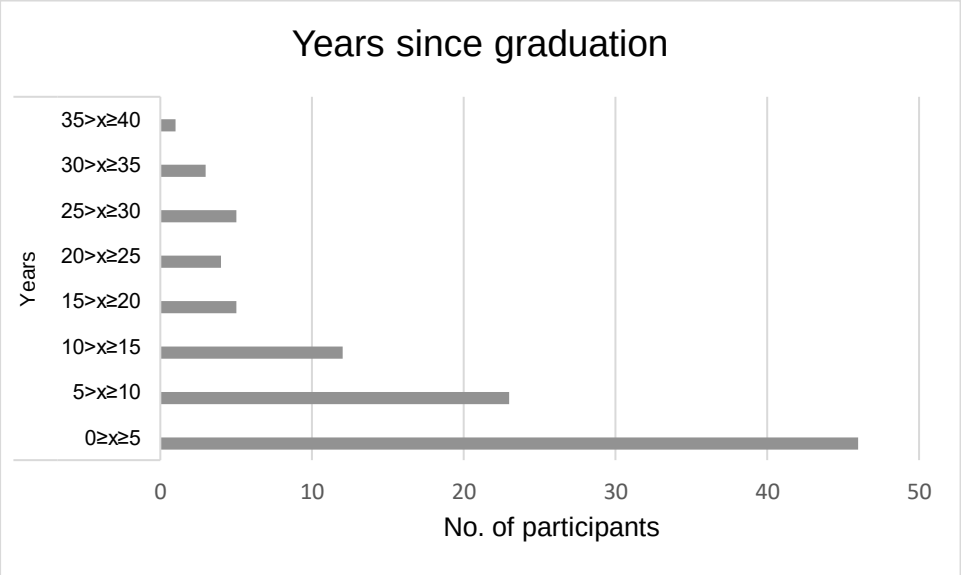


Figure 4.1 Number of years since undergraduate qualifications obtained (n=99)

Participants most frequently reported to have graduated from the University of the Witwatersrand (n=26; 26.3%). One participant obtained their degree abroad and zero therapists who graduated from Sefako Makgatho University participated in the study.

Table 4.1 University from which undergraduate qualifications obtained (n=99)

University	No. (n)	%
University of the Witwatersrand	26	26.3
Stellenbosch University	17	17.2
University of the Free State	17	17.2
University of Pretoria	14	14.1
University of Cape Town	11	11.1
University of the Western Cape	7	7.1
University of KwaZulu Natal	6	6.1
Other: Brunel, United Kingdom	1	1

Sefako Makgatho University	0	0
Total:	**99**	**100**

More than half of the participants had not obtained postgraduate qualifications (n=58; 58.6%) and one participant did not answer the question (1%). The qualifications of participants with postgraduate qualifications (n=40; 40.4%) are listed in Table 4.2. More than half of these forty participants (n=22; 55%) had completed a Postgraduate Diploma in Hand Therapy. Two of these 40 participants (n=2; 5%) reported certifications, namely Certified Hand Therapist (CHT - USA) and Bobath. Five of these 40 participants (n=5; 12.5%) had obtained more than one postgraduate qualification, thus the total number of postgraduate qualifications reported by therapists was 45.

Table 4.2 Educational demographics of postgraduate qualifications (n=45)

Postgraduate qualification	**No. (n)**	**%**
Postgraduate Diploma in Hand Therapy	22	55
Master of Science in Occupational Therapy	5	12.5
Postgraduate Diploma in Vocational Rehabilitation	5	12.5
Diploma in Advanced Occupational Therapy (neuroscience)	2	5
Masters in Hand Therapy	2	5
Master of Early Childhood Intervention	2	5
Master of Public Health	1	2.5
Diploma in Pain Management	1	2.5
Diploma in Ergonomics	1	2.5
Diploma in Neuro Linguistic Programming	1	2.5
Honours in Adult Neurology	1	2.5
Postgraduate qualification in progress	2	5
Total:	**45**	**100**

4.3.3 Work demographic information

The work demographics of the participants are illustrated in Figures 4.2. and 4.3, and Table 4.3. A majority (n=59; 59.6%) of the participants treated patients with hand injuries daily. Participants reported that they had treated patients with hand injuries for a median of five years (Range: 0-35). Where participants reported a value of less than 12 months, it was reported as zero years.

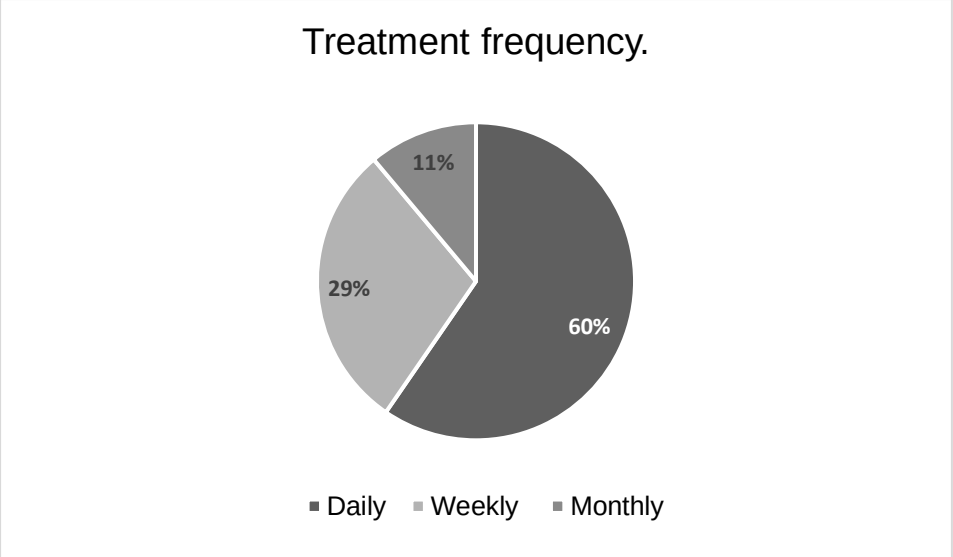


Figure 4.2. The frequency that therapists treat patients with hand injuries (n=99)

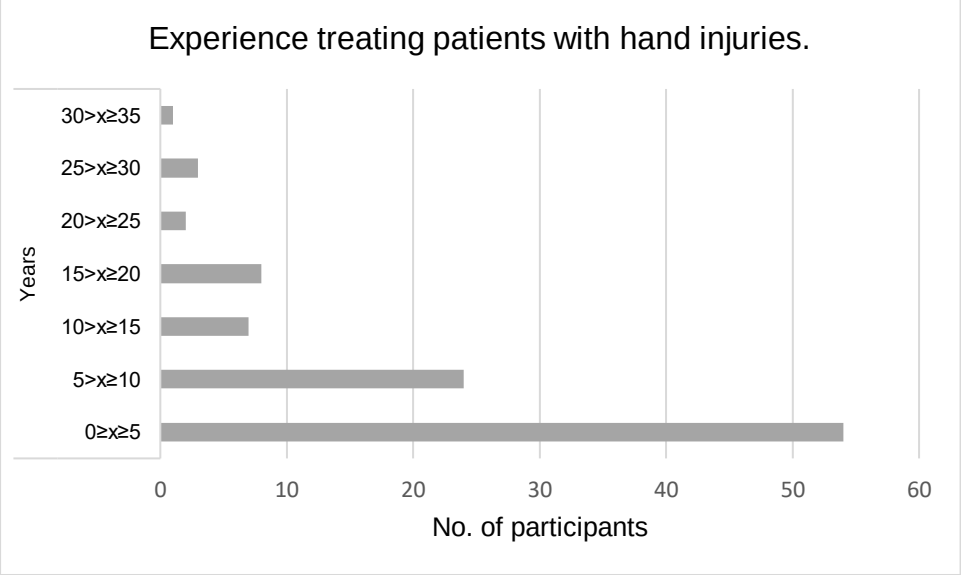


Figure 4.3. Number of years treating patients with hand injuries (n=99)

Table 4.3 indicates that a similar percentage of participants reported to have worked in the private (n=48; 48.5%) and public (n=46; 46.5%) sectors. Most of the participants (n=82; 82,8%) worked in urban (n=73; 73.7%) or peri-urban areas (n=9; 9.1%). Fourteen therapists (14,1%) worked rurally while three participants (3%) reported to work in more than one setting.

Nearly half of the participants (41.4%; n=41) indicated that they worked in private practice and thus the levels of care were not appropriate for them. Second and third to private practice respectively, participants worked in district hospital services (n=13;

13.1%) and a tertiary level of care (n=12; 12.1%). Nine participants (9.1%) worked at more than one level of care. Most of the participants worked in Gauteng (n=37; 37.4%) and the Western Cape (n=22; 22.2%). One participant (1%) worked in more than one province.

A majority (n=75; 75.8%) of participants reported having treated Workman's Compensation Fund and Road Accident Fund patients frequently (n=38; 38,4%) or occasionally (n=37; 37,4%), while 22 (22.2%) participants reported to never have treated these patients. Two participants (2%) did not answer this question.

Table 4.3. Work demographics: provinces, sectors, settings, and levels of care (n=99)

Province	**No. (n)**	**%**
Gauteng	37	37.4
Western Cape	22	22.2
KwaZulu Natal	14	14.1
Free State	8	8.1
Eastern Cape	7	7.1
North West	4	4
Limpopo	3	3
Northern Cape	2	2
Mpumalanga	1	1
More than one province	1	1
Total	**99**	**100**
Sector	**No. (n)**	**%**
Private	48.5	48.5
Public	46.5	46.5
Both public and private	3	3
Both private and higher education	1	1
Other: clinical trial	1	1
Total	**99**	**100**
Setting	**No. (n)**	**%**
Urban	73	73.7
Peri-urban	9	9.1
Rural	9	9.1

Deep rural	5	5.1
More than one of the above	3	3
Total	**99**	**100**
Level	**No. (n)**	**%**
Not applicable as I work in private practice	41	41.4
District hospital services	13	13.1
Tertiary	12	12.1
Regional	9	9.1
More than one level	9	9.1
Primary	8	8.1
Specialised	4	4
Central	3	3
Other	0	0
Total	**99**	**100**

4.4 Understanding compliance in hand therapy

This section (4.4) addresses objective one: to describe how South African occupational therapists understand the concept of compliance. The structure will follow that of the online survey questionnaire as this structure was purposefully created in order for one question to build on the next and facilitate the readers understanding of how participants understand compliance.

4.4.1 The extent to which compliance impacts treatment outcomes

As seen in Figure 4.4, most of the participants (n=78; 78.8%) perceived that compliance had a ‘substantial impact’ on treatment outcomes of hand-injured patients.

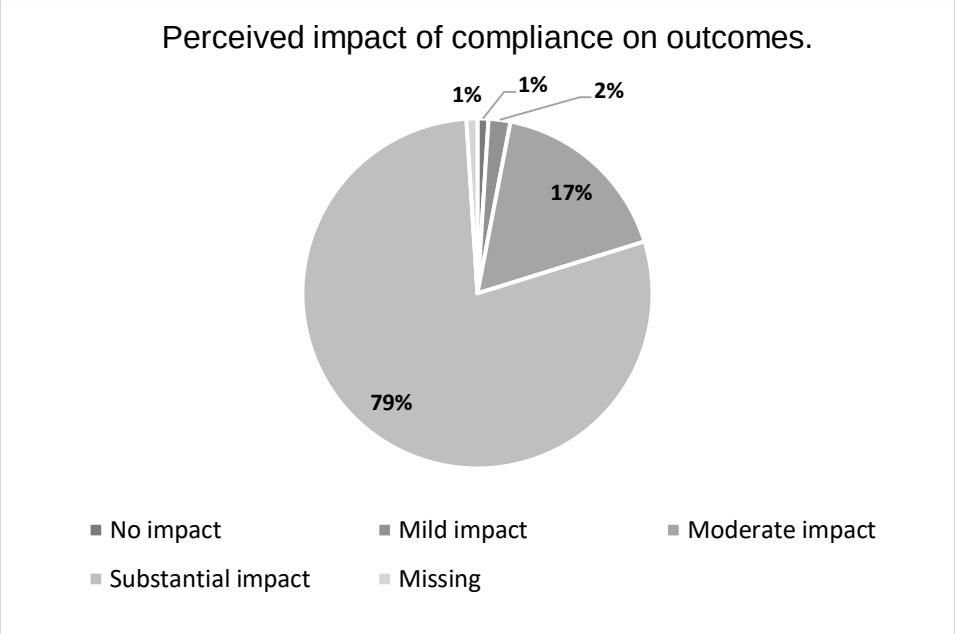


Figure 4.4 Impact of compliance on treatment outcomes (n=99)

Almost all participants (n=92; 92,9%) qualified their answers with comments.

Participants who answered, ‘moderate impact’ (n=17; 17.2%) and ‘severe impact’ (n=79; 79.8%) provided similar comments and reasons for their responses. Due to the substantial similarity, these comments were combined for analysis.

Eighty-nine participants (89.9%) of the total sample, provided comments for their ‘moderate impact’ (n=15; 15.2%) and ‘severe impact’ (n=74; 74.7%) responses, three (3%) comments did not provide further justification of their selected answer but merely stated their definition of compliance. Thirty-nine (39.4%) participants’ comments affirmed the belief that compliance or lack thereof impacted treatment outcomes.

The remainder of the content analysed comments for ‘moderate impact’ (n=10; 10.1%) and ‘severe impact’ (n=36; 36.4%) results are tabulated below (Table 4.4).

Codes were categorised into patient and activity-related factors, injury-related factors, financial factors, and therapy-related factors that impact compliance, and thus outcomes. Under the latter category, twelve (n=12; 12.1%) participants explained that compliance impacts outcomes as therapy is required more than once a week. One of the participants (1%) explained:

"Rehabilitation is a 24hr, 7 day a week process, yet we only see patients for an hour or so per week, so what they do for the rest of the time is crucial to their progress." Participant 88.

Table 4.4 Summary of the participants' comments when reporting a perceived 'moderate' and 'severe impact' of compliance on outcomes (n=46)

Categories	Codes	No. (%)
	Compliance and thus outcomes, depend on:	
Patient and activity-related factors	Patient taking responsibility (n=2)	7 (7.1%)
	Therapy and home program buy-in (n=2)	
	Patient understanding (n=1)	
	Patient age (n=1)	
	Patient's use of the hand in daily activities (n=1)	
Injury-related factors	Type of injury (n=1)	1 (1%)
Financial factors	Monetary value of injury (n=1)	1 (1%)
Therapy-related factors	Home programs (n=17)	37 (37.4%)
	Patient education during therapy (n=3)	
	Following treatment protocols (n=3)	
	Child and caregiver compliance for carryover (n=2)	
	Compliance impacts outcomes as:	
	Therapy is required more than once a week (n=12)	

Conversely to all the above content analysed, one participant (1%) commented:

"*I have treated patients who are not compliant who have had better results than compliant patient(s). (It is) a few cases." Participant 42.*

One participant (1%) answered 'no impact' and explained that they do not experience many problems with compliance. Two participants (2%) answered 'mild impact' and provided reasons for their answers.

4.4.2 The level of importance attributed to the therapist understanding their patients' compliance and the factors affecting it

Most participants (n=95; 96%) deemed it 'very important' for them to understand their patients' compliance and the factors that affect it. Three participants (3%) deemed it

'fairly important', nobody (n=0; 0%) deemed it 'not very important' and one (1%) missing response was noted.

Eighty-six (86.9%) participants of the total sample provided reasons for their selection of the level of importance, three (3%) were participants who answered, 'fairly important'.

The remainder (n=83; 83.8%) of the reasons were provided by those who answered, 'very important'. The analysed content is presented in Table 4.5.

Table 4.5 Summary of the participants' comments when reporting their understanding of their patients' compliance to be 'very important' (n=83)

Categories	Codes	No. (%)
Facilitating tailored therapy	Understanding problems facilitates solution focus (n=15)	57 (57.6%)
	Adapting and grading therapy (n=15)	
	Informs structure of treatment (n=15)	
	Informs modality choice (n=5)	
	Support client-centredness (n=3)	
	Informs collaborative goal setting (n=2)	
	Optimise outcomes (n=1)	
	Avoid wasting resources (n=1)	
Facilitating improved outcomes	Improved compliance results in improved outcomes (n=6)	9 (9.1%)
	Therapy *has* to happen at home (n=2)	
	Preventing secondary complications (n=1)	
Appreciating the multi-factorial nature of compliance	Many factors affect compliance (n=7)	8 (8.1%)
	"Stressors…bigger than…exercises" (n=1)	
Compliance rests on the patient's understanding	Patient understanding (n=8)	8 (8.1%)

In contrast to the majority (n=83; 83.8%) of the participants' comments, one participant (1%) reported that compliance is the responsibility of the patient.

4.4.3 Participants' views on predicting a patient's compliance at their initial visits

Table 4.6 illustrates that the majority (n=75; 75.8%) of participants perceived that they can 'sometimes' predict from the initial visits if a patient will be compliant or not.

Table 4.6 Predictability of compliance (n=99)

Predictability of compliance	No. (n)	%
Sometimes	75	75.8
Yes	15	15.2
No	8	8.1
Missing	1	1
Total	**99**	**100**

Eighty participants (80.8%) of the total sample provided reasons for their answers.

Sixty-one participants (61.6%) provided reasons for their answer that they can 'sometimes' predict compliance. One participant (1%) stated that a variety of factors impact compliance. Other coded comments (see Table 4.8) were categorised into patient-related factors and therapist or therapy-related factors (n=59; 59.6%).

Table 4.8 Patient-related and therapist/therapy-related factors for participants 'sometimes' being able to predict compliance (n=59)

Categories	Codes	No. (%)
Patient-related factors.	A variety of patient-related factors (n=18)	41 (41.4%)
	Patients' attitude, motivation, and interest (n= 16).	
	The patient's level of understanding and/or insight (n=4).	
	Patients who ask questions (n=2).	
	If the patient can demonstrate exercises back to the therapist (n=1).	
Therapist and therapy-related factors.	Patients can be misread (n=5).	18 (18.2%)
	Various therapist-related factors (n=5).	
	It takes more than the first session to predict (n=4).	
	Language barrier (n=2).	
	Therapeutic relationship (n=1).	
	Therapists' experience (n=1).	

In contrast to others, one participant (n=1; 1%) reported that:

"Over the years patients who have presented as "non-compliant" have been surprisingly compliant, the reverse is also true. So, it is important to not "judge" the patient or "assume" anything." Participant 32.

Twelve participants (12.1%) attributed their ability to predict a patient's compliance to various patient-related factors or the detailed history a therapist obtains from a patient or therapist experience. These analysed responses are demonstrated in Table 4.7 below.

Table 4.7 Reasons for being able to predict patient compliance (n=12)

Categories	Codes	No. (%)
Patient-related factors.	The patient as an active participant (n=4)	9 (9.1%)
	Patient's attitude, motivation, and interest (n=4)	
	Patient's age (n=1)	
Therapist-related factors.	Therapist's experience (n=2)	3 (3%)
	Therapist obtaining a detailed history from the patient (n=1)	

Seven participants (7.1%) provided reasons for them stating that they are not able to predict a patient's compliance. One participant affirmed that it is difficult for therapists to predict at initial visits (n=1; 1%) and that a therapist's experience plays a role (n=1; 1%). Another participant reported that they have "learnt to never assume" (Participant 76) (n=1; 1%) a patient's compliance. Furthermore, patient willingness was thought to sometimes be deceiving at initial visits (n=2; 2%), and a patient's understanding of therapy is a variable, therefore making it difficult to predict (n=1; 1%). One participant (1%) explained that predicting a patient's compliance demonstrates bias.

4.4.4 Typical characteristics of a non-compliant patient

A majority (n=94; 94.9%) of the participants provided their list of what they deem to be the three most typical characteristics of non-compliance (missing responses: n=5; 5.1%).

Most participants submitted the requested three characteristics (n=81; 81.8%) while others submitted one (n=4; 4%), two (n=5; 5.1%) or four (n=4; 4%) characteristics. It was decided to include all characteristics submitted and thus 263 characteristics were coded. It must also be noted that due to the character limit set by the data gathering

tool (REDCap) some responses (n=16; 16.2%) were cut-off. Only characteristics that could not be deciphered were omitted (n= 5 characteristics) from analysis.

Two participants (2%) reported that it was difficult to “box” the characteristics that affect compliance. Furthermore, one participant (1%) reported that patients with a: “complex medical history” (Participant 8) become non-compliant while another participant (n=1; 1%) reported that deterioration of a patient’s condition or injury from the previous session becomes a characteristic of non-compliance.

The remainder of the analysed characteristics (n=258) were coded and categorised. Categories are illustrated below in a word cloud (Figure 4.5) where the higher the frequency of the category, the bigger the letters of the word. Please refer to Appendix I for the detailed table of the analysed data.



Figure 4.5. Frequency of typical characteristics (n=258) of non-compliance

4.4.5 Typical characteristics of a compliant patient

Nearly all (n=97; 98%) participants provided three most typical characteristics of compliance (missing responses: n=2; 2%).

Most participants submitted the requested three characteristics (n=84; 84.8%) while others submitted two (n=9; 9.1%) or four (n=4; 4%) characteristics. Conversely to these characteristics, one participant (1%) reported that it was difficult to “box” the characteristics, but motivation and insight affect compliance. As above (section 4.4.4) all characteristics submitted were included, only those (from the cut-off responses (n=5; 5.1%)) that could not be deciphered were omitted (n= 1 characteristic). Thus 262

characteristics were coded, and the categories are illustrated in a word cloud below (Figure 4.6). Please refer to Appendix J for the detailed table of the analysed data.



Figure 4.6. Frequency of typical characteristics (n=262) of compliance

4.4.6 What does the definition of compliance, in hand therapy, refer to?

Ninety-four (94.9%) participants provided their definition of what 'compliance in hand therapy refers to' (see Table 4.9) (missing responses: n=5; 5.1%).

Table 4.9 The definition of compliance in hand therapy (n=94)

Compliance refers to:	No. (%)
Patient appointment attendance and executing home program.	22 (22.2%)
Patient following the therapist's recommendations/instructions.	19 (19.2%)
Patient following home program, including home exercise program, splint wear, and precautions, by the patient.	13 (13.1%)
Combination of a variety of components.	10 (10.1%)
Active engagement by the patient.	7 (7.1%)
A partnership between the patient and the therapist.	6 (6.1%)
Patient's willingness.	6 (6.1%)
The patient understanding their injury and the importance of rehabilitation.	4 (4%)
Patient's motivation.	2 (2%)
Patient working together with the therapist.	2 (2%)
Patient appointment attendance.	1 (1%)
Factors that are controlled by the therapist.	1 (1%)
The patient taking responsibility for their therapy.	1 (1%)

4.4.7 Responsibility for patient compliance

Summarised below (Figure 4.7) are the participants' responses (n=96; 97%; missing responses: n=3; 3%) according to the analysed categories. Please refer to Appendix K for the codes of each category.

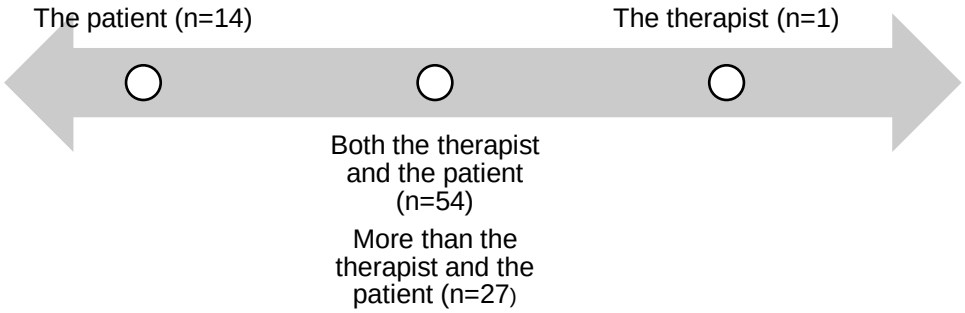


Figure 4.7 With whom the responsibility lies for patient compliance (n=96)

4.4.8 Compliance: the most appropriate term?

Table 4.10 illustrates the responses of the participants' views on compliance being the most appropriate term in hand therapy.

Table 4.10 Compliance as the most appropriate term in hand therapy (n=99)

Is compliance the most appropriate term?	No. (n)	%
Yes	61	61.6
No	20	20.2
The choice of the term does not matter	16	16.2
Missing	2	2
Total	**99**	**100**

Thirty-six participants (36.4%) of the total sample provided comments to their 'yes' response to compliance being the most appropriate term.

Eight participants (8.1%) provided comments that reinforced that compliance is the most appropriate term. One participant (1%) provided an alternative term; 'willingness'. Another participant highlighted the importance of compliance, stating:

"It is a vital requirement as the hand belongs to the patient. It is his tool that (allows) all function in all spheres of his life, and profoundly impacts his future." Participant 29.

Ten participants (10.1%) did not give reasons for their answers but provided their definition and understanding of compliance (n=7; 7.1%) and that compliance affects treatment outcomes (n=3; 3%). The remainder of the participants' (n=15; 15.2%) commented with the following: other factors affect compliance (n=3;3%), compliance is a choice (n=1; 1%), the responsibility belongs to both the patient and the therapist (n=5; 5%), compliance extends therapy beyond the clinic (n=5; 5%), compliance is a universally understood term (n=1; 1%). Contrary to their 'yes' response, one participant (1%) reported that there is a negative connotation of the word that implies that therapy can be painful.

Nineteen participants (19.2%) of the total sample who perceived compliance to not be the most appropriate term, justified their answer or suggested an alternative term. Seven (7.1%) participants recommended the following alternatives: adherence (n=2; 2%), attendance (n=1; 1%), engagement (n=1; 1%), goal setting (n=1; 1%) and participation (n=1; 1%). One (1%) participant provided four alternative descriptors: "insight in therapy, level of intrinsic and extrinsic motivation, participation in therapy, teamwork" (Participant 63).

The remainder of the participants (n=12; 12.1%) who answered 'no' provided reasons for their responses. Participants reported that compliance is not the most appropriate term because other factors affect compliance (n=4; 4%), it places the blame (n=1; 1%) or sole responsibility on the patient (n=3; 3%), and compliance implies an authoritarian position of the therapist (n=3; 3%). One participant (1%) reported that compliance is "quite an involved word for a non-English speaking person" (Participant 62).

Nine participants (9.1%) of the total sample provided comments for their response 'the choice of term does not matter', one participant's comment (1%) reiterated the statement and another (n=1; 1%) drew attention to the fact that participation in ADLs can be a form of compliance.

Three participants (3%) commented that there needs to be a consideration of contextual factors while two participants (2%) reported that the principles are the

same, regardless of the words used and another participant (n=1; 1%) reported that the concept is what is important, not the term used.

Contrary to the above, one participant (1%) did not provide a reason for choosing ‘the choice of term does not matter’ but stated that:

“Compliance is a choice.” Participant 44.

4.4.9 Statements that best describe patient compliance

Nearly all (n=91; 91.9%) of the participants who answered the question on statements that best describe patient compliance (n=95; 96.0%; n=4; 4% missing responses) agreed with the statement ‘compliance is about adhering to appointments and actively engaging in all forms of therapy’. Seven (7.1%) participants agreed with the following statements ‘compliance is an ideology that reinforces the authority of healthcare professionals over patients’ and ‘the term compliance implies that the patient is a passive recipient of healthcare’. All responses are illustrated in Figure 4.8 below. Please refer to Appendix L for the detailed table of the analysed data.

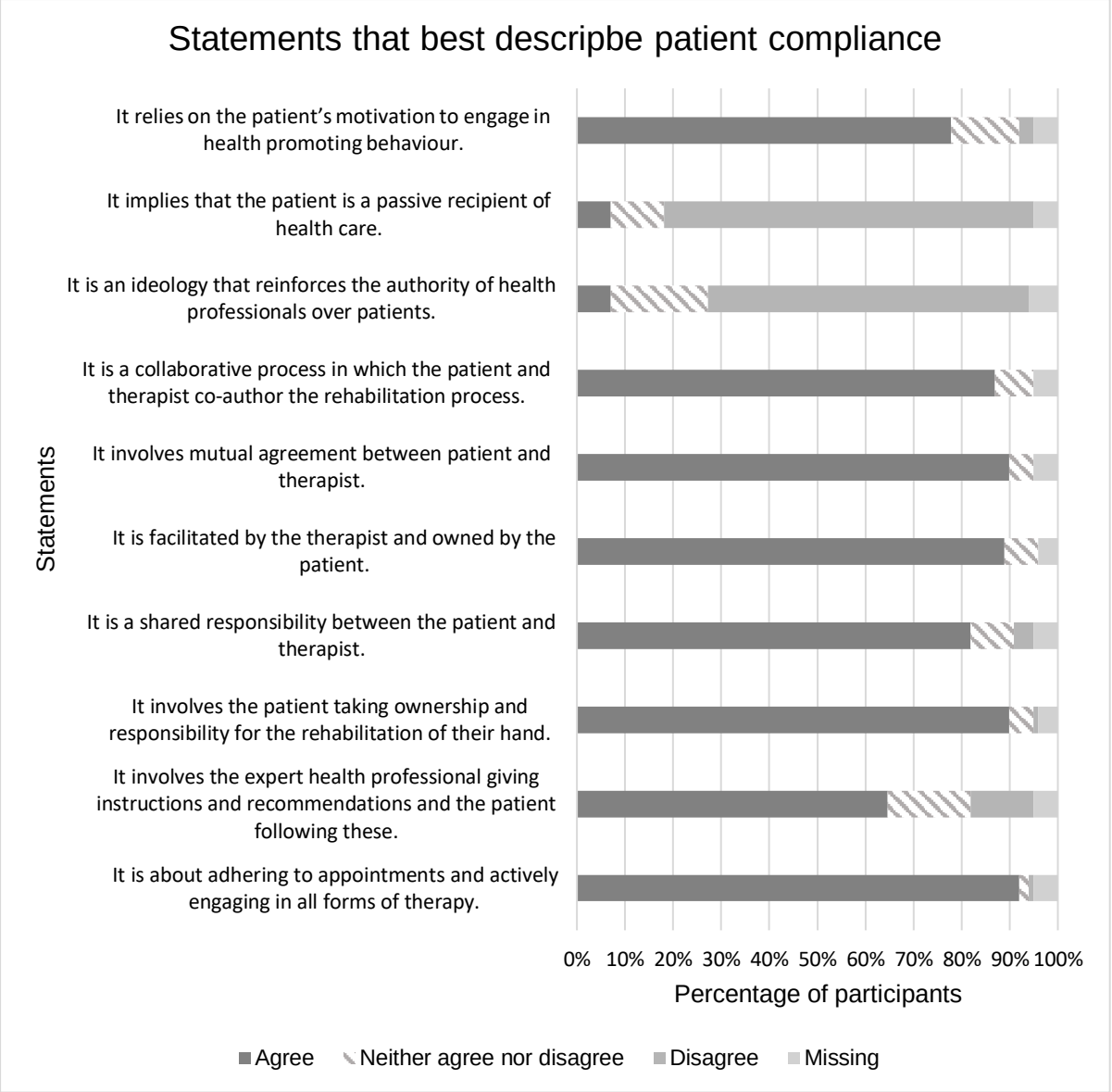


Figure 4.8 Statements that best describe patient compliance (n=99)

Twenty-two participants (22.2%) of the total sample provided reasons for their responses. These reasons are summarised below in Table 4.11.

Table 4.11 Comments on statements that best describe compliance (n=20)

Categories	Codes	No. (%)
Compliance relies on shared responsibility between the therapist and the patient.	Compliance is a collaborative effort (n=8).	12 (12.1%)
	The healthcare professional has the expert knowledge, but the patient needs to be an active participant (n=4).	
	There are factors that affect compliance (n=2).	

Compliance is multifactorial.	Therapists need to make allowance for contextual factors (n=2).	5 (5.1%)
	Patient behaviour can be reorganised (n=1).	
Compliance relies on the patient.	Compliance requires the patient to take ownership (n=3).	3 (3%)

One participant (1%) reinforced their response from the question. Another participant (n=1; 1%) highlighted the difficulty of understanding patient compliance in their context:

> *"In the public sector, we are unable to follow up with patients who miss their appointments. It is not realistic; our patient loads are large and we have high cases of trauma." Participant 7.*

4.4.10 Summary

Participants defined compliance according to patient appointment attendance and executing home programs. More than half of the participants (n=61; 61.1%) reported that compliance was the most appropriate term in hand therapy and often provided comments suggesting that the onus of compliance rests on the patient – specifically, 24 (24.2%) participants reported that compliance is the patient's responsibility. Contrary to this however, 44 participants (44.4%) reported that compliance is the responsibility of both therapist and patient.

4.5 Factors affecting compliance

This section (4.5) addresses objectives two (to describe the factors which facilitate the compliance of hand-injured patients, as perceived by South African occupational therapists) and three (to describe the factors which are barriers to the compliance of hand-injured patients, as perceived by South African occupational therapists). Results that address these objectives are reported in the same section as some factors may act as both a facilitator and a barrier and thus it was difficult to separate the factors and report them separately. The design of survey questions (questions 22-26) also made separating facilitator and barrier results impossible. The impact that this has on the clarity of the results is acknowledged as a limitation (please refer to section 5.6 in chapter 5).

Questions in this section of the questionnaire were asked and answered in the form of a Likert Scale. Participants were able to provide answers in more than one option of the Likert Scale as each factor could be “always a support” AND “never a barrier”, for example. Thus, totals for some factors may be more than the total of 99 (100%) participants. As explained in Chapter 3, section 3.6, the nine-point Likert Scale (Appendix H) was condensed to a five-point Likert scale.

Questions in this section of the questionnaire were grouped according to the categories outlined by the World Health Organisation’s (2003) multidimensional adherence model (Sabaté, 2003), namely social and economic, healthcare team/system, condition, therapy, and patient-related factors.

4.5.1 Socio-economic-related factors

Figure 4.9 illustrates the participants’ views on socio-economic-related factors. A majority of the participants expressed that the ‘cost of transport to and from the hospital/clinic’ (n=76; 76.8%) and ‘distance, difficulty and time taken to travel to the hospital/clinic and the physical accessibility of the hospital/clinic’ were ‘barriers’ to patient compliance. An equal proportion (n=71; 71.7%) of participants expressed that: ‘social support’ and ‘peer support’ were ‘supports’. ‘Culture and religion’ were perceived as a ‘barrier’ (n=46; 46.5%) more than a ‘support’ (n=29; 29.3%). A ‘temporary disability grant’ was perceived by some to be a ‘support’ (n=46; 46.5%) whilst a smaller proportion perceived it to be a ‘barrier’ (n=33; 33.3%).

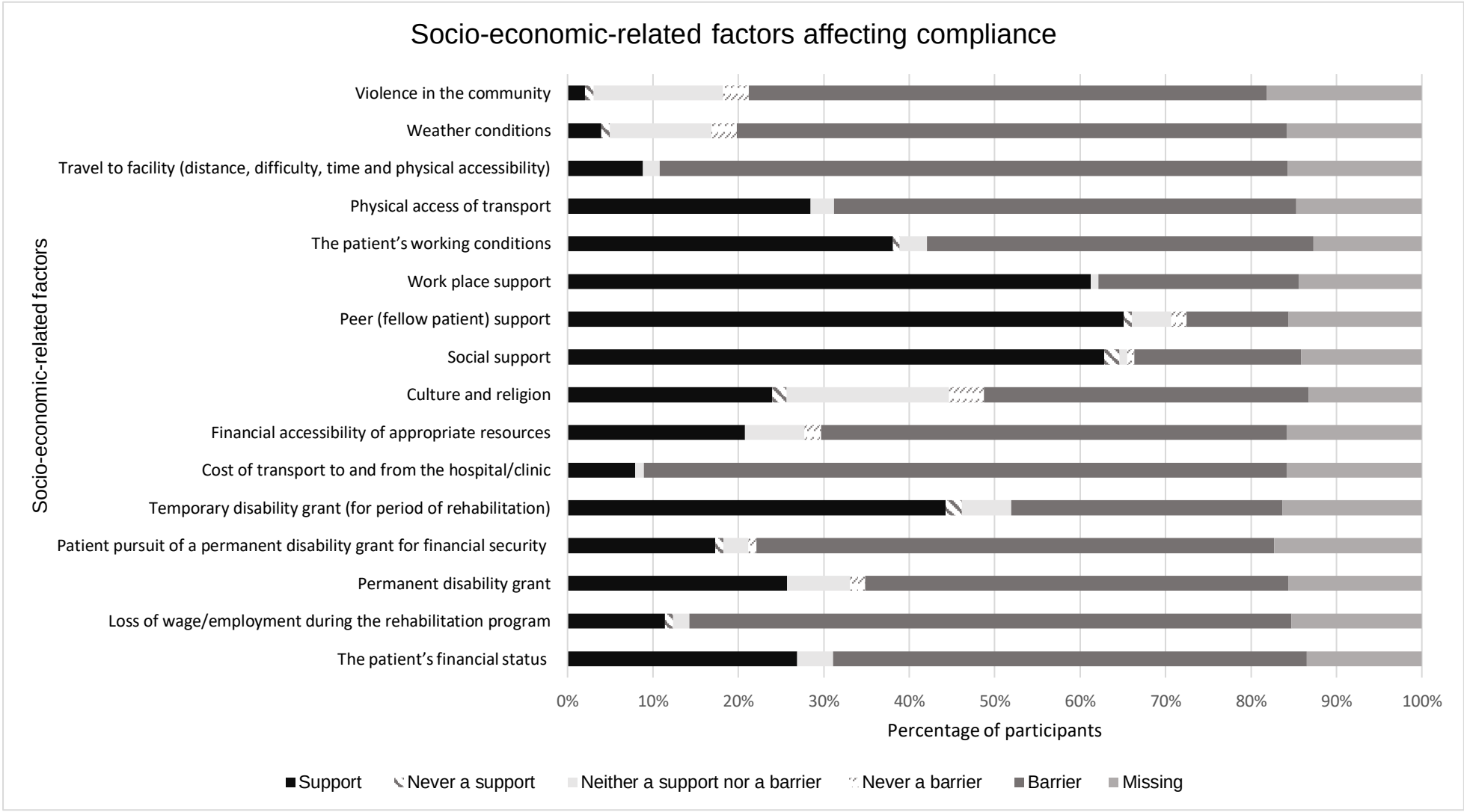


Figure 4.9 Socio-economic-related factors perceived to act as supports and/or barriers to compliance (n=99)

Tabulated below (Table 4.12) are the reasons/comments provided by 16 participants (16.2%).

Table 4.12 Reasons/comments for socio-economic-related factors (n=16)

Participants:	**No. (%)**
Affirmed their response that a low socio-economic status is a barrier to compliance.	5 (5.1%)
Elaborated that disability grant-related factors complicate compliance.	3 (3%)
Commented that a factor being a support/barrier is dependent on the patient's context and personal characteristics	2 (2%)
Commented that the presence of the factor makes it a support and the absence of the factor makes it a barrier	3 (3%)
Reported that neutral statements were difficult to answer	1 (1%)

The remaining two (2%) participants who commented, reported the following:

> *"Patients with a lower education (level) often work in manual labour jobs, in which there is a general (no-work-no-pay) culture. This may prohibit the client from attending sessions and returning to work too soon and further (injuring their hand)." Participant 14.*

> *"Sometimes family support makes the patient "do less" and just receive." Participant 15.*

Eighteen (18.2%) participants responded to the opportunity to identify additional socio-economic-related factors. Four participants (4%) affirmed or re-worded already present factors while 12 participants (12.1%) elaborated on factors already presented. These 12 participants (12%) commented on:

- the role of the patient at home (n=3; 3%),
- gender roles (n=2; 2%),
- patients who have dependents at home (n=2; 2%),
- educational level of the patient (n=2; 2%),
- patient's access to education (n=1; 1%),
- misconception about injury on duty insurance (n=1; 1%) and
- inconsistent pay-out by the Workman's Compensation Commission (n=1; 1%).

Two (2%) participants reported factors related to the school environment and basic living conditions.

4.5.2 Healthcare team/system-related factors

Table 4.13 illustrates the participants' views on healthcare team/system-related factors. The majority responses (greater than 50%) are highlighted in grey.

'Therapists demonstrating cultural sensitivity and humility' and 'therapists demonstrating a positive expectation of the patient's ability to be compliant' were identified as a 'support' by 76 (76.8%) participants. A similar number (n=70; 70.7%) of participants reported that a 'language barrier' is a 'barrier' to patient compliance.

Table 4.13 Healthcare team/system-related factors perceived to act as supports and/or barriers to compliance (n=99)

Factors	No. (%) participants who reported:					No. (%) missing responses
	Support	Never a support	Not a support nor a barrier	Never a barrier	Barrier	
Appointment reminders.	**55 (55.6%)**	0 (0%)	17 (17.2%)	1 (1%)	1 (1%)	25 (25.3%)
Seeing doctor and therapist on the same day at similar times.	**74 (74.7%)**	0 (0%)	3 (3%)	0 (0%)	2 (2%)	22 (22.2%)
Waiting times at the hospital.	9 (9.1%)	1 (1%)	9 (9.1%)	5 (5.1%)	**52 (52.5%)**	25 (25.3%)
Referral system.	35 (35.4%)	1 (1%)	9 (9.1%)	0 (0%)	39 (39.4%)	23 (23.2%)
Delayed surgeries.	4 (4%)	0 (0%)	5 (5.1%)	0 (0%)	**66 (66.7%)**	24 (24.2%)
Availability of hospital transport for patients.	15 (15.2%)	0 (0%)	7 (7.1%)	3 (3%)	**51 (51.5%)**	26 (26.3%)
Hospital/clinic resources.	16 (16.2%)	0 (0%)	9 (9.1%)	8 (8.1%)	41 (41.4%)	24 (24.2%)
Therapists' workload.	6 (6.1%)	0 (0%)	13 (13.1%)	7 (7.1%)	**54 (54.5%)**	24 (24.2%)
Absence of therapists at primary level facilities.	2 (2%)	1 (1%)	15 (15.2%)	2 (2%)	**54 (54.5%)**	25 (25.3%)
Clinic outreach by hospital therapists to compensate for the absence of clinic therapists	32 (32.3%)	1 (1%)	21 (21.2%)	1 (1%)	19 (19.2%)	27 (27.3%)
Staff turnover/poor continuity of care.	1 (1%)	2 (2%)	8 (8.1%)	4 (4%)	**58 (58.6%)**	26 (26.3%)
Patients' previous experience with healthcare professionals.	22 (22.2%)	1 (1%)	7 (7.1%)	3 (3%)	**59 (59.6%)**	25 (25.3%)
Therapist's confidence.	47 (47.5%)	1 (1%)	3 (3%)	2 (2%)	35 (35.4%)	26 (26.3%)
Therapist's competence.	48 (48.5%)	1 (1%)	3 (3%)	2 (2%)	36 (36.4%)	25 (25.3%)
Communication and co-ordination of multi-disciplinary team responsibilities.	47 (47.5%)	1 (1%)	1 (1%)	1 (1%)	37 (37.4%)	25 (25.3%)
Every member of the multi-disciplinary team tells the patient the same thing.	**61 (61.6%)**	1 (1%)	3 (3%)	0 (0%)	11 (11.1%)	24 (24.2%)
Inconsistent communication between the multi-disciplinary team.	5 (5.1%)	2 (2%)	1 (1%)	1 (1%)	**66 (66.7%)**	25 (25.3%)
Lack of clarity around the roles of each multi-disciplinary team member.	3 (3%)	1 (1%)	7 (7.1%)	2 (2%)	**61 (61.6%)**	25 (25.3%)
Patients assigning excessive weight to the doctor's opinion at the expense of input from other team members.	2 (2%)	1 (1%)	3 (3%)	3 (3%)	**65 (65.7%)**	25 (25.3%)
Dominance of the medical model in the South African Health System.	4 (4%)	1 (1%)	11 (11.1%)	3 (3%)	**59 (59.6%)**	24 (24.2%)
Dominance of a westernised approach that is not contextually relevant.	3 (3%)	1 (1%)	12 (12.1%)	4 (4%)	**56 (56.6%)**	25 (25.3%)
Trust, rapport, and good professional relationship between therapist and patient.	**71 (71.7%)**	1 (1%)	0 (0%)	0 (0%)	4 (4%)	24 (24.2%)
Therapists demonstrating interest and authentic care.	**75 (75.8%)**	1 (1%)	0 (0%)	0 (0%)	0 (0%)	23 (23.2%)
Therapists demonstrating cultural sensitivity and humility.	**76 (76.8%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	24 (24.2%)

Therapists demonstrating a positive expectation of the patient's ability to be compliant.	**76 (76.8%)**	0 (0%)	0 (0%)	0 (0%)	1 (1%)	23 (23.2%)
Therapist displays confidence in the patient's ability to take responsibility.	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	99 (100%)
Assumptions made by the therapist about the patient's insight into their injuries, condition, and rehabilitation.	27 (27.3%)	5 (5.1%)	7 (7.1%)	0 (0%)	48 (48.5%)	24 (24.2%)
The tone of voice used by the therapist.	**53 (53.5%)**	1 (1%)	3 (3%)	3 (3%)	31 (31.3%)	23 (23.2%)
Obtaining informed consent for therapy.	**69 (69.7%)**	2 (2%)	11 (11.1%)	3 (3%)	1 (1%)	22 (22.2%)
Client-centred services – facilitating the patient's autonomy.	**71 (71.7%)**	1 (1%)	1 (1%)	0 (0%)	2 (2%)	24 (24.2%)
Collaboration and shared power between the patient and the therapist.	**71 (71.7%)**	2 (2%)	1 (1%)	0 (0%)	2 (2%)	23 (23.2%)
Clear and understandable communication between therapist and patient.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	1 (1%)	23 (23.2%)
Language barrier.	2 (2%)	2 (2%)	4 (4%)	0 (0%)	**70 (70.7%)**	23 (23.2%)
Communicating in the patient's first language.	**62 (62.6%)**	1 (1%)	1 (1%)	0 (0%)	12 (12.1%)	24 (24.2%)
The use of translators.	**62 (62.6%)**	1 (1%)	2 (2%)	0 (0%)	21 (21.2%)	23 (23.2%)
Using vocabulary, language, and terms that are understandable and accessible to the patient.	**72 (72.7%)**	1 (1%)	1 (1%)	0 (0%)	3 (3%)	24 (24.2%)
Using drawings and illustrations to explain concepts.	**74 (74.7%)**	1 (1%)	1 (1%)	0 (0%)	1 (1%)	23 (23.2%)
Therapists testing the patient's understanding by allowing them to explain their understanding and demonstrate the program that they are to perform.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	1 (1%)	24 (24.2%)
Communicating to enable an understanding of both the patient and therapist's responsibilities.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	0 (0%)	24 (24.2%)
Communicating the consequences of non-compliance.	**75 (75.8%)**	1 (1%)	1 (1%)	0 (0%)	0 (0%)	23 (23.2%)
Communicating the consequences of non-compliance using fear.	37 (37.4%)	11 (11.1%)	7 (7.1%)	0 (0%)	27 (27.3%)	23 (23.2%)
Transparent communication by the therapist.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	3 (3%)	23 (23.2%)
Frequent repetition of information.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	1 (1%)	24 (24.2%)
Educating patients on their injury and expected recovery.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	2 (2%)	24 (24.2%)
Educating patients on their treatment and rehabilitation program.	**74 (74.7%)**	1 (1%)	0 (0%)	0 (0%)	1 (1%)	24 (24.2%)

Twelve (12.1%) participants provided reasons/comments for their selected answers. Six participants (6.1%) reported varying reasons/ comments:

- outreach improves patient compliance but strains community healthcare (n=1; 1%),
- improving patient empowerment improves outcome (n=1; 1%),
- respecting patients' knowledge supports compliance (n=1; 1%),
- using fear does not support compliance (n=1; 1%),
- increased time needs to be spent improving patient compliance (n=1; 1%) and
- clear communication is vital (n=1; 1%).

Three participants (3%) elaborated on the factors given, reporting that poor referral systems (n=1; 1%) and relationships among occupational therapists and other healthcare professionals (n=1; 1%) contribute to compliance, as does having a different doctor at each visit (n=1; 1%).

Two participants (2%) reported that neutral statements were difficult to answer (n=1; 1%) and the support/barrier depends on each patient (n=1; 1%). Lastly, one (1%) participant commented that the value placed on compliance needs to be done with caution, as it may be too much for a patient to manage.

Four (4%) participants responded to the opportunity to identify additional healthcare team/system-related factors:

- Acknowledge the patient’s already learnt knowledge (n=1; 1%).
- Environments (school and care facilities) (n=1; 1%).
- Education related to the workman’s compensation fund (n=1; 1%).
- Communication regarding procedures done during operations (n=1; 1%).

4.5.3 Condition-related factors

Figure 4.10 illustrates the participants’ views on condition-related factors. Most (n=66; 66.7%) participants reported that ‘patients being able to see/perceive their own progress’ was a ‘support’ while a similar number of participants (n=67; 67.7%) reported that ‘co-morbidities’ were a ‘barrier’ to patient compliance.

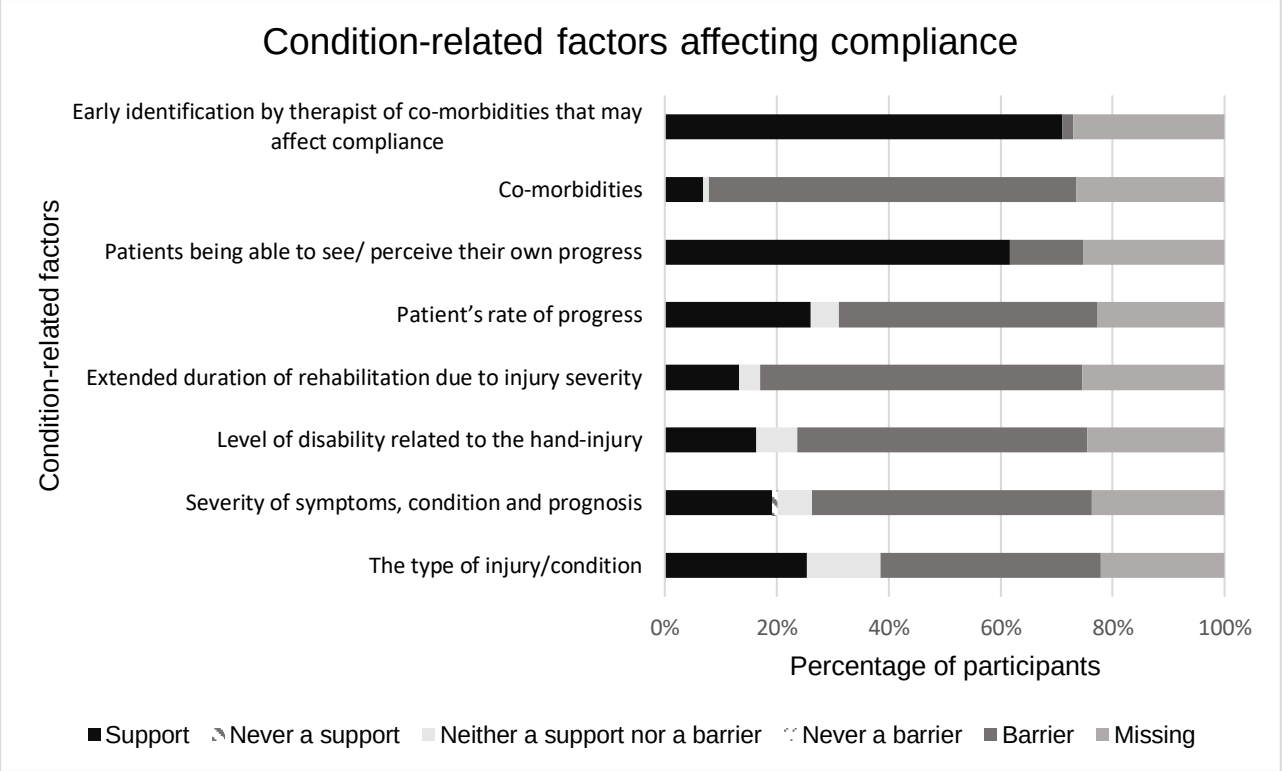


Figure 4.10 Condition-related factors perceived to act as supports and/or barriers to compliance (n=99)

Eight (8.1%) participants provided reasons/comments for their selected answers. Two (2%) participants affirmed that the type, severity, and cause of the injury affect compliance. One participant (1%) reported that it is more the patient's belief in their ability to heal that affects compliance and not the condition itself. Another participant (n=1; 1%) reported that when a patient makes progress in other areas it must be celebrated to encourage progress. Two participants (2%) reported that the questions are vague/do not make sense, while one participant (1%) reported that factors being a 'support' or 'barrier' depends on if the factor is written in a positive or negative light. Lastly a participant (n=1; 1%) commented that the rate and perceived progress can be a support.

Five (5.1%) participants responded to the opportunity to identify additional condition-related factors:

- Adaptations to protocols due to resources (n=1; 1%).
- The demands of the patient (n=1; 1%).
- The influence of work-related injuries (n=1; 1%).
- Limited activities available to the non-dominant hand (n=1; 1%).

- Cause of injury and age of patient (n=1; 1%).

4.5.4 Therapy-related factors

Table 4.14 illustrates the participants' views on therapy-related factors. The majority responses (greater than 50%) are highlighted in grey.

Eight of the therapy-related factors received the most responses (n=69; 69.7%) as being a 'support' to patient compliance. A few (n=19; 19.2%) participants reported that the 'length of time of therapy sessions' was 'neither a support nor a barrier' while most (n=62; 62.6%) of the participants reported that 'home programs that interfere with lifestyle' were a 'barrier' to patient compliance.

Table 4.14 Therapy-related factors perceived to act as supports and/or barriers to compliance (n=99)

Factors	No. (%) participants who reported:					No. (%) missing responses
	Support	Never a support	Neither a support nor a barrier	Never a barrier	Barrier	
Simple, short home programs.	**68 (68.7%)**	1 (1%)	0 (0%)	0 (0%)	2 (2%)	30 (30.3%)
Home programs that interfere with lifestyle.	2 (2%)	5 (5.1%)	2 (2%)	0 (0%)	**62 (62.6%)**	30 (30.3%)
Prescription of numerous activities and exercises with the assumption that patients will remember at least some.	6 (6.1%)	4 (4%)	2 (2%)	0 (0%)	**60 (60.6%)**	30 (30.3%)
Providing patients with a program that is concrete with visuals to aid memory.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Comfort, wearing regimes, and aesthetics of assistive devices and splints.	**67 (67.7%)**	0 (0%)	1 (1%)	0 (0%)	4 (4%)	30 (30.3%)
Adapting protocols to suit individual patients (using sound clinical reasoning).	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Strict adherence to protocols.	36 (36.4%)	4 (4%)	8 (8.1%)	1 (1%)	31 (31.3%)	30 (30.3%)
Use of occupation-based intervention and meaningful activities.	**68 (68.7%)**	0 (0%)	0 (0%)	0 (0%)	3 (3%)	30 (30.3%)
Pain caused by participating in the rehabilitation program.	3 (3%)	4 (4%)	2 (2%)	1 (1%)	**59 (59.6%)**	31 (31.3%)
Organising analgesia before treatment sessions.	**51 (51.5%)**	4 (4%)	9 (9.1%)	1 (1%)	4 (4%)	31 (31.3%)
Length of time of therapy sessions.	42 (42.4%)	0 (0%)	19 (19.2%)	0 (0%)	18 (18.2%)	31 (31.3%)
Frequency of therapy sessions.	**54 (54.5%)**	1 (1%)	7 (7.1%)	0 (0%)	27 (27.3%)	30 (30.3%)
Grading goals from simple to more complex.	**65 (65.7%)**	0 (0%)	4 (4%)	0 (0%)	1 (1%)	30 (30.3%)
Grading treatment sensitively according to the patient's response.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Shared goal setting between therapist and patient when prioritising treatment goals.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	1 (1%)	30 (30.3%)
Continually re-evaluating treatment goals with the patient.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Addressing psychosocial components.	**68 (68.7%)**	1 (1%)	0 (0%)	0 (0%)	3 (3%)	30 (30.3%)
Taking an accurate history and assessment of the injured hand as well as the patient and their context.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	1 (1%)	31 (31.3%)
Understanding the patient's narrative.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Understanding the impact of the injured hand on the patient's function within their context.	**69 (69.7%)**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Availability of support to deal with the demands of a rehabilitation program.	**63 (63.6%)**	0 (0%)	3 (3%)	0 (0%)	7 (7.1%)	30 (30.3%)
Conflicting belief systems of the patient and the therapist.	6 (6.1%)	2 (2%)	10 (10.1%)	5 (5.1%)	46 (46.5%)	31 (31.3%)
Educating the patient's family.	**67 (67.7%)**	0 (0%)	2 (2%)	0 (0%)	2 (2%)	30 (30.3%)

Nine (9.1%) participants provided reasons/comments for their selected answers. One participant (1%) re-affirmed the importance of “facilitating ownership and independence” (participant 6) of the patient to ensure compliance. Another participant (n=1; 1%) reported that in their setting (public sector) organising analgesia is not a “realistic expectation” (participant 7) while another (n=1; 1%) reported that they experience challenges with alternative medicine. One participant (1%) elaborated that it is better to see patients more often over a shorter period while another participant (n=1; 1%) highlighted the importance of convenient care being cost-effective. Three participants (3%) referred to the importance of a therapist’s clinical reasoning. One participant (1%) reported to feel that the factors do not make sense.

Three (3%) participants responded to the opportunity to identify additional therapy-related factors. One participant (1%) reported that many of the factors are patient dependent while two participants (2%) added the following factors:

- Time management (n=1; 1%).
- Using equipment during therapy (n=1; 1%).

4.5.5 Patient-related factors

Figure 4.11 illustrates the participants’ views on patient-related factors. Sixty-three participants (63.6%) reported that a ‘lack of knowledge about rehabilitation services and rehabilitation itself’ was a ‘barrier’ to patient compliance. The same number (n=63; 63.6%) of participants reported that ‘knowing what information, and how much information, will be beneficial to the patient’ was a ‘support’ to patient compliance. Nearly half of the participants (n=44; 44.4%) reported that the ‘patient’s gender’ was ‘neither a support nor a barrier’.

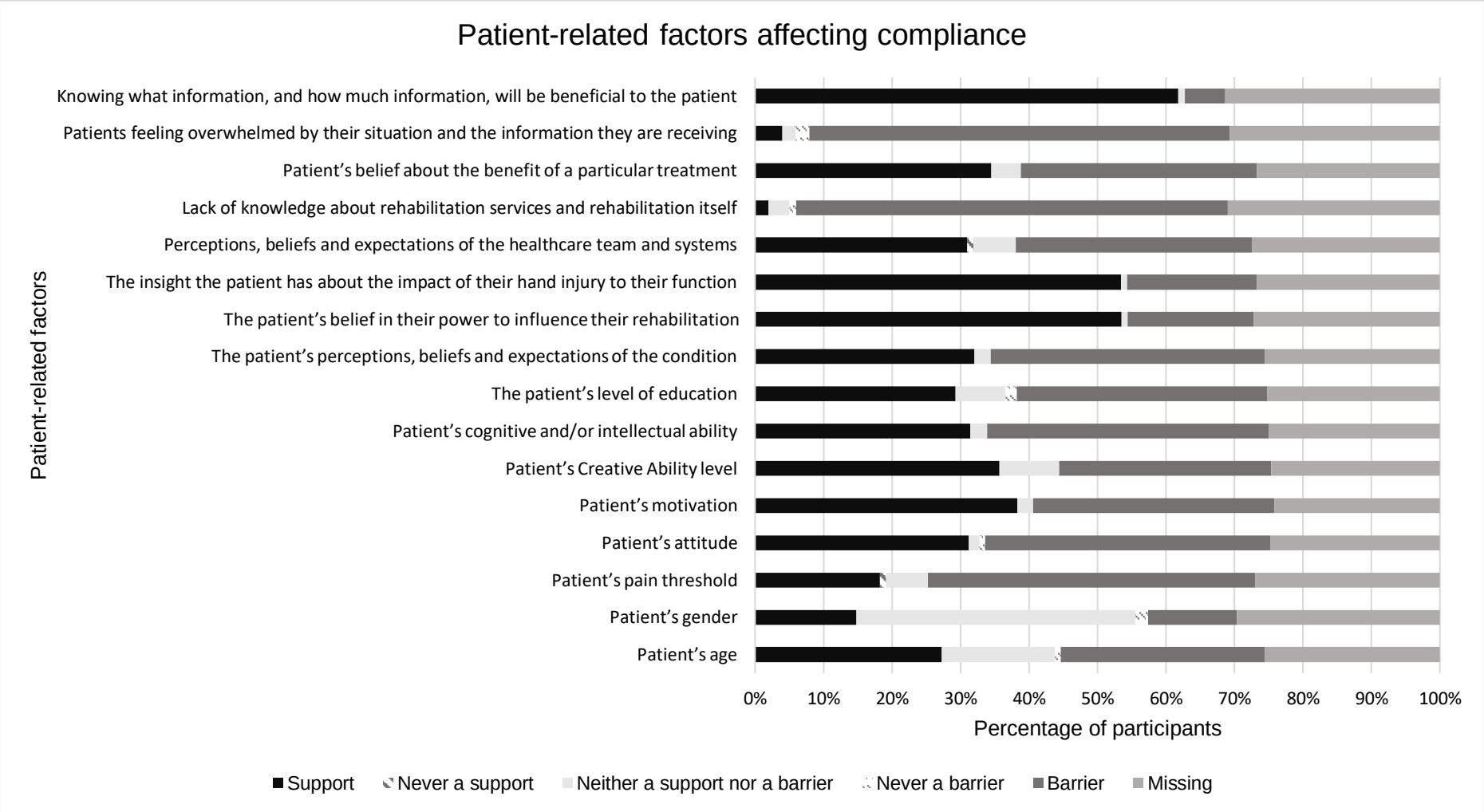


Figure 4.11 Patient-related factors perceived to act as supports and/or barriers to compliance (n=99)

Eight (8.1%) participants provided reasons/comments for their selected answers. Three (3%) participants reported that whether a factor is a support, or a barrier is dependent on how the factor is worded. Two participants (2%) commented on the effect age has on compliance, one participant (1%) commented on the importance of understanding the level at which to provide information to patients, while another participant (n=1; 1%) commented on patients' perception of what therapy entails – only engaging during the session and not at home. Lastly, one participant (1%) highlighted the importance of teamwork.

One participant (1%) provided an additional factor that they felt affected compliance: assisting the patient to improve their time management and how they execute their treatment effectively.

4.5.6 Summary

Participants identified supports and barriers across all five categories. More socio-economic barriers than supports were identified by majority of the participants (more than 50%), while healthcare team/system-related supports were identified more frequently than the barriers. Most therapy-related factors were identified to be supports while most condition-related factors were identified as barriers. Participants frequently identified patient-related factors to be barriers.

4.6 Strategies used to support patients' compliance

This section (4.6) addresses objective four: to describe the strategies used by South African occupational therapists to facilitate the compliance of hand-injured patients.

4.6.1 Strategies used by occupational therapists to facilitate compliance

More than half (n=67; 67.7%) of the participants provided their list of the top three strategies they, as the occupational therapist, use to facilitate compliance (missing responses: n=32; 32.3%).

Most participants submitted the requested three strategies (n=46; 46.5%) while others submitted one (n=4; 4%), two (n=13; 13.1%), four (n=3; 3%) or five (n=1; 1%) strategies. All strategies (138) were coded – see Table 4.15. Some responses (n=20; 20.2%) were cut-off due to the character limit set by REDCap. Only strategies that could not be deciphered were omitted (n= 2 strategies) from analysis.

Most of the participants (n=33; 33.3%) reported to educate their patients on their condition and therapy. Second to this strategy, 17 participants (17.2%) reported to use 'teamwork' in the form of shared goal setting (n=11; 11.1%), shared responsibility (n=3; 3%) and ensuring a collaborative process (n=3; 3%). Thirdly, ten participants (10.1%) reported to assess patients holistically to improve their patient's compliance.

Table 4.15 Frequency of strategies (n=182) used by occupational therapists

Categories	Codes	Frequency of strategy N
Strategies used during therapy.	Educating patients on their condition and therapy (n=33).	83
	Shared decision making, goal setting, and responsibility (n=17).	
	Inform about the consequences of non-compliance (n=8).	
	Asking patients to repeat exercises (n=6).	
	Client-centred (n=4).	
	Showing patients evidence of improvement (n=4).	
	Presence of family in the therapy process (n=4).	
	Occupation-based (n=2).	
	"Pain management" (n=1).	
	Encourage interaction among hand-injured patients (n=1).	
	"Practise Strategy" (n=1).	
	"Write everything down" (n=1).	
	"Ask for compliance" (n=1).	
Type of communication used	Repetition of instructions and/or home program (n=7).	31
	Concrete, simple, and understandable instructions (n=6).	
	Use of visuals (n=6).	
	Open, honest, and transparent communication (n=5).	
	Communicate in the patient's home language (n=3).	
	Demonstration of instructions (n=2).	
	Basic language (n=2).	
Addressing psychosocial components	Assessing patients holistically (n=10).	31
	Addressing patient's fears and concerns (n=5).	
	Listen to the patient (n=4).	
	Build rapport and a good therapeutic relationship (n=4).	
	Provide emotional support (n=3).	
	Motivation (n=2).	
	Spending time with the patient (n=2).	
	"Behavioural approaches" (n=1).	
Home programs	Simple, short, and concrete home programs (n=14).	25
	Home program with written instructions and/or illustrations (n=5).	
	Incorporate the home program into functional activities (n=4).	
	Home exercise program and home program (n=2).	
The treatment experience	Regular follow ups/appointments (n=2).	12
	Decrease frequency of sessions (n=2).	
	Communicate with the patient's employer (n=2).	
	Making treatment physically accessible (n=2).	
	Temporary disability grants (n=2).	
	All healthcare professionals are on the same page (n=1).	

	Affordable treatment (n=1).	

One participant (1%) provided three strategies that did not fall within any of the above codes and categories. The participant reported the following:

"*Fun and excitement, growth and prosperity, engagement." Participant 42.*

4.6.2 Strategies used by healthcare teams to facilitate compliance

More than half (n=63; 63.6%) of the participants provided their list of the top three strategies that are used by their departments/clinics/hospitals/practices to facilitate compliance (missing responses: n=36; 36.4%).

Most participants submitted the requested three strategies (n=37; 37.4%) while others submitted one (n=14; 14.1%), two (n=11; 11.1%) or four (n=1; 1%) strategies. As above (section 4.6.1) all strategies submitted were included, only those (from the cut-off responses (n=11; 11.1%)) that could not be deciphered were omitted (n= 1 strategy). Thus 144 strategies were coded – see Table 4.16.

Eight participants (8.1%) reported that the same strategies implemented by the occupational therapist are used by their departments/clinics/hospitals/practices, two participants (2%) reported not knowing what strategies are put in place as it is decided by management, while two other participants (2%) similarly reported that the strategies are left up to the treating therapist to decide**.**

Table 4.16 Frequency of strategies (n=135) used by healthcare teams

Categories	Codes	Frequency of strategy N
Strategies used during therapy.	Educating patients on their condition and therapy (n=14).	50
	Home program-related factors (n=8).	
	Presence of family at therapy and family education (n=6).	
	Shared decision making, goal setting, and responsibility (n=5).	
	Positive attributes displayed by therapists (n=3).	
	Asking patients to repeat exercises (n=2).	
	Warning about the consequences of non-compliance (n=2).	
	Client-centred (n=2).	
	"Structured intervention programs" (n=2).	
	Good therapeutic relationship (n=1).	
	"Behavioural approaches" (n=1).	
	Occupation based treatment (n=1).	
	Group sessions with in-patients (n=1).	
	"Concrete and measurable" goals given to the patient (n=1).	

	“Verbal therapy contracts” (n=1).	
The treatment experience	All follow-up appointments on the same date (n=13).	44
	Appointment reminders (n=7).	
	Decrease waiting time (n=6).	
	Weekly or regular treatment sessions (n=3).	
	Making treatment physically accessible (n=2).	
	Affordable treatment (n=2).	
	Open door/walk-in policy (n=2).	
	Appointment cards (n=2).	
	Advocating for analgesia (n=1).	
	Adapt frequency of sessions (n=1).	
	Ask the patient for their availability (n=1).	
	Accommodate for late arrivals (n=1).	
	"Offer a good service and keep doing so" (n=1).	
	"Offering hot drinks when clients (arrive)" (n=1).	
	Charging for missed appointments (n=1).	
Type of communication used	Use of visuals and written instructions (n=11).	22
	Using the patient's home language or a translator (n=6).	
	Honest and transparent communication (n=2).	
	Making use of basic language (n=1).	
	Repetition of instructions and home programs (n=1).	
	Demonstration of instructions (n=1).	
Multi-disciplinary team collaboration	Communicating with the multi-disciplinary team (n=8).	14
	Multi-disciplinary team referrals (n=4).	
	"Same communication from the multi-disciplinary team" (n=1).	
	Continuity between therapists (n=1).	
Addressing psychosocial components	Understanding the patient's context (n=3).	5
	Addressing the patient's fears (n=1).	
	Motivation (n=1).	

Contrary to the above, one participant (1%) reported that:

> *“I am the only person who sees the rehab of hands patients but most of the doctors refer out or are not concerned about the loss of function.” Participant 7.*

4.6.3 Summary

Participants identified many strategies that they (138) and their healthcare teams (144) use to facilitate compliance. Most frequently, strategies used during therapy by occupational therapists (n=83) as well as their healthcare teams (n=50) were reported.

4.7. Summary

One hundred and seventy-four (174) occupational therapists responded to the questionnaire, 99 (56,9%) of which were included in the analysis. This was representative of a response rate of 52.7% according to the sample size calculation.

Forty-eight (48.5%) and 46 (46.5%) participants reported to have worked in the private and public sectors respectively. Most of the participants (n=82; 82,8%) worked in urban (n=73; 73.7%) or peri-urban areas (n=9; 9.1%) with only 14 therapists (14,1%) having worked rurally.

Majority of the participants (n=78; 78.8%) perceived that compliance had a 'substantial impact' on the treatment outcomes of patients with hand injuries and 95 participants (96%) deemed it 'very important' to understand their patients' compliance. Ninety-four participants (94.9%) and 97 participants (98%) provided what they deemed as typical characteristics of non-compliance and compliance respectively.

It is evident that participants define compliance according to patient appointment attendance and executing home programs as on two occasions this was the response most frequently reported. More than half of the participants (n=61; 61.1%) reported that compliance was the most appropriate term in hand therapy and often provided comments suggesting that the onus of compliance rests with the patient – specifically, 24 (24.2%) participants reported that compliance is the patient's responsibility. Contrary to this though, 44 participants (44.4%) reported that compliance is the responsibility of both therapist and patient.

Socio-economic-related 'barriers' identified by a majority (more than 50%) of participants included:

- the cost of travel (n=76; 76.8%),
- travel time, distance, and difficulties accessing care (n=75; 75.8%),
- the loss of wage/employment during rehabilitation (n=74; 74.7%),
- the patient's financial status (n=66; 66.7%),
- weather conditions (n=65; 65.7%),
- the pursuit of a permanent disability grant (n=63; 63.6%),
- violence in the community (n=60; 60.6%),
- physical transport access (n=59; 59.6%),
- patient's working conditions (n=57; 57.6%) and
- financial accessibility of resources (n=55; 55.6%).

Socio-economic-related 'supports' identified by a majority (more than 50%) of participants included peer (n=71; 71.7%), social/family (n=71; 71.7%) and workplace support (n=68; 68.7%).

Healthcare team/system-related 'barriers' identified most frequently included: language barriers (n=70; 70.7%) and delayed surgeries (n=66; 66.7%). Various factors related to the MDT were highlighted by more than 60% of participants as 'barriers'. Additional 'barriers' identified were:

- patients' previous healthcare experience (n=59; 59.6%),
- the dominance of the medical model (n=59; 59.6%),
- staff turnover (n=58; 58.6%),
- a westernised approach (n=56; 56.6%),
- therapists' workload, and the absence of therapists at primary facilities (n=54; 54.5%),
- hospital waiting times (n=52; 52.5%) and
- the availability of hospital transport for patients (n=51; 51.5%),

Healthcare team/system-related 'supports' identified by a majority (more than 50%) of participants included cultural sensitivity and therapists' positive expectation of patients' ability to adhere (n=76; 76.8%). Several factors related to effective communication and education were identified as 'supports' by more than 70% of participants. Additional 'supports' included:

- Trust, rapport, and a strong interpersonal relationship (n=71; 71.7%),
- client-centred services (n=71; 71.7%),
- collaboration and shared responsibility between the patient and therapist (n=71; 71.7%),
- therapist's tone of voice (n=53; 53.5%),
- Synchronised appointments (n=74; 74.7%),
- obtaining informed consent (n=69; 69.7%), and
- patients receiving appointment reminders (n=55; 55.6%).

Condition-related 'supports' by most participants were reported as early identification by therapists of co-morbidities that may affect compliance (n=71; 71.7%) and patients being able to see/perceive their own progress (n=66; 66.7%). While the most frequently (n=67; 67.7%) reported condition-related 'barrier' was co-morbidities.

Eight of the therapy-related factors received the most responses (n=69; 69.7%) as being a 'support' while most (n=62; 62.6%) of the participants reported that home programs that interfere with lifestyle were a 'barrier'.

The most frequently (n=63; 63.6%) reported patient-related ‘barrier’ was a lack of knowledge about rehabilitation services and rehabilitation itself while the same number (n=63; 63.6%) of participants reported that knowing what information, and how much information, will be beneficial to the patient was a ‘support’. Nearly half of the participants (n=44; 44.4%) reported that the patient’s gender was ‘neither a support nor a barrier’.

Strategies used during therapy were most frequently reported to be used by occupational therapists (n=83) as well as their healthcare teams (n=50).

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter will discuss the results of the research study in response to the research question: 'How do South African occupational therapists understand and manage hand-injured patients' compliance?' Results will be discussed in the order of the objectives of the research study. Demographic information (5.2) will be discussed, followed by how occupational therapists understand the concept of compliance (5.3). Factors that act as facilitators and barriers (5.4) to the compliance of hand-injured patients will then be discussed, followed by the strategies used by South African occupational therapists to facilitate patient compliance (5.5). Lastly, the strengths and limitations of the study will be identified (5.6).

5.2 Demographic information

South Africa is known for its demographical diversity (Harris et al., 2011; Sidanius, Brubacher & Silinda, 2019), however, the gender and age of participants continue to follow the trend of a young, female-dominated profession in South Africa (Ned et al., 2020; van Stormbroek, 2020). The majority (97%) of the participants were female, in keeping with the gender of majority of the occupational therapy profession worldwide (Birioukova, So & Barker, 2012; Maxim & Rice, 2018) and in South Africa (Ned et al., 2020). The median (28 years) age of participants has indicated a young population of occupational therapists treating hand-injured patients - consistent with the young ages of South African occupational therapists (Ned et al., 2020; van Stormbroek, 2020).

The private sector in South Africa typically comprises of occupational therapists with more than five years of experience treating hand-injured patients (De Klerk, 2014), thus it can be reasoned that the public sector is over-represented by occupational therapists with less than five years of experience treating hand-injured patients. A similar percentage of participants reported to work in the private (48.5%) and public (46.5%) sectors. This was unexpected as a majority of occupational therapists (Ned et al., 2020) and hand therapists (Uys, Buchanan & van Niekerk, 2020) in South Africa work in the private sector. The majority (54.5%) of participants in this study have worked in the field of hand therapy for five years or less, providing a reason for the nearly equal distribution of occupational therapists in the public and private sectors.

The implication of these demographics extend further than understanding the demographics of the participants but raise concern regarding the accessibility of services for patients – a factor largely affecting compliance, as reported by participants and South African literature/literature relevant to the South African context (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2020). If only 16% of the population have medical insurance (Ned et al., 2020), and 84% of the population access public healthcare (Ned et al., 2020), this then means that fewer therapists are treating a greater number of patients (0.9 occupational therapists per 10000 people in 2018 (Ned et al., 2020)). Yet, in this current study, the distribution of occupational therapists is distributed nearly equally between the two sectors and unevenly between the levels of care in the public sector.

A lack of occupational therapy services at a PHC level, particularly for the great burden of hand injuries in South Africa (van Stormbroek & Buchanan, 2018), decreases the accessibility to hand therapy (van Stormbroek, 2020). PHC facilities are geographically located to make them easier to access, both physically and financially (Ned et al., 2020; van Stormbroek, 2020), but there are only 6-20% of PHC facilities that provide rehabilitation services in South Africa (Gray & Vawda, 2015) and only eight participants (8.1%) from this study reported to work at a PHC facility. Although these statistics are in keeping with the lack of occupational therapists at a PHC level (Ned et al., 2020), they raise great concern regarding the accessibility to hand therapy (Harms & Kobusingye, 2003; Mncube & Puckree, 2017).

On a larger scale, these barriers to compliance impact the economy as it increases healthcare system costs due to secondary complications (Trostle, 1988; O'Brien, 2010). Secondary complications prolong the time patients spend away from work - potentially increasing the period of time for a temporary disability grant or the need for a permanent disability grant, or even the risk of job loss (van Stormbroek, 2020).

The distribution of participants across provinces and settings is in keeping with where the majority of South Africa's population resides (Ned et al., 2020) and the two most urban provinces (van Stormbroek & Buchanan, 2018). Most of the participants worked in Gauteng (37.4%), and the Western Cape (22.2%) reflecting the percentage of therapists in these provinces registered with the SASHT (40.8% and 28.6% respectively) (South African Society of Hand Therapists, 2021). A majority of the

participants worked in urban or peri-urban areas, also in keeping with the distribution of occupational therapists (Ned et al., 2020) and hand therapists (Uys, Buchanan & van Niekerk, 2020; South African Society of Hand Therapists, 2021) in South Africa. This suggests that the urban cities attract most of South Africa's hand health professionals (South African Society of Hand Therapists, 2021).

The consideration of these demographic factors is necessary for understanding compliance as they illustrate the complex socio-economic and social factors of the South African context into which therapy is embedded (van Stormbroek & Buchanan, 2019; van Stormbroek, 2020) and the backdrop against which compliance must be understood (van Stormbroek, 2020).

5.3 Perceptions of compliance

5.3.1 Importance and impact of compliance

One of the participants has deemed compliance to be "simply essential" (Participant 60), encapsulating what literature in healthcare reports worldwide. Most (78.8%) of the participants and authors of seminal work (Vermeire & Hearnshaw, 2001; Kirwan, Tooth & Harkin, 2002; Sabaté, 2003; Bissonnette, 2008; Cole, Underhill & Kennedy, 2016; Mncube & Puckree, 2017; van Stormbroek, 2020) have come to the same conclusion that compliance has a 'substantial impact' on the treatment outcomes of patients with hand injuries and therefore, it is 'very important' to understand patients' compliance and the factors that affect it. Vermeire and Hearnshaw (2001) and Bissonnette (2008) highlight that without compliance, the effectiveness of any pharmacological treatment cannot be measured. Similarly, Mncube and Puckree (2017) found that poor outcomes were evident with non-compliant patients and favourable outcomes with compliant patients, and Wentzel (2014) found that the effectiveness of protocols was affected by patient compliance.

South African occupational therapists rely on HPs and HEPs to ensure therapy happens daily, as is required for a full recovery (Mncube & Puckree, 2017). Patients in LMICs, like South Africa, may not be able to access therapy on a more regular basis due to their socio-economic status (Harris et al., 2011; Sherry, 2015; de Klerk et al., 2017; Mncube & Puckree, 2017). Participants most frequently (17.2%) reported that compliance and consequently outcomes depend on HPs as therapy is required more than once a week (12.1%). Furthermore, participants also deemed it 'very important'

to understand their patients' compliance to 'facilitate tailored care' (57.6%) both during therapy and in the form of a HP.

Participants' responses are reflective of what occurs in practice and are proving to align with the literature. This highlights the need to implement the theoretical components, presented by literature, into daily practise in order to receive optimal outcomes (Trostle, 1988; Wentzel, 2014; Cole, Underhill & Kennedy, 2016; Mncube & Puckree, 2017; Cole et al., 2019; van Stormbroek, 2020). Furthermore, this illustrates the importance of making provision for the contextual influence on compliance (Harms & Kobusingye, 2003; Sabaté, 2003; O'Brien, 2012; Mncube & Puckree, 2017; van Stormbroek, 2020).

5.3.2 Predictability of compliance

Predicting compliance is less important than understanding the factors that affect it and proactively addressing these factors to facilitate patient compliance. Authors have noted patient compliance to be unpredictable (Kirwan, Tooth & Harkin, 2002; Wentzel, 2014). Two participants agreed with this literature saying that it is difficult to "box" patients' behaviour into compliant and non-compliant characteristics. Opposing the above, a majority (75.8%) of participants reported that they are 'sometimes' able to predict a patient's compliance. Given the diversity of contexts of the participants, it can be reasoned that the predictability of compliance varies across contexts. However, one participant reported that predicting compliance is "bias" (Participant 41) and every patient should have the same trust from their therapist. This is consistent with what participants (76.8%) in this current study reported to be a support to patient compliance. Similarly, participants in two studies (Palmadottir, 2006; van Stormbroek, 2020) draw attention to the risks posed to the therapeutic relationship if a therapist assumes a patient's compliance. A participant from the local study conducted by van Stormbroek (2020), reported that to develop a good therapeutic relationship with the patient, the therapist needed to give the patient the opportunity to prove their compliance (van Stormbroek, 2020). This facilitates a client-centred approach and supports the patient's compliance in the long run (O'Brien, 2012; van Stormbroek, 2020). This participant affirms that efforts should not be made to predict patient compliance but rather to facilitate it through the client-centred approach.

5.3.3 Characteristics, responsibilities, and definitions of the compliant and non-compliant patient

Many participants appeared to share the belief with traditional literature that the responsibility of patient compliance rests with the patient despite the concerns raised regarding this belief (Meichenbaum & Turk, 1987; Hussey & Gilliland, 1989; Playle & Keeley, 1998). Participants most frequently reported that the patient's 'beliefs, attitudes and values' (n= 58) and their 'passive engagement' (n=33) were the most typical characteristics of non-compliance while a patient's 'positive approach and active engagement' (n=86) and their 'cognitive abilities' (n=44) were the most typical characteristics of compliance. As with traditional literature, these responses suggest that the weight of compliance rests on the patient. More recent literature has proposed that the patient's socio-economic context affects their compliant behaviour (Harms & Kobusingye, 2003; O'Brien, 2012; Wentzel, 2014; van Stormbroek, 2020). Therefore, the *type of patient* is not identified but rather the influence of the *context*, lifting the weight off *just* the patient. Participants did frequently report that 'socio-economic-related factors' were both typical characteristics of non-compliance (n=30) and compliance (n=42) but less frequently than the aforementioned categories. The researcher, therefore, challenges the lens through which participants view their patients as it aligns closely with the lens of traditional literature that has been challenged for the continued 'blame' it places on the patient (Taytard, 1992; Playle & Keeley, 1998), the continual need to identify a type of compliant patient (Trostle, 1988; Playle & Keeley, 1998) and the lack of consideration for external factors to the patient (Groth & Wulf, 1995).

Reflecting the ongoing debate in the literature (Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008; O'Brien, 2010; van Stormbroek, 2020), participants reported contradictory responses regarding whose responsibility patient compliance is. Majority of the participants reported that it is both the responsibility of the patient and the therapist while only 14.1% of the participants reported that the responsibility lies with the patient *only*. These responses contradict what participants implied by the above characteristics of non-compliance. An additional contradiction was participants' frequent (19.2%) opinion that compliance refers to 'the patient following the therapist's recommendations/instructions' and less frequent (6.1%) opinion that compliance refers to 'a partnership between the patient and the therapist'. Only eleven participants

(11.1%) reported that compliance refers to ‘factors controlled by the therapist’ and ‘a combination of a variety of factors’. This suggests that many participants believe that the responsibility and onus of patient compliance does rest with the patient, despite the opposing responses to one question.

Participants’ responses continued to contradict each other with their definitions of compliance displaying similarities with a seminal text (Groth & Wulf, 1995) and contemporary texts (O’Brien, 2012; van Stormbroek, 2020). Groth and Wulf (1995) refer to compliance as “the active engagement in the rehabilitation process” (Groth & Wulf, 1995: 18). Similarly, participants frequently (91.9%) identified with the statement that ‘compliance is about adhering to appointments and actively engaging in all forms of therapy’ and offered the definition that compliance refers to ‘patient appointment attendance and executing home programs’ (22.2%). In addition to these similarities, participants frequently (76.8%) disagreed with the statement implying ‘that the patient is a passive recipient of healthcare’. Contemporary literature has challenged this traditional opinion of compliance (that continues to place the responsibility on the patient) and has proposed that compliance is a partnership, where mutual agreement and shared responsibility are central (O’Brien, 2012; van Stormbroek, 2020). Although participants did not offer definitions of this nature, they frequently agreed with proposed statements with this content – contradicting their former statements and implications thereof. Participants continue to draw attention to what is known to be a complex concept with no decided upon definition (Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001; Bissonnette, 2008; Bailey et al., 2020).

It is possible that this traditional belief and these contradictions between participants' beliefs are because there is limited literature on patient compliance within the South African context (van Stormbroek, 2020). One participant highlighted that within their context, it is difficult to understand their patients’ compliant behaviour due to the high patient load not leaving them time to follow up on why patients have missed their appointments. This truly captures the South African context (van Stormbroek, 2020) and thus, there may not be enough literature to support these thoughts - providing reason for their seemingly contradictory nature. Furthermore, international literature does not account for the fact that English is not everyone’s first language. This language difference makes the implications of this complex term difficult to conceptualise or appreciate and/or express nuances in the meaning of the term.

Lastly, it may also be that participants are unable to identify with international literature, or they may be unfamiliar with the published literature entirely.

The ambiguity demonstrated above highlights and suggests that therapists *need* to engage in discussions about the terms used in everyday practice (van Stormbroek, 2020), despite their 'complex' nature (Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001; Bissonnette, 2008). Through these discussions, therapists need to challenge the meaning and underlying assumptions of these terms within their contexts (van Stormbroek, 2020).

5.3.4 Compliance as the most appropriate term

Determining if South African occupational therapists' perceptions of compliance align with literature has shown both differences and similarities. Literature has made great efforts to use alternative terms to that of compliance (Trostle, 1988; Playle & Keeley, 1998; Kyngäs, Duffy & Kroll, 2000; Bissonnette, 2008; O'Brien, 2012), while participants continue to use the term 'compliance'. Literature has called for 'compliance' to be retired due to the concerning implications of its use (Playle & Keeley, 1998; Bissonnette, 2008; Bailey et al., 2020), especially in the field of hand therapy (O'Brien, 2012). But, nearly two-thirds (62.6%) of participants in this study have deemed 'compliance' to be the most appropriate term. Participants do not appear to share the fear that occupational therapists have outlined in literature; that the term 'compliance' does not align with the core-value of the occupational therapy profession: client-centred practice (O'Brien, 2012; van Stormbroek, 2020) and consequently affects clinical practice (Trostle, 1988; van Stormbroek, 2020). Only a minority (20.2%) of participants agree with the literature that the term compliance takes a paternalistic posture (Trostle, 1988; Holm, 1993; Playle & Keeley, 1998; Bissonnette, 2008) that creates a passive role for the patient but places the responsibility and blame on the patient (Cameron, 1996; Dimatteo et al., 1998; Kyngäs, Duffy & Kroll, 2000; O'Brien, 2012).

The unique South African context can provide insight as to why participants provided the above responses. Within the South African context, both healthcare professionals and patients have been socialized into roles that imply authority and passive participation, respectively (Coovadia et al., 2009). These roles may not be true for all healthcare professionals and patients, but South Africa's authoritarian political culture

during the Apartheid period has undoubtedly affected the healthcare system (Coovadia et al., 2009) and the power relationship between patient and provider. This affects the health professional's attitude (Holm, 1993), actions (van Stormbroek, 2020), and consequently the therapeutic relationship between the patient and their treating occupational therapist (Palmadottir, 2006; van Stormbroek, 2020). Participants may likely report agreeing with the term compliance as they may be unfamiliar with literature, the connotations of the term, and/or unfamiliar with their own bias and assumptions (van Stormbroek, 2020). This response from participants continues to make it evident that in order for the choice of term to be changed occupational therapists *need* "to interrogate the beliefs and assumptions that underpin the terms that (they) use" (van Stormbroek, 2020: 37).

An alternative explanation for participants' choice of term not agreeing with the literature may be linked to language. One participant reported that compliance is a complex word for a person who does not speak English. A part of the South African context that is important to consider is the diversity in culture and language (Ned et al., 2020; van Stormbroek, 2020) of the population. South Africa's population (including hand-injured patients and occupational therapists who treat hand injuries) speak one or more of South Africa's 11 official languages (Posel & Zeller, 2016; Pascoe, Mahura & Dean, 2020). For many (therapists and patients), English is their second or third language and for others, it is neither (Posel & Zeller, 2016; Pascoe, Mahura & Dean, 2020). The researcher has identified that as it stands, English literature is still unable to conceptualise the term compliance, let alone a person whose proficiency in English is less than those who write the literature. This highlights that compliance is not just a term used to describe behaviour but its meaning has implications that, as mentioned above, affect the therapeutic relationship (Palmadottir, 2006) and the autonomy of the patient who assumes a passive role (Cameron, 1996; Dimatteo et al., 1998; Kyngäs, Duffy & Kroll, 2000; O'Brien, 2012).

Participants (16.2%) who selected that 'the choice of term does not matter' provided insightful reasons for their responses that further align with the literature. These participants reported that there needs to be consideration for contextual factors and that compliance is a choice – giving insight into the fact that the term 'compliance' may not capture the factors that affect the "reasoned decision making" (Donovan & Blake, 1992: 508) undertaken by a patient (Donovan & Blake, 1992; van Stormbroek, 2020).

Participants also reported that regardless of the word used, the principles are the same and similarly that the actual term is not what is important, but the concept– an argument put forward strongly by Taytard (1992) and reiterated by van Stormbroek (2020). These are insights that seminal literature (Donovan & Blake, 1992; Taytard, 1992) proposed and despite its recognition today, little change has been made (van Stormbroek, 2020).

5.4 Supports and barriers to the compliance of hand-injured patients

As explained in section 4.5 of Chapter 4 (results) both the supports and barriers are discussed in the same section as some factors may act as both a facilitator and a barrier and thus it was difficult to separate the factors and report them separately. The design of survey questions (questions 22-26) also made separating facilitator and barrier results impossible. The impact that this has on the clarity of results is acknowledged as a limitation (please refer to section 5.6 in chapter 5).

Questions in this section of the questionnaire were grouped according to the categories outlined by the World Health Organisation's (2003) multidimensional adherence model (Sabaté, 2003), namely social and economic, healthcare team/system, condition, therapy, and patient-related factors.

5.4.1 Socio-economic-related factors

Participants and literature both state that socio-economic-related factors affect the accessibility to rehabilitation, either physically or financially (Donovan & Blake, 1992; Harms & Kobusingye, 2003; Harris et al., 2011; O'Brien, 2012; Wentzel, 2014; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2020). The following are noted as barriers to patient compliance by participants and a local study (van Stormbroek, 2020): the cost of transport (76.8%), violence in communities (60.7%), weather conditions (65.7%), the distance, difficulty, and time taken to travel to the hospital/clinic (75.8%) and the physical accessibility of the hospital/clinic (59.6%). These barriers raise the need for therapists to understand their patients in order to provide holistic (van Stormbroek, 2020), 'tailored therapy'. It also further highlights the need for more occupational therapists at a PHC level to make rehabilitation more accessible (Gray & Vawda, 2015; Ned et al., 2020; van Stormbroek, 2020). Participants continued to acknowledge this under healthcare team/system-related

factors where they reported that the absence of therapists at PHC facilities is a barrier to compliance. These are the reasons why socio-economic-related factors have been said to play a vital role in patient compliance within a LMIC (Harms & Kobusingye, 2003; Harris et al., 2011; Wentzel, 2014; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2020).

A patient's financial status (66.7%) and a person's need for financial stability (Donovan & Blake, 1992; Mncube & Puckree, 2017; van Stormbroek, 2020) were also confirmed by participants and the aforementioned literature to be barriers to patient compliance. Additionally, patients' roles, responsibilities (Donovan & Blake, 1992; Harms & Kobusingye, 2003; van Stormbroek, 2020), and stressors, which are said to be "bigger than exercises" (Participant 19), hinder their attendance to therapy and participation in home programs – thus presenting as barriers. The latter specifically illustrates why 'external factors' are addressed less extensively in HICs (Cameron, 1996; Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2012).

Conditions of employment were factors that, to the researcher's knowledge, have not been identified by literature. This is surprising when South Africa has a substantial number of manual labourers (van Stormbroek & Buchanan, 2018; van Stormbroek, 2020) who work on a "no-work, no-pay" (Participant 14) basis. This barrier was raised by a participant who reported that these employment conditions hinder patients' attendance to therapy, presenting as a barrier. This factor is where the patient's "reasoned decision-making" comes to the fore (Donovan & Blake, 1992: 508). The patient must weigh up the decision of losing his/her wage for the day to attend therapy – the patient then needs to choose between his/her livelihood or their health (Donovan & Blake, 1992). From the comment provided by the participant, it is evident that patients are likely to choose the former. This creates another barrier to compliance.

Participants' views strongly aligned with those of participants in the study conducted by van Stormbroek (2020), providing a dense contextual understanding of the external factors that *do* affect patient compliance in a LMIC. Participants have thus provided local evidence for the link between socio-economic-related factors and compliance – a relationship that literature has reported to be unable to make (O'Brien, 2012). It must be noted that although these findings are therapists' perceptions, the frequency at

which participants reported the influence of socio-economic-related factors throughout the study, demonstrates that this is likely to play a greater role in LMIC.

5.4.2 Healthcare team/system-related factors

Healthcare teams provide therapy within the constraints their setting allows (Mncube & Puckree, 2017) as the socio-economic status of South Africa has an impact on its healthcare team and system (van Stormbroek, 2020). As a result of this, factors within the therapist's control were largely identified as supports while the opposite were identified as barriers. Transparent, effective, and understandable communication (74.7%) from the therapist to the patient was consistently reported as a support to patient compliance, echoing local and international literature (Groth & Wulf, 1995; van Stormbroek, 2020). Components regarding therapist competence (48.5%), confidence (47.5%), interest, and authentic care (75.8%) as well as their trust, rapport, and therapeutic relationship with patients (71.7%) were recognised as supports by participants, reflecting both local and international literature (Donovan & Blake, 1992; Groth & Wulf, 1995; Palmadottir, 2006; O'Brien, 2012; van Stormbroek, 2020). Therapists educating patients (74.7%) to facilitate understanding was also noted to be a support - in keeping with two studies (Donovan & Blake, 1992; van Stormbroek, 2020). These studies placed emphasis on this factor and highlighted the role this type of education plays in the patient's health behaviour journey. They draw specific attention to the fact that patients use this understanding when deciding how to act (Donovan & Blake, 1992; van Stormbroek, 2020). Lastly, client-centred services (71.7%) that facilitate the patient's autonomy were noted as a support. This is a concept of great value in the occupational therapy profession (Palmadottir, 2006; O'Brien, 2012) and in the patient's ability to make informed decisions regarding their healthcare (Donovan & Blake, 1992). Local literature supports the importance of using client-centred care when facilitating access to care (Mncube & Puckree, 2017; van Stormbroek, 2020).

South Africa's strained healthcare system (de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2020) presents barriers to patient compliance (van Stormbroek, 2020). These barriers translate to therapists' high workload (54.5 %) (0.9 occupational therapists per 10000 people (Ned et al., 2020)), poor continuity of care/ high staff turnover (58.6%), and increased waiting times at hospitals (52.5%) (van

Stormbroek, 2020). These were identified by participants and the cited authors to be barriers to patient compliance. These are factors, unlike the above, that are seemingly out of the therapist's control (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2020). These barriers continue with the inconsistent communication between the MDT as well as discrepancies in communication to the patient by the MDT. These barriers held great weight in local (van Stormbroek & Buchanan, 2019; van Stormbroek, 2020) and international literature (De Geest & Sabaté, 2003; O'Brien, 2012), illustrating its contextual relevance to both South Africa and occupational therapy at large.

An additional, concerning, barrier associated with the healthcare team/system is the ever-present language barrier between patients and therapists (70.7%) (van Stormbroek, 2020). Unexpectedly, language barriers only came out strongly in this question and not across questions, as it did in the local study by van Stormbroek (2020). This local study drew attention to the mismatch between the predominant languages spoken by therapists and the diversity of languages spoken by hand-injured patients (van Stormbroek, 2020). Again, this exemplifies how South Africa's socio-political history continues to manifest today.

5.4.3 Therapy-related factors

Ensuring therapy-related factors are supports to patient compliance is vital due to the diverse culture and socio-political history of the South African context. This impacts how therapy is given and how it is received (de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2020). A local study illustrates this with a prominent theme: "the life and times of the injured hand" (van Stormbroek, 2020: 34). This raises awareness of the importance of understanding the South African context (the effects of its cultural diversity and socio-political history) and the patient's hand injury within this context (van Stormbroek, 2020). By understanding this context, 'tailored care' can be facilitated. Participants agreed that the above can be achieved through the following supports to patient compliance: taking an accurate history and assessment of the injured hand as well as the patient and their context (69.7%), understanding the patient's narrative (69.7%), and understanding the impact of the injured hand on the patient's function within their context (69.7%) (van Stormbroek, 2020). Despite international studies reflecting different contexts, they too have agreed that the above

are supports to patient compliance (Donovan & Blake, 1992; Holm, 1993; Groth & Wulf, 1995). Furthermore, addressing psychosocial components (68.7%) that may be influenced by this context was also identified as a support and strategy to facilitate patient compliance. This was reported by participants in a local study (van Stormbroek, 2020) and an international seminal text (Donovan & Blake, 1992).

Occupation-based therapy is the foundation of occupational therapy intervention however, despite its effectiveness it also presents challenges (O'Brien, 2012; de Klerk et al., 2017). The use of occupation-based intervention and meaningful activities were reported to be a support to compliance by O'Brien (2012) and participants (68.7%). Although this approach presents challenges in the occupational therapy profession in South Africa (de Klerk et al., 2017), two local studies both concluded that this intervention is believed to facilitate understanding of the impact of the injured-hand on a person (de Klerk et al., 2017; van Stormbroek, 2020). Facilitating this understanding with patients raises the need for occupational therapists to increase their knowledge and use of this approach (van Stormbroek & Buchanan, 2019). In doing so, the challenges it presents within the South African context can be overcome (de Klerk et al., 2017) – especially because it is identified as a support to patient compliance in South Africa.

Pain as a barrier and 'cost' to compliance is consistently reported in literature (Donovan & Blake, 1992; Groth & Wulf, 1995; Kirwan, Tooth & Harkin, 2002; O'Brien, 2012) and by participants. Groth and Wulf (1995) speak of pain as a "cost of rehabilitation" (Groth & Wulf, 1995: 20) implying its hindrance to compliance. Participants agree that any pain caused by participating in the rehabilitation program (59.6%) is a barrier and arranging analgesia before treatment sessions (51.5%) is a support. A need, therefore, arises for occupational therapists to be equipped with evidence-based approaches to manage pain.

5.4.4 Condition-related factors

Although the literature on condition-related factors is limited (O'Brien, 2010), participants acknowledged that condition-related factors affect compliance. Participants reported that the severity of the condition (57.6%), 'the extended duration of rehabilitation due to the severity of the condition' (61.6%), and 'the level of disability related to the hand injury' (57.6%) were barriers to patient compliance. O'Brien (2010)

reports that only two studies have explored the relationship between injury type and severity to adherence - both finding no correlation or relationship between this factor and adherence (O'Brien, 2010). Groth and Wulf (1995) reported this in a different manner. They explained that if a patient's hand function improves through activity engagement and they are then able to re-engage in their ADLs, their compliance improves (Groth & Wulf, 1995). This illustrates that the lower the level of disability (as a result of activity engagement) and any observable improvement will encourage a patient to be compliant and therefore act as a support to compliance. Participants agreed that this factor supported compliance. 'Co-morbidities' (67.7%) were also identified as barriers while 'early identification by the therapist of co-morbidities' (71.7%) was noted as a support. O'Brien (2010) and the World Health Organisation (2003) agree with participants reporting that co-morbidities play a significant part in whether or not a patient adheres to their treatment (O'Brien, 2010).

5.4.5 Patient-related factors

Patient-related factors are spoken of extensively by international authors (Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2012) with less emphasis placed on them in local literature (Mncube & Puckree, 2017; van Stormbroek, 2020). Within the current study, the patent-related factor of 'the lack of knowledge about rehabilitation services and rehabilitation itself, that a patient has' (63.6%) was reported to be a barrier. This was consistent with a point of discussion in a study conducted in Uganda, whose cultural context may possess similarities to that of South Africa. Here, it was reported that patients present with fears and misconceptions about rehabilitation services (Harms & Kobusingye, 2003) that affect their health behaviour. In response to this barrier, participants reported that knowing what information, and how much information, will be beneficial to the patient, (63.6%) is a support. As a result of this, the Ugandan study recommended that this should be explored in further research (Harms & Kobusingye, 2003).

5.5 Strategies used to facilitate patient compliance

Improving the financial and physical accessibility of healthcare is one of the most important strategies identified by literature (Harms & Kobusingye, 2003; van Stormbroek, 2020). Participants agreed with the literature providing the following strategies: making appointments on the same day as other MDT appointments (n=13),

decreasing waiting times (n=6), and organising temporary disability grants (n=2). The former strategy aids in the cost incurred to physically get to therapy and the latter two aid in decreasing time lost from remunerative activities. Mncube and Puckree (2017) speak of these strategies in response to the setting in which therapy is given. In their study, therapists reported that in the public sector, the frequency of sessions needed to be decreased and in a private setting, sessions were more frequent due to patients' abilities to access therapy (Mncube & Puckree, 2017). Participants in the current study reported both decreasing (n=2) and increasing (n=5) the frequency of sessions. This reflects both the private and public sectors as well as the diversity of settings within South Africa. In a Ugandan study, improving the financial and physical accessibility of therapy was also highlighted, and "policy makers" (Harms & Kobusingye, 2003: 76) were called upon to address these barriers (Harms & Kobusingye, 2003). Furthermore, the accessibility of therapy needs to be addressed through improved service delivery at PHC facilities. A strategy mentioned in literature (Harms & Kobusingye, 2003; O'Brien, 2012; van Stormbroek, 2020) but not by participants.

It can be argued that the contextual component of understanding the "life and time of the injured hand" (van Stormbroek, 2020: 34) is just as important as the accessibility of healthcare. Participants agreed with the content presented in a local study (van Stormbroek, 2020). With specific reference to the importance of addressing the psychosocial components of the patient (n=36) and ensuring the type of communication provided to the patient is appropriate (n=53). Assessing the patient holistically (n=10), listening to the patient (n=5), and addressing their concerns and/or fears (n=4) were strategies suggested by both participants and van Stormbroek (2020). These strategies would ensure compliance is facilitated by addressing the person and not the injury in isolation. Communicating in the patient's home language (n=3) or with the presence of a translator (n=6) was suggested by participants but not as extensively as in other South African studies (van Stormbroek & Buchanan, 2019; van Stormbroek, 2020). Understandable and alternative means of communication (n=35) were most frequently reported by participants and van Stormbroek (2020). These are strategies that bore less weight in international literature (O'Brien, 2012).

It is evident that participants in this study, identify the need for strategies to start by addressing the socio-economic and contextual-related barriers before the patient and therapy-related barriers. Participants placed less emphasis on a client-centred and

occupation-based approach. Although strategies of this nature were mentioned, they were less frequent than the strategy that a third of participants identified: educating patients on their condition, prognosis, and therapy. All three strategies are extensively addressed in literature (Palmadottir, 2006; O'Brien, 2012; de Klerk et al., 2017; van Stormbroek, 2020) and are identified as essentials in any occupational therapy intervention.

5.6 Strengths and limitations

To the knowledge of the researcher and research supervisor, this is only the second study in a LMIC to report on occupational therapists' perceptions of patient compliance. While an additional South African study is in progress, exploring; the approaches used by occupational therapists, in a rural South African province, to facilitate adherence to home programs. This study conducted by the researcher is therefore contributing to a growing body of research in this area (van Stormbroek, 2020). Despite the acceptable response rate of 52.7%, this is only just more than half of the sample size required to generalize the findings to the South African hand therapy population.

As per the limitation reported by van Stormbroek (2020), this study only captured the perceptions of occupational therapists and not of patients. Understanding both parties' perceptions is vital in developing a true understanding of patient compliance in South Africa and identifying courses for action (van Stormbroek, 2020). However, the strong response in this study from occupational therapists in the public sector can be considered a strength in a LMIC.

All questions included in the survey questionnaire were thoroughly developed, well-reasoned, and extrapolated from both the reviewed literature (local and international) and the study conducted by van Stormbroek (2020), to ensure contextual relevance. This strengthened the content validity of this instrument (Creswell, 2014). To further ensure content validity, five expert practitioners and researchers (appendix C) who have insight into patient compliance were asked to conduct survey refinement (Creswell, 2014). Although this was executed to ensure content validity, a limitation is that a content validity index (CVI) calculation was not conducted and could have been done to further strengthen the content validity. Both quantitative and qualitative questions were included in the survey questionnaire to ensure the complexity, depth,

context, and understanding of compliance by South African occupational therapists were captured. Although the depth of the information was a strength, this led to a lengthy questionnaire that was a limitation of the study. It was also noted that the number of missing responses significantly increased in the last three questions of the questionnaire.

Despite the above measures being taken to ensure all necessary and appropriate questions were included in the survey questionnaire, the researcher believes that a question regarding the language participants speak needed to be addressed. Language bore great weight in the local study by van Stormbroek (2020) and later in this study too. This question would have provided even more insight into South Africa's cultural diversity and the consequent effect on patient compliance. An additional limitation regarding language was that the online survey questionnaire was only sent out in English. Furthermore, during analysis, the researcher did not consider that English was likely not to be the first language of many of the participants. This constitutes a limitation within her analysis as she only became aware of her assumption, that all participants were proficient in English, after analysis was complete. Additionally, she is now aware that privileging English over the other South African languages, or other home languages, creates a posture of dominance that needs to be curtailed.

When participants added comments to the questions 'factors affecting compliance', they reported that factors were neutrally stated and thus sometimes difficult to answer. They reported that the positively phrased version would be a support and the negatively phrased version would be a barrier. The researcher made effort to elevate this by structuring the questions so that when participants reported, for example, 'always a support', they could respond 'never a barrier' for the same factor. This feature was not used by participants. An additional limitation to the structure of this question was that factors are interlinked and were often difficult to separate into different categories as well as to be reported as barriers and supports separately. This challenge was also present when coding and categorising the characteristics of compliance and non-compliance. Therefore, simplifying how the question was structured and the wording of the factors may have elevated this limitation.

Ching et al. (2020) discuss that acceptable response rates remain a “scientific challenge” (Ching et al., 2020: 1342) and that the credibility of a study should not be based on the response rate but should consider all factors to make a conclusion (Ching et al., 2020). Manfreda et al. (2008) agreed and added that the acceptability of response rates are dependent on the sample size (Manfreda et al., 2008). Therefore in accordance with the aforementioned literature (Manfreda et al., 2008; Ching et al., 2020), due to the calculated sample size of this study and all the strengths and limitations, a response rate of 52.7% can be considered acceptable.

Despite the acceptable response rate, it is not known if the survey questionnaire reached all occupational therapists who regularly treat hand injuries. This may be because not all these occupational therapists had access to the online survey questionnaire via social media, technology, or internet connection (Bethlehem, 2010). Additionally, occupational therapists in rural settings may have had an unreliable internet connection. These challenges were planned to be alleviated as far as possible by, the researcher/her supervisor attending ‘in-person’ courses conducted by the SASHT to distribute hard copies of the survey questionnaire. Unfortunately, data collection occurred (15 April – 26 October 2020) during the national and international COVID-19 pandemic and as a result, all courses were moved to an online platform.

Occupational therapists who routinely treat patients with hand injuries may have received the invitation to participate but chose not to – causing self-selection bias, leaving the researcher out of control of the selection process (Bethlehem, 2010). This may have also caused an under-coverage bias, where components of the population in question were not able to be captured (Bethlehem, 2010), and/or a non-response bias, where participants who responded may differ from those who did not respond (Sedgwick, 2014). This, in turn, may have skewed the results of the study.

Due to the online survey questionnaire being a self-report survey questionnaire, there were situational elements that were not in the control of the researcher (Rauthmann, 2017). For example, the physical setting in which participants completed the questionnaire (situation cues) and/or psychological situation characteristics (the subjective experience of the participant) (Rauthmann, 2017). The researcher believes these elements may have created distortion and/or bias in the results of the study,

especially during the time of the COVID-19 pandemic when environments have been altered to meet the '*new normal'* day-to-day demands (Sharma et al., 2020).

Due to the study being a cross-sectional study and only capturing participants' perceptions at one point in time (Thomas, 2013), there may have been temporal bias (Yuan et al., 2021). This may be especially true as data collection was conducted during the COVID-19 pandemic where many patients' health behaviour may have changed and thus changing therapists' perceptions too. The researcher made effort to alleviate this with the following in the body of the email and social medial post: "The current national and international COVID-19 pandemic has changed patient interaction substantially. *We would thus like to request that you base your response on your practice experience prior to the COVID-19 crisis"*.

An additional strength of the study was that the survey questionnaire was sent out three times via the various communication channels (Millar & Dillman, 2011). The second and third times may have served as reminders to those who did not respond to the questionnaire the first time. Furthermore, participants may have received invitations to participate from more than one channel of communication, thus serving as another reminder to participate (Millar & Dillman, 2011).

5.7 Summary

The demographics of these participants highlight the concern that literature raises regarding the accessibility of rehabilitation services at a PHC level. Due to the decreased accessibility of rehabilitation services, participants, and local literature report to rely on HPs and HEPs to ensure rehabilitation is executed daily. Therefore, participants and local literature have deemed compliance to have a substantial impact on treatment outcomes and that it is very important to understand their patients' compliance, in order to facilitate tailored care that is contextually appropriate to each individual patient and their context.

Participants' views regarding the term compliance, its definitions, and undertones echo the inconclusive discussion in the literature regarding the term compliance. This suggests that therapists need to engage in discussions about the term they use and challenge the underlying assumptions of this term, despite its complex nature. This is especially important in a multilingual country.

Participants resonated with local literature when identifying socio-economic and healthcare team/system-related factors. Local literature highlighted that healthcare teams provide therapy within the constraints their setting allows as the socio-economic status of South Africa has an impact on its healthcare team and system. As a result, factors within the therapist's control (including therapy-related factors) were largely identified as supports by participants while the opposite were identified as barriers. Patient and condition-related factors were identified but resonated with international literature. This concludes the importance of understanding one's context when making effort to understand their health behaviour.

The above was considered and explained within the parameters of this study's strengths and limitations to allow the reader the opportunity to understand the findings in accordance with the published literature.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter will summarise the significant findings of this study and will be presented in accordance with the aim and objectives of the study (6.2). The implications of the results of this study as well as the recommendations for education, clinical practice, and further research will also be discussed (6.3).

6.2 Answering the research aim and objectives

This study aimed to describe how South African occupational therapists understand the compliance of hand-injured patients and their perceptions of the factors affecting, and strategies, used to facilitate patient compliance.

Participants identified compliance to have a 'substantial impact' (78.8%) on treatment outcomes and have deemed it 'very important' (96%) to understand their patients' compliance. Participants affirmed that predicting compliance affects the therapeutic relationship between the patient and therapist and that the emphasis should not be placed on predicting patient compliance but rather on facilitating it through the client-centred approach.

Participants reported contradictory responses regarding whose responsibility patient compliance is and the definition of compliance. When overtly asked whose responsibility compliance is, participants reported that it is both the responsibility of the patient and the therapist (54.5%). However, responses to other questions (including the definition of compliance) implied the belief that the responsibility of patient compliance rests with the patient *only*. Therapists must engage in discussions that challenge the meaning and underlying assumptions of the terms they use in their everyday practice.

Results suggest that participants largely identify with the term 'compliance' (61.6%) but do acknowledge its multifactorial nature. The unique South African context can provide insight into the continued use of the term 'compliance'.

Participants frequently noted that accessibility (financial (76.8%) and physical (75.8%) accessibility) of rehabilitation, the conditions of a patient's employment (74.7%), and the patient's financial status (66.7%), to be barriers to patient compliance. Factors

within the therapist's control were largely identified as supports while the opposite were identified as barriers. These responses have provided local evidence for the association between socio-economic-related factors and compliance.

Participants agreed that having an understanding of the patient's hand injury within their context was a support (69.7%) to patient compliance, as was addressing psychosocial components and using occupation-based intervention (68.7%). Additionally, participants identified that any pain caused by participating in the rehabilitation program (59.6%) is a barrier and arranging analgesia before treatment sessions (51.5%) is a support.

Co-morbidities (67.7%) were most frequently identified as a barrier to patient compliance by participants, while early identification by the therapist of co-morbidities (71.7%) was most frequently identified as a support. The lack of knowledge a patient has about rehabilitation (63.6%), was identified as a barrier to patient compliance by participants.

Participants have reported many context-specific and occupational therapy-specific strategies to facilitate patient compliance. Improving the financial and physical accessibility of healthcare (n=38) was frequently reported. These findings continued to illustrate the depth presented in this study as these strategies were reflective of both the private and public sectors as well as the diversity of settings within South Africa. The type of communication (n=53) used by therapists, addressing the psychosocial components (n=36), and educating patients on their condition and therapy (n=33) were also frequently reported as strategies to facilitate patient compliance. The strategies provided by participants respond to the socio-economic, healthcare team/system, and therapy-related factors specific to the South African context, further illustrating the importance of understanding the context in which patient compliance is spoken of.

This study has focused on the perceptions of occupational therapists but the results of this study have further affirmed the need for patient compliance to be explored from the perspective of both patients and therapists (Kirwan, Tooth & Harkin, 2002; van Stormbroek, 2020).

The above findings and additional components that were presented and discussed in the results and discussion chapters have guided the recommendations from this study, as presented below.

6.3 Recommendations

This section will address the recommendations for education, clinical practice, and further research.

6.3.1 Education

Continuing professional development (CPD):

- To respond to these findings in an effective manner, it is recommended that a collaborative CPD workshop with South African occupational therapists be used to discuss results and collectively formulate realistic avenues for action. Potential avenues for action will be discussed in the clinical practice (6.3.2) section below.
- To stimulate awareness of patient compliance, it is recommended that these findings be made accessible to occupational therapists in all sectors, settings, and levels of care with varying years of experience. This can be done by presenting these findings at CPD journal club presentations at hospitals, clinics, and private practices. The researcher has initiated this process by presenting the preliminary findings of this study at a CPD journal club presentation at her place of work (Appendix M). The researcher strongly recommends this after the active participation, impassioned discussions, and comments on evaluation forms from her colleagues who practice in varying fields of occupational therapy (physical, hands, and psychiatry). Furthermore, during these presentations, therapists can be tasked to reflect and critically evaluate the influence their bias may have on their clinical practice and consequently their patients.
- Patient compliance is important for all members of the MDT to consider (Mncube & Puckree, 2017). Thus, it is recommended that the researcher present the findings of this study at CPD events of the MDT. It is recommended that the researcher starts by contacting the hand surgeons at her place of work to present the findings of this study to their teams.
- Additionally, it is recommended that these findings be presented to an international audience to stimulate awareness regarding patient compliance in a LMIC. The cultural diversity, socio-economic context, and socio-political history of a LMIC differ from that of a HIC. This consequently has different effects on patient compliance and is important to understand as it informs the strategies used to

facilitate compliance. The researcher has initiated this recommendation by being accepted to present the findings of this study at the international “IFSSH, IFSHT & FESSH COMBINED CONGRESS” in June 2022 (Appendix N).

- It is also recommended that the researcher publish the findings of this study in a peer-reviewed journal to further inform a local and international audience of patient compliance in the South African context. By publishing this study, the student research aims to communicate the findings of this study to as many occupational therapists and MDT members as possible.

Undergraduate training:

- There has been a growing need to refine undergraduate training, specifically in the field of hand therapy (van Stormbroek & Buchanan, 2018). These results have aimed to better understand the contextual components that affect a South African patient’s health behaviour and adjust various treatment programs accordingly. Therefore, adjustments to the content taught to undergraduate students can also be made to ensure the hand therapy curriculum is geared towards meeting the needs of South African hand-injured patients. This can be achieved by distributing the resources, described below in section 6.3.2, to the undergraduate educators. Additionally, a workshop can be organised with these educators to facilitate discussions regarding the appropriate integration of the findings into the curriculum.

6.3.2 Clinical practice

- To make the findings of this study easily accessible to occupational therapists during their daily practice, it is recommended that the researcher collaborates with others who have completed work on patient compliance in South Africa, to create resources for occupational therapists to refer to. These resources can include infographics/posters and/or short videos that can be distributed via social media, workshops/courses, and professional networks including the SASHT and the OTASA. The researcher aims to stimulate reflective and critical evaluations of therapists’ practices and the implementation of contextually relevant strategies to facilitate compliance, by providing these resources.

- The above resources will also be made available to MDT members who treat patients with hand injuries. Patient compliance affects the whole MDT's management and a patient's ability to comply determines courses of treatment for other disciplines too. Thus, the researcher aims to improve the awareness of MDT members regarding patient compliance to hand injuries.
- As with the recommendation made by Harms and Kobusingye (2003), it is recommended that the physical and financial accessibility of occupational therapy services be improved. Occupational therapists themselves and stakeholders need to explore strategies to make this possible. The improved quantity and quality of occupational therapy services at PHC facilities needs to be explored further. It is recommended that the researcher approach OTASA to assist her in using the findings of this study to advocate for increased occupational therapy services at a PHC level.
- It is recommended that the findings of this study be put into a short questionnaire to be given to patients at their first appointment. This questionnaire will serve to inform the therapist of the patient's ability to comply and the constraints their context places on their ability to attend appointments and execute HPs. These short questionnaires can be distributed to various hospitals, clinics, and private practices to use. This will assist therapists in understanding their patients and will further assist in their management of their patients.

6.3.3 Further research

- To the knowledge of the researcher and her supervisor, this is only the second study of this nature to be conducted within the South African context (van Stormbroek, 2020). There is a third study that is currently being concluded at a South African university on approaches used by rural therapists, to facilitate adherence to home programs. To better understand patient compliance, it is recommended that more studies of this nature be conducted to explore and further understand patient compliance within the South African context. It is especially important to gain the perspective of the patient's point of view (van Stormbroek, 2020). It is recommended that both a qualitative and quantitative study be conducted on patients' points of view. Furthermore, the survey questionnaire from

this study can be used to gain the opinions of patients and then compare the opinions of therapists and patients.

- Through the execution of this study, the researcher has found the need to draw correlations and relationships between the demographical information of South African occupational therapists and their understanding of patient compliance. With specific reference to the relationship between understanding compliance and the following demographics: language spoken by therapists and the years of experience of the therapist. For example, therapists with varying first languages or years of experience can be interviewed for a qualitative study about their understanding of compliance. Comparisons can be drawn from each therapists' responses with similarities and differences identified. These findings have the potential to further inform the reasons for the findings of this study.
- The occupational therapy profession in South Africa will also benefit from continued research on patient compliance in other fields of practice too. This will aid in ensuring treatment programs in these fields of practice will also be contextually responsive to the patients' needs. It is recommended that the survey questionnaire developed for this study be adapted (using literature) to the various fields and conclusions drawn accordingly.
- It is recommended that the researcher collaborates with the researcher currently concluding the study at a South African university, on the approaches used by rural therapists to facilitate adherence to home programs, to investigate the effectiveness of the strategies reported in both studies. The effectiveness of these strategies needs to be determined to ensure treatment programs are made 'tailor-made' to patients' contexts.
- A growing component of medicine and occupational therapy specifically, is shared decision making (Delany & Galvin, 2014; Tam-Seto & Versnel, 2015; Okoli et al., 2021). Exploring patient compliance from this perspective will contribute insightful thoughts and further contextually responsive evidence. For example, a study can be done on the effectiveness of shared decision-making as a strategy for patient compliance.
- Lastly, the national and international COVID-19 pandemic has greatly influenced how all healthcare is given and is received (Roy et al., 2021). It will be valuable to conduct a study on the effects of the COVID-19 pandemic on compliance and the

strategies to facilitate patient compliance within these circumstances. Therapists can be asked in both a qualitative and quantitative manner what their patient compliance ‘looked like’ prior to the COVID-19 pandemic and during and what strategies they used to lessen the effects of the COVID-19 pandemic on their patients’ compliance.

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APPENDIX A: SURVEY QUESTIONNAIRE

Understanding the compliance of patients with hand injuries in South Africa: the occupational therapist's point of view.

Section A: Demographic information

1. How often do you treat patients with hand injuries and conditions:
    - Daily
    - Weekly
    - Monthly
    - Every 2nd month or less
    - Never
2. What is your gender?
    - Female
    - Male
    - Other
3. How old are you?
    - _____
4. How many years have you been treating patients with hand injuries and conditions?
    - _____
5. What year did you complete your undergraduate occupational therapy degree?
    - _____
6. From which university did you graduate with your undergraduate degree?
    - University of Cape Town
    - University of the Free State
    - University of KwaZulu Natal
    - Sefako Makgatho University
    - University of Pretoria
    - Stellenbosch University
    - University of the Western Cape
    - University of the Witwatersrand
    - Other (specify): _____
7. Have you completed any post graduate qualifications (diploma or higher)? If yes, please provide the name of the qualification(s).
    - Yes: _____
    - No
8. In which sector(s) do you currently work?
    - Private
    - Public
    - Higher education
    - Other (specify): _____

9. In which setting(s) do you currently work?
    - Urban (town or city)
    - Peri-urban (surrounding an urban area)
    - Rural (fair distance from town/city, sparsely populated)
    - Deep rural (substantial distance from town/city, isolated and very sparsely populated)
10. At which level(s) of care do you currently work?
    - Primary
    - District hospital services
    - Regional
    - Tertiary
    - Central
    - Specialised
    - Not applicable as I work in private practise.
    - Other (specify):_____
11. In which province(s) do you currently work?
    - Eastern Cape
    - Free State
    - Gauteng
    - KwaZulu Natal
    - Limpopo
    - Mpumalanga
    - Northern Cape
    - North West
    - Western Cape
12. How frequently do you treat Workman's Compensation Fund clients and/or Road Accident Fund clients?
    - Frequently
    - Occasionally
    - Never

Section B: Understanding compliance in hand rehabilitation:

13. To what extent do you think compliance impacts on the treatment outcomes of your hand-injured patients?
    - No impact
    - Mild impact
    - Moderate impact
    - Substantial impact
    - Reason: _____
      _____
      _____
      _____
      _____

14. How important is it for therapists to understand patients' compliance and the factors that affect it?
    - Not very important
    - Fairly important
    - Very important
    - Reason: _____
      _____
      _____
      _____
      _____
15. Do you feel you are able to predict, at initial visits, whether your hand-injured patient will be compliant?
    - Yes
    - Sometimes
    - No
    - Reason: _____
      _____
      _____
      _____
      _____
16. From your experience, list the 3 MOST typical characteristics of a non-compliant patient.
    - 1. _____
    - 2. _____
    - 3. _____
17. From your experience, list the 3 MOST typical characteristics of a compliant patient.
    - 1. _____
    - 2. _____
    - 3. _____
18. Please complete the following definition: "Compliance in hand rehabilitation refers to..."
    _____
    _____
    _____
19. Please complete the following sentence: "Patient compliance is the responsibility of..."
    _____
    _____
20. Do you think the term 'compliance' is the most appropriate term to use in hand rehabilitation?
    - Yes
    - No
    - The choice of the term does not matter.
    - If no, please provide an alternative term you would propose: _____

21. Which of the following statements do you agree or disagree with?

Statement	Agree	Neither agree nor disagree	Disagree	Reason
Compliance is about adhering to appointments and actively engaging in all forms of therapy.				
Compliance involves the expert health professional giving instructions and recommendations and the patient following these.				
Compliance involves the patient taking ownership and responsibility for the rehabilitation of their hand.				
Compliance is a shared responsibility between the patient and therapist.				
Compliance is facilitated by the therapist and owned by the patient.				
Compliance involves mutual agreement between patient and therapist.				
Compliance is a collaborative process in which the patient and therapist co-author the rehabilitation process.				
Compliance is an ideology that reinforces the authority of health professionals over patients.				
The term compliance implies that the patient is a passive recipient of health care.				
Compliance relies on the patient's motivation to engage in health promoting behaviour.				

Section C: Factors affecting compliance:

Socio-economic related factors

22. To what extent do the following SOCIO-ECONOMIC factors act as a support and/or barrier to compliance?

Factors	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier
The patient's financial status.									
Loss of wage or employment during the rehabilitation programme.									
Permanent disability grant.									
Patient pursuit of a permanent disability grant for financial security.									
Temporary disability grant (for the period of rehabilitation).									
Cost of transport to and from the hospital/ clinic.									
Financial accessibility of appropriate resources (e.g. assistive devices and splints).									
Culture (e.g. cultural roles and responsibilities) and religion.									
Social support (friends, family and any other).									
Peer (fellow patient) support.									

Work place support (support of employers and colleagues as well as structures in the work place).									
The patient's working conditions.									
Physical access of transport.									
Distance, difficulty and time taken to travel to the hospital/clinic and the physical accessibility of the hospital/clinic.									
Weather conditions.									
Violence in the community.									
Other (please add any additional socio-economic related factors not mentioned above):									

Please provide a reason(s) for any of your answers above: _____

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Healthcare team and system related factors

23. To what extent do the following HEALTHCARE SYSTEM AND TEAM related factors act as a support and/or barrier to compliance?

Factors	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier
Appointment reminders (via SMS or E-mail).									
Seeing the doctor and therapist on the same day at similar times.									
Waiting times at the hospital (for appointments and for folders/ files and admin to be done).									
Referral system.									
Delayed surgeries.									
Availability of hospital transport for patients.									
Hospital/ clinic resources (e.g. space, assistive devices and splinting tools and materials).									
Therapists' workload.									
Absence of therapists at primary level facilities.									
Clinic outreach by hospital therapists to compensate for the absence of therapists at the clinics.									
Staff turnover/ poor continuity of care.									
Patients' previous experience with healthcare professionals.									
Therapist's confidence.									

Therapist's competence.									
Communication and co-ordination of responsibilities between the multidisciplinary team.									
Every member of the multidisciplinary team tells the patient the same thing.									
Inconsistent communication between the multidisciplinary team.									
Lack of clarity around the roles of each multidisciplinary team member.									
Patients assigning excessive weight to the doctor's opinion at the expense of input of other team members.									
Dominance of the medical model in the South African Health System.									
Dominance of a westernised approach that is not contextually relevant.									
Trust, rapport and good professional relationship between the therapist and the patient.									
Therapists demonstrating interest and authentic care.									
Therapists demonstrating cultural sensitivity and humility.									
Therapists demonstrating a positive expectation of the patient's ability to be compliant.									

Therapist displays confidence in the patient's ability to take responsibility.									
Assumptions made by the therapist about the patient's insight into their injuries, condition and rehabilitation.									
The tone of voice used by the therapist.									
Obtaining informed consent for therapy.									
Client centred services – facilitating the patient's autonomy.									
Collaboration and shared power between the patient and the therapist.									
Clear and understandable communication between therapist and patient.									
Language barrier.									
Communicating in the patient's first language.									
The use of translators.									
Using vocabulary, language and terms that are understandable and accessible to the patient.									
Using drawings and illustrations to explain concepts to patients.									
Therapists testing the patient's understanding by allowing them to explain their understanding and demonstrate the programme that they are to perform.									

Communicating to enable an understanding of both the patient and therapist's responsibilities.									
Communicating the consequences of non-compliance.									
Communicating the consequences of non-compliance using fear.									
Transparent communication by the therapist.									
Frequent repetition of information.									
Educating the patient on their injury/ condition and expected recovery.									
Educating the patient on their treatment and rehabilitation programme.									
Others (please add any additional health care team and system related factors not mentioned above):									

Please provide a reason(s) for any of your answers above: _____

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Condition-related factors

24. To what extent do the following CONDITION-related factors act as a support and/or barrier to compliance?

Factors	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier
The type of injury/ condition.									
Severity of symptoms, condition and prognosis.									
Level of disability related to the hand-injury.									
Extended duration of rehabilitation due to injury severity.									
Patient's rate of progress.									
Patients being able to see/ perceive their own progress.									
Co-morbidities (physical and/or mental health).									
Early identification by therapist of co-morbidities that may affect compliance e.g. depression, anxiety, PTSD.									
Other (please add any additional condition-related factors not mentioned above):									

Please provide a reason(s) for any of your answers above: _____

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Therapy-related factors

25. To what extent do the following THERAPY-related factors act as a support and/or barrier to compliance?

Factors	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier
Simple, short home programmes.									
Home programmes that interfere with lifestyle.									
Prescription of numerous activities and exercises with the assumption that patients will remember at least some.									
Providing the patient with a programme that is concrete and has visuals to aid memory (e.g. illustrations on a paper-hand out, a video recorded on the patient's phone of how activities and exercises should be performed).									

Comfort, wearing regimes and aesthetics of prescribed assistive devices and splints.									
Adapting protocols to suit individual patients through the use of sound clinical reasoning.									
Strict adherence to protocols.									
Use of occupation-based intervention and meaningful activities.									
Pain caused by participating in the rehabilitation programme.									
Organising analgesia before treatment sessions.									
Length of time of therapy sessions.									
Frequency of therapy sessions (e.g. weekly, twice weekly, monthly etc.).									
Grading goals from simple to more complex.									
Grading treatment sensitively according to the patient's response.									
Shared goal setting between the therapist and the patient when prioritising their treatment goals (exploring goals that are meaningful and achievable).									
Continually re-evaluating treatment goals with the patient.									
Addressing psychosocial components.									
Taking an accurate history and assessment of the injured hand as well as the patient and their									

context.									
Understanding the patient's narrative (their concerns, goals, expectations, beliefs, roles and what motivates them).									
Understanding the impact of the injured hand on the patient's function within their context.									
Availability of support (from the therapist) to deal with the demands of a rehabilitation programme.									
Conflicting belief systems of the patient and the therapist.									
Educating the patient's family.									
Other (please add any additional therapy-related factors not mentioned above):									

Please provide a reason(s) for any of your answers above: _____

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Patient-related factors

26. To what extent do the following PATIENT-related factors act as a support and/or barrier to compliance?

Factors	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier
Patient's age.									
Patient's gender.									
Patient's pain threshold.									
Patient's attitude.									
Patient's motivation.									
Patient's Creative Ability level.									
Patient's cognitive and/ or intellectual ability.									
The patient's level of education.									
The patient's perceptions, beliefs and expectations of the condition (e.g. the cause of the injury/ condition, expected recovery etc).									
The patient's belief in their power to influence their rehabilitation (patient agency).									
The insight the patient has about the impact of their hand injury to their function.									
Perceptions, beliefs and expectations of the healthcare team and systems (e.g. that the healthcare professional has the ability to heal the patient completely of their injury).									

Lack of knowledge about rehabilitation services and rehabilitation itself.									
Patient's belief about the benefit of a particular treatment.									
Patients feeling overwhelmed by their situation and the information they are receiving.									
Knowing what information, and how much information, will be beneficial to the patient.									
Other (please add any additional patient-related factors not mentioned above):									

Please provide a reason(s) for any of your answers above: _____

_____

_____

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_____

Section D: Strategies used by therapists to support patients' compliance

27. Please list the top three strategies you use (as the healthcare professional) to facilitate compliance.
    - 1._____
    - 2._____
    - 3._____
28. Please list the top three strategies used within your department/clinic/hospital/ practise to facilitate compliance.
    - 1._____
    - 2._____
    - 3._____

APPENDIX B: QUESTIONNAIRE RATIONALE

Question	Type of question	Rationale and literature
Section A: Demographics information		
1. How often do you treat patients with hand injuries and conditions?	Multiple choice	This question was added to ensure those answering the questionnaire met the inclusion criteria.
2. What is your gender?	Multiple choice	Majority of the occupational therapy profession consists of females (Birioukova, So & Barker, 2012; Maxim & Rice, 2018). This information will provide for interesting insight to know if this holds true for the participants of this study.
3. How old are you?	Type age in numbers	Novice occupational therapists in South Africa are often expected to treat patients with hand injuries (van Stormbroek & Buchanan, 2017). Thus, it can be concluded that the population of occupational therapists who treat hand injuries in South Africa are young. The researcher is interested in understanding if this conclusion holds true for the participants of this study.
4. How many years have you been treating patients with hand injuries and conditions?	Type years in numbers	These questions are asked to further understand the participants, their experience and education. A fair number of the research population are community service occupational therapist (CSOT) who have limited clinical experience but have fresher academic and theoretical knowledge (van Stormbroek, 2015; van Stormbroek & Buchanan, 2018). It has also been said that occupational therapists with more than five years of experience treating hand injuries, work in the private sector (de Klerk et al., 2017). This leaves one to believe that occupational therapists with less than five years of experience treating hand injuries work in the public sector. This correlates with the above statement regarding the large number of CSOT who are required to treat patients with hand injuries (van Stormbroek & Buchanan, 2017). These CSOT work in the public sector, leaving the public sector with novice occupational therapists (van Stormbroek & Buchanan, 2017). Again, the interest lies in noting if these statements hold true for the participants of this study. Understanding this demographical information will allow the researcher to better understand the responses provided by participants and to make comparisons to literature. Especially considering that the overriding aim of the study is to understand how occupational therapists within the *South African context* understand compliance.
5. What year did you complete your undergraduate occupational therapy degree?	Type the year	
6. From which university did you graduate with your undergraduate degree?	Multiple choice	
7. Have you completed any post graduate qualifications (diploma or higher)? If yes, please	Multiple choice and specify (comment box).	

provide the name of the qualification(s).		
8. In which sector(s) do you currently work?	Multiple response	These questions are for contextual relevance in order to know where participants are coming from and emphasise the diverse range of contexts in which hand therapy is conducted in South Africa (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2018). Furthermore, this demographical information is needed in order to understand if therapists' understanding of compliance and compliance itself, varies across practice settings (Mncube & Puckree, 2017; van Stormbroek, 2018). This is also of relevance to understand if these contextual demographics influence the factors that affect compliance (Harms & Kobusingye, 2003; Harris et al., 2011; Mncube & Puckree, 2017; van Stormbroek, 2018). In addition a large number of occupational therapists, who treat hand-injured patients, work in Gauteng and the Western Cape (van Stormbroek & Buchanan, 2018), the two most urban provinces (van Stormbroek & Buchanan, 2018), and there are few occupational therapy services offered at a primary health care level (van Stormbroek & Buchanan, 2018). The researcher would like to understand if this holds true for the participants of this study too. Furthermore, the researcher would like to understand if this influences the factors affecting compliance as it did in a study conducted in Uganda, another low to middle income country (LMIC) (Harms & Kobusingye, 2003). Explanations for questions 9 and 10 have been taken from the National Health Insurance White Paper (Department of Health Republic of South Africa, 2017) and used to classify the options for this questions.
9. In which setting(s) do you currently work?	Multiple response	
10. At which level(s) of care do you currently work?	Multiple response	
11. In which province(s) do you currently work?	Multiple response	
12. How frequently do you treat Workman's Compensation Fund clients and/or Road Accident Fund clients?	Multiple choice	South Africa has a high incidence of road traffic accidents and work place injuries that contribute to the high burden of hand injuries in South Africa (van Stormbroek & Buchanan, 2017). From the research supervisor's experience, patients of these funds are often treated by occupational therapists in the private sector. For contextual relevance, the researcher would like to understand if this frequency holds true for the participants of this study.
Section B: Understanding compliance in hand therapy The questions to follow have been developed to better understand how South African occupational therapists, who routinely treat patients with hand injuries, understand the term compliance. This need is raised as most literature has been conducted with regards to medical regimes (Kontz, 1989; Dimatteo et al., 1998) but little within occupational therapy (Kirwan, Tooth & Harkin, 2002) and in South Africa (de Klerk et al., 2017). The		

researcher has noted that the understanding of compliance in medicine clashes with the occupational therapy profession's values, of which a client-centred approach is the core (Palmadottir, 2006; de Klerk et al., 2017).		
13. To what extent do you think compliance impacts on the treatment outcomes of your hand-injured patients?	Multiple choice and explanation (comment box).	Literature deems it important to understand compliance (Trostle, 1988; Playle & Keeley, 1998; O'Brien, 2010), as non-compliance has been viewed as a "barrier to effective healthcare" (Playle & Keeley, 1998: 304). Are South African occupational therapists in agreement with literature? (van Stormbroek, 2018) If they are not, then understanding compliance is not of great importance and won't be of use in improving rehabilitative services as anticipated (O'Brien, 2010). To expand on why literature reports compliance is importance: Trostle, (1988) reports that compliance is important for three reasons, namely, it's clinical relevance, its impact on the economy and its effect and influence on academia (Trostle, 1988). With the participants' explanations to these two questions, the researcher will analyse if this is true for the South African context too. Furthermore, these questions were developed to understand patient compliance rather than to just label patients as non-compliant (Trostle, 1988). Trostle (1988) raises this point when he concluded that calling a patient non-compliant labels that patient instead of attempting to understand their behaviour. To further emphasise Trostle's (1988) findings, Playle and Keeley (1998) raised the point that the primary concern of the healthcare professional has been to identify a non-compliant type of patient, based on what the healthcare professional expects instead of trying to understand the patient's behaviour (Playle & Keeley, 1998). More specifically to the field of occupational therapy, an example of non-compliance to splint wear was used to illustrate the effects of this on increased health system costs (O'Brien, 2010). Thus, the researcher acknowledges the need for and importance of understanding why patients will choose to comply or not to comply.
14. How important is it for therapists to understand patients' compliance and the factors that affect it?	Multiple choice and explanation (comment box).	
15. Do you feel you are able to predict, at initial visits, whether your hand-injured patient will be compliant?	Multiple choice and explanation (comment box).	In a qualitative study completed by the research supervisor (van Stormbroek, 2018), it was highlighted that some participants believed that they were able to predict their patient's compliance and others weren't. Predicting compliance is said to be important in the therapeutic relationship between the patient and occupational therapist (Palmadottir, 2006), where it was reported that in order to develop a good therapeutic relationship with the patient, the therapist needed to allow the patient to prove their compliance (van Stormbroek, 2018). This facilitated the client-centred approach and was a support in the long run to the patient's compliance (van Stormbroek, 2018). In addition, literature also makes mention of the

		unpredictability of compliance and how this makes the outcome of treatment challenging (Kirwan, Tooth & Harkin, 2002).
16. From your experience, list the 3 MOST typical characteristics of a non-compliant patient.	Type own response in a list (open ended – comment box).	These four questions are created to allow participants to put down what they think of non-compliance and compliance before making suggestions of the definitions that already exist. This is done with the intention to limit bias/ swaying of the participants' thoughts and opinions. These responses will also indicate if there is a correlation to the qualitative study by van Stormbroek (2018).
17. From your experience, list the 3 MOST typical characteristics of a compliant patient.		
18. Please complete the following definition: "Compliance in hand rehabilitation refers to..."	Type own response (open ended – comment box).	
19. Please complete the following sentence: "Patient compliance is the responsibility of..."		
20. Do you think the term 'compliance' is the most appropriate term to use in hand rehabilitation?	Multiple choice with additional comment of alternative term if 'no' selected.	Literature has criticised the term compliance and has called for a different term with *softer* implications and assumptions (Meichenbaum & Turk, 1987; Trostle, 1988; Kyngäs, Duffy & Kroll, 2000; O'Brien, 2010, 2012). From the reviewed literature, it is concluded that it is important to understand if this holds true for the participants of this study, especially considering South Africa's complex socio-political history (van Stormbroek, 2018).
21. Which of the following statements do you agree or disagree with?	Likert-scale with multiple choice and explanation option (comment box).	After asking participants for their views on compliance (questions 16-19) the researcher wanted to understand if participants agree with the statements put forward by literature and the qualitative study by van Stormbroek (2018). Statements from van Stormbroek's (2018) study bore the weight of this question as the researcher was most interested to understand if van Stormbroek's (2018) findings were transferable to the participants of this study. Please see the table below for specific reasoning**.

Section C: Factors affecting compliance		
The multidimensional adherence model with its five dimensions, from the World Health Organisation (Sabaté, 2003) as spoken about by O'Brien (2012) was used to guide the structure of this section of the questionnaire. In addition, contextual factors were added under each dimension, in accordance with where they belong. These contextual factors form the basis of this study with regards to understanding the factors within the South African context (Harms & Kobusingye, 2003; Mncube & Puckree, 2017; van Stormbroek, 2018). They also presented as the longest section of van Stormbroek's (2018) results. Other South African based articles (Adams, 2009; Harris et al., 2011; Wentzel, 2014; van Stormbroek, 2015; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek & Buchanan, 2018) and an article from another LMIC (Harms & Kobusingye, 2003) further validated the factors of this section as van Stormbroek's (2018) study was not the only study to report on the importance of contextual factors with in the South African healthcare system. To further illustrate the great importance and influence of the varying practise settings within South Africa and their impact on healthcare management, the study cited above by Mncube and Puckree (2017) concluded that a patient's management was dependent on the demands in their setting – in this study, urban and rural settings were compared (Mncube & Puckree, 2017). The researcher has used her own understanding and reading of the literature to further distribute the factors under each heading. The factors affecting compliance were taken from literature (Playle & Keeley, 1998; Kyngäs, Duffy & Kroll, 2000; Case-Smith, 2003; Harms & Kobusingye, 2003; O'Brien, 2010, 2012; Wentzel, 2014; de Klerk et al., 2017; Mncube & Puckree, 2017) and the study conducted by van Stormbroek (2018). Both factors which were and weren't applicable to the South African context were used to ensure the contextual relevance is captured.		
22. To what extent do the following SOCIO-ECONOMIC factors act as a support and/or barrier to compliance? Other (please add any additional socio-economic related factors not mentioned above): Please provide a reason(s) for any of your answers above:	Likert-scale with multiple response. Type own response for 'other' and 'reason' (open ended – comment box).	The majority of the factors under this heading are taken from van Stormbroek's (2018) study as well as other studies that reflect either the South African socio-economic status or that of a LMIC (Harms & Kobusingye, 2003; Harris et al., 2011; Wentzel, 2014; de Klerk et al., 2017; Mncube & Puckree, 2017). From the afore mentioned literature, it is seen that these factors are specific to the context of a LMIC as these factors were mentioned but not extensively spoken about in the literature conducted on compliance in high income countries (HICs) – an emphasis was rather placed on the patient's internal factors (Cameron, 1996; Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2010, 2012) as a pose to the external factors which were emphasised by the studies cited above (Harms & Kobusingye, 2003; Harris et al., 2011; Wentzel, 2014; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2018).
23. To what extent do the following HEALTHCARE SYSTEM AND TEAM		As above, little literature reported extensively on the factors of the healthcare system except those conducted in South Africa or LMICs (Harms & Kobusingye, 2003; van Stormbroek, 2015; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek & Buchanan, 2018).

related factors act as a support and/or barrier to compliance? Others (please add any additional health care team and system related factors not mentioned above): Please provide a reason(s) for any of your answers above:		The literature from HICs made more reference to the healthcare team factors (Kim, Kaplowitz & Johnston, 2004; Palmadottir, 2006; O'Brien, 2012). Participants in van Stormbroek's (2018) study reported extensively on the healthcare team and their influences on compliance (van Stormbroek, 2018). Thus, with the frequency and consistency of these factors throughout literature, they were selected in order to understand if they hold true to the participants in this study.
24. To what extent do the following CONDITION-related factors act as a support and/or barrier to compliance? Other (please add any additional condition-related factors not mentioned above): Please provide a reason(s) for any of your answers above:		There is not extensive research (Kyngäs, Duffy & Kroll, 2000; Case-Smith, 2003; O'Brien, 2012) on this dimension and it was not reported by participants in van Stormbroek's (2018) study. Thus, due to the lack of research, it is important to understand if it does influence compliance and if it has been missed when literature has tried to understand compliance.
25. To what extent do the following THERAPY-related factors act as a support and/or barrier to compliance? Other (please add any additional therapy-related		These factors were predominantly reported on in literature which spoke specifically to the rehabilitation of specific hand injuries (Wielandt & Strong, 2000; Kirwan, Tooth & Harkin, 2002; O'Brien, 2010, 2012; de Klerk et al., 2017) and not to compliance on a whole. These factors were also raised in van Stormbroek's (2018) study. Despite their scarcity in literature, exploring this dimension in this study will provide insight to a potential gap in literature.

factors not mentioned above): Please provide a reason(s) for any of your answers above:		
26. To what extent do the following PATIENT-related factors act as a support and/or barrier to compliance? Other (please add any additional patient-related factors not mentioned above): Please provide a reason(s) for any of your answers above:		Through the process of reviewing literature and the results of van Stormbroek's (2018) study, the researcher has noted that patient related factors are common across literature (Cameron, 1996; Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2012). From all the afore cited literature, a patient's motivation and attitude was the predominant patient related factor to affect compliance (Cameron, 1996; Kyngäs, Duffy & Kroll, 2000; Wielandt & Strong, 2000; Case-Smith, 2003; O'Brien, 2012; van Stormbroek, 2018). This factor has been included and due to its dominance in literature, it is important to understand if it holds true to the participants of this study. In addition, literature on hand rehabilitation but not specifically compliance, also commented on these patient related factors and their influence on the treatment process. Specific reference is made to a patient's perception, expectations and beliefs of rehabilitation and their lack of understanding as to how it can help them (Harms & Kobusingye, 2003; O'Brien, 2010, 2012; van Stormbroek, 2018). With this having been acknowledged in literature, it is important to understand if participants of this study also acknowledge it to affect compliance.
Section D: Strategies used by therapists to support patient compliance.		
27. Please list the top three strategies you use (as the healthcare professional) to facilitate compliance.	Type own response in a list (open ended - comment box).	While reviewing literature and the results of van Stormbroek's (2018) study, the researcher has understood that in understanding compliance and the factors that affect it, strategies to facilitate compliance need be developed – the justification for this study. Thus, this question has been developed to understand what is being done about compliance now and do these strategies coincide with the understanding of compliance (as answered in the above sections). These strategies will also indicate if compliance is thought to be important because if the strategies employed are poor or lack sustainability, then compliance is not viewed as a great problem – as asked in question 13. This is also a contextually relevant question as adopting strategies came out strongly in van Stormbroek's (2018) study. Therapist, departmental and government factors were great
28. Please list the top three strategies used within your department/clinic/hospital/ practise to facilitate		

compliance.		influencers of accessibility to healthcare (affecting compliance) in both van Stormbroek's (2018) study and other literature (Harms & Kobusingye, 2003; de Klerk et al., 2017; Mncube & Puckree, 2017; van Stormbroek, 2018). The levels of the therapist's, department's and government's strategies used to effect change of how healthcare is provided were also highlighted in a Ugandan study (Harms & Kobusingye, 2003) – this is of relevance with regards to its classification as a LMIC too.

**21. Which of the following statements do you agree or disagree with?

In addition to the rationale for each statement, overall, statements were chosen for their congruence to the responses provided by participants in questions 16 – 19. Thus, this question has been developed to analyse the consistency of the participants' answers.

Statement	**Rationale and literature**
Compliance is about adhering to appointments and actively engaging in all forms of therapy.	This was a common response from 89% of the participants in van Stormbroek's (2018) study. In addition, to further validate the use of this re-worded definition of "adhering to appointments and treatment" (van Stormbroek, 2018, pt. 1 slide 5), the South African study by Mncube and Puckree (2017) concluded that unsuccessful patient outcomes were affected by "non-compliance with home programs" and "poor adherence to therapy sessions" (Mncube & Puckree, 2017: 35). The researcher is thus interested in understanding if the participants of this study agree with this statement.
Compliance involves the expert health professional giving instructions and recommendations and the patient following these.	van Stormbroek (2018) concluded her study by recommending that the transferability of her findings be improved with a larger, more demographically dense population. Thus, the responses from her study on how compliance is understood were included to assess their consistency with participants' responses from this study. This will then indicate if these findings can be transferred to South African occupational therapists (who treat hand-injured patients) at large. The responses provided by participants in van Stormbroek's (2018) study, reflect both the traditional (Trostle, 1988; Holm, 1993; Playle & Keeley, 1998; Vermeire & Hearnshaw, 2001) and contemporary literature (Kyngäs, Duffy & Kroll, 2000; O'Brien, 2012; Cole, Underhill & Kennedy, 2016) and will therefore provide an accurate understanding of how compliance is understood among South African hand therapists.
Compliance involves the patient taking ownership and responsibility for the rehabilitation of their hand.	
Compliance is a shared responsibility between the patient and therapist.	
Compliance is facilitated by the therapist and owned by the patient.	
Compliance involves mutual agreement between	

patient and therapist.	
Compliance is a collaborative process in which the patient and therapist co-author the rehabilitation process.	
Compliance is an ideology that reinforces the authority of health professionals over patients.	
The term compliance implies that the patient is a passive recipient of health care.	This statement highlights the lack of mutuality between the patient and the healthcare professional (Hussey & Gilliland, 1989) and it is important to understand if this holds true in the South African context as well as the context of occupational therapy as it too will guide treatment (Palmadottir, 2006; de Klerk et al., 2017). This statement is especially important considering that this definition is the reason for the term compliance to be challenged (Trostle, 1988; Holm, 1993; Dimatteo et al., 1998; Playle & Keeley, 1998; Kyngäs, Duffy & Kroll, 2000; Vermeire & Hearnshaw, 2001). Furthermore, South Africa has a complex socio-political history that has influenced its healthcare system (van Stormbroek, 2018). The researcher is interested in understanding if healthcare professionals' perceptions are still influenced today by this.
Compliance relies on the patient's motivation to engage in health-promoting behaviour.	This statement was adapted from the following definition: "Compliance is conceptualised as a cognitive motivational process of personal attitudes and intentions, a set of (self-care) behaviours and outcomes of patient-practitioner interactions" (Kyngäs, Duffy & Kroll, 2000: 6). This definition incorporates all aspects of providing and receiving healthcare. It describes the patient factors that affect a patient's ability to be compliant (Case-Smith, 2003; Harms & Kobusingye, 2003; O'Brien, 2012; van Stormbroek, 2018) as well as the importance of the relationship and interaction between the patient and the healthcare professional (Kim, Kaplowitz & Johnston, 2004; Palmadottir, 2006; de Klerk et al., 2017; van Stormbroek, 2018). This then links to the factors affecting compliance (patient and healthcare professional factors) (Sabaté, 2003), highlighting the importance of understanding if this definition holds true for the participants of this study.

APPENDIX C: CONTENT REFINEMENT – EXPERTS' FEEDBACK

Survey questionnaire refinement - table summarising feedback from experts

Please note: changes were made after feedback was received from both content and layout refinement. Further changes were also made, after both sets of refinement, according to what the researcher and her supervisor felt were necessary – these changes may not be illustrated below.

Expert	Position	Feedback	Changes made as discussed and decided with research supervisor
Gillian Coetsee	Expert hand therapist and SASHT member	Concluding feedback: "Overall, I think it's a very comprehensive questionnaire, that should give you data to meet the objectives. Over the years I have become more aware of my personal factors as a therapist, that greatly influence the therapeutic relationship and compliance. You have included some of these i.e., strong therapeutic alliance, patient feeling heard and reassured, shared power, patient facilitated treatment not directed/instructed by therapist, but *I feel that we need to learn as therapists to allow the patient to make more of the decisions about goals that are NB to them, and we facilitate that process with our goals in mind. This is one of the key factors for me in achieving compliance*."	**Incorporated** into the factors – see specific feedback below.
		Specific feedback: Added to table in question 21: a) "Compliance is influenced by therapist related factors – from environment, facilities, attitude, interactions, own judgements, etc." Added to table in question 25 (treatment-related factors): b) "Factors (therapist and patient) that have influenced non/poor adherence to protocols." c) "Understanding the patient's narrative (their concerns, goals, expectations, beliefs, roles and what motivates them). *Most probably links to this - Shared goal	a) **Not included** in question 21 as it is not a definition but rather the various factors which are elaborated on in the next questions. b) **Not included** – this was more of a statement than a suggestion. c) **Incorporated and added as**: *"Shared goal setting between the*

		setting between therapist and patient on prioritising Rx goals that are meaningful, and the patient feels are achievable and constantly re-evaluating these together." Added to table in question 26 (patient-related factors): d) Patients are often overwhelmed with information and their given situation as well as additional unrelated stressors that they don't take in the education provided by the therapist. "Frequently therapists do not check how much information the patient would like or what would be meaningful to them in understanding the condition and rehab process."	*therapist and the patient on prioritising treatment goals that are meaningful and achievable."* AND *"Continually re-evaluating treatment goals with the patient."* d) **Added as**: *"Knowing how much and what information the patient feels would be beneficial."* Added because it is not included and is a valuable contribution from a therapist who sees this from experience. It is also a good extension of the previous factor (Patients feeling overwhelmed by their situation and information they are receiving).
Adri Cronje	Rural-based expert hand therapist, with a postgraduate qualification in hand therapy.	<u>Concluding/ general feedback</u> "I think it is vital to answer the question of education of the patient along with compliance." "The questionnaire is in-depth, and I hope that the therapists answering it will take their time to really think about their answers and provide truthful feedback."	**Not added** as an additional component as it is **already included** in the factors affecting compliance
		<u>Specific feedback</u> Factors added to table in question 22 (socio-economic-related factors): a) "Family or significant other supportive of patient." b) "Literate or illiterate/ educated or uneducated." Factors added to table in question 23 (healthcare team and system-related factors):	a) **Already included** under patient-related factors. b) **Already included** under patient-related factors.

		c) "Accessing service at clinic level and seeing a different therapist to the initial therapist."	c) This factor came from van Stormbroek's (2018) qualitative study and was merely stated as "clinic outreach" but spoken of in the same light as the absence of therapists at primary healthcare (PHC) level facilities. Thus, this factor is left as is but **explained and now reads** *"Clinic outreach by hospital therapists to compensate for the absence of therapists at the clinics."* Seeing different therapists included the factor *"Staff turnover/ poor care continuity."*
		d) "Inexperienced therapists at PHC level."	d) **Reworded** to *"absence of therapists at primary level facilities"* because this is how it was stated in van Stormbroek's (2018) study.
		e) "Educating the patient on their injury or condition. NBNBNBNBNBNB." f) "Educating the patient on their treatment/ the rehabilitation programme to follow with goals of therapy and expected recovery."	e) **Already included.** f) **Already included.**
		g) "Providing the patient with a home programme that is concrete, on paper, with illustrations to show the exercises or activities to be done."	g) **Added** in therapy related factors: *"providing the patient with a home programme that is concrete (on paper with illustrations to show activities to be done)."* Valuable comment from a therapist speaking from experience and not already included. It was alluded to in van Stormbroek's (2018) study.

Jane Venter	Occupational therapist treating hand injuries (completed her Master of Science in Occupational therapy degree)	<u>Concluding/ general feedback</u> "Just some tips: I also did a survey for my Masters and surveys have a notorious bad return rate. Get someone to help you find out what statistically significant amount of surveys completed will be required to represent the population you are studying. Mine was too small and thus it wasn't accepted for publication. Something that will affect your return rate is the fact that your survey is extremely long and will take a lot of thought to complete, especially if therapists spend time commenting on all the factors affecting compliance. I strongly suggest you amalgamate and abbreviate a lot of the factors, and decide which ones are priorities for you (for example, do you really want to investigate whether a therapist thinks a person's gender affects their compliance?). You should get a rich amount of information from this!"	**Already done** in my protocol – "With an estimated population of 365 therapists, a 5% margin of error, 95% confidence level and 50% response distribution, a sample size of 188 participants will be required (Raosoft, 2004)." A concern of ours too but unfortunately, the factors are written in the way that they are as they are taken from literature and van Stormbroek's (2018) study. Additionally, I am wanting to see if these factors stated in literature hold to for therapists in South Africa. Factors which are similar are also different and specific and this cannot be abbreviated and combined. All factors are taken from van Stormbroek's (2018) study and literature. Gender, for example, was mentioned as a factor in van Stormbroek's (2018) study.
		<u>Specific feedback</u> Question 6, option 'not applicable as I work in private practise': a) "Perhaps review this question as private practice is still at some level (maybe don't say "not applicable", rather say, "various" or "mixed" as I work in Private Practice." Question 9:	a) **Kept as is** because these levels are known to be specific to the government sector and private practice at any level is seen as private practice.

		b) "Perhaps provide more space as some people will list a bunch of qualifications. You can specify that they should be diploma level and higher, to avoid short course lists." Question 14: c) "It may be nit picking but one understands factors affecting compliance and one has insight into level of compliance. Perhaps reword as what must a therapist understand? We should rather perceive compliance or degrees thereof or work on obtaining it." Question 15: d) "Add a "sometimes" option." Question 20 – option 'if no, please provide an alternative term you would propose': e) "Provide space for this answer." Question 21: f) "I would "agree" with all of these statements. Perhaps you should add or reword some statements so that the participants don't simple tick agree and thus you create bias in a way, by leading them."	b) **Space created and specified.** c) **Not used -** I want to understand what therapists do understand, not what should be understood. If therapists do not deem understanding compliance as important then they will not find facilitating it important which in turn affects the patient's compliance and the outcomes of their rehabilitation. d) **Added.** e) **Added.** f) Very valid point. Before changing this question, it was decided that if feedback is given on this question or concerns raised, when the online questionnaire is sent out to 5 therapists (falling in the exclusion criteria) for refinement of the online layout and checking its ease to complete, then it will be changed. No comments were made on this question, and it was completed

		Question 23 (healthcare team and system-related factors): g) "This is a very long list and participants may get discouraged with the length of the whole survey. Perhaps merge some of these system related factors to abbreviate the table." h) Factor: therapist's competence. "This is a hard one to calibrate. Perhaps reword if you'd like to therapist's skill level (low/poor/inexperienced etc). i) Factor: obtaining informed consent." "For what? Therapy?" Question 25 (treatment related factors): j) "Also a long table. Perhaps merge some factors."	correctly, thus **no change** has been made. g) Agreed but unfortunately, the factors are written in the way that they are as they are taken from literature and van Stormbroek's (2018) study. Additionally, I am wanting to see in these factors stated in literature hold to for therapists in South Africa. Factors which are similar are also different and specific and this cannot be abbreviated and combined. h) **Reworded** as stated in van Stormbroek's (2018) study because this is where it came from. *"Absence of therapists at primary level facilities."* i) **Specified** – factor now stated as *"Obtaining informed consent for therapy."* j) Agreed but unfortunately, the factors are written in the way that they are as they are taken from literature and van Stormbroek's (2018) study. Additionally, I am wanting to see in these factors stated in literature hold to for therapists in South Africa. Factors which are similar are also different

		Question 26 (patient related factors): k) "The last few factors are variations of each other. Abbreviate." l) Factor: Lack of motivation from the patient. "Repetition with the above factor. One is a barrier and on is a support. Just write Pt motivation. Can also merge with attitude."	and specific and this cannot be abbreviated and combined. k) Yes, but unfortunately there are specific differences and worded as such for a reason from literature and van Stormbroek's (2018) study and thus cannot be abbreviated. l) Motivation and attitude stated as two separate factors in van Stormbroek's (2018) study and literature (O'Brien, 2012). Motivation factor **merged** to one as *"patient motivation."*
Trish Griffiths	President of SASHT	<u>Concluding/ general feedback</u> "I have had a look through your questionnaire and discussed the data analysis side with my colleague Ilande Vorster (who recently used a questionnaire in her Masters). The content is very thorough, but it is quite lengthy. My concern is a busy therapist may tire and stop answering as effectively towards the end of the questionnaire. I realise you want to glean as much information as possible but would recommend trying to prioritise what info you really need and perhaps remove less relevant points." "The Support or Barrier to compliance and the severity thereof: Please see my comments on the questionnaire. I am concerned this will not be answered correctly. For clarity and ease of answering from a therapist's point of view - I have attached a suggestion for layout (in an excel document and see below) you may want to consider. I would also have no effect as its own option as a scale is then not applicable."	A concern of ours too but unfortunately, the factors are written in the way that they are as they are taken from literature van Stormbroek's (2018) study. Additionally, I am wanting to see in these factors stated in literature hold to for therapists in South Africa. Factors which are similar are also different and specific and this cannot be abbreviated and combined. This structure has been **adopted** and participants will be able to select both barrier and support and will need to select to what extent. The wording of the scale has been changed to *"Never*

		Support little seldom sometim often always	Barrier little seldom sometim often always	Does not affect		*affects, seldom affects, frequently affects, always affects."*
		<u>Specific feedback</u> Question 3: a) "Add option for more than one, e.g. private and education." Question 9: b) "Applicable to hand therapy/OT or any?" Question 22 (socio-economic related factors): c) "I think you need to relook at the options in this table: What if a therapist ticks that an item is a support for compliance but then on the scale ticks that it 'does not affect'? You will struggle to interpret your data. Perhaps you need a 3rd column with Support and Barrier that perhaps is neither?? d) Also, the instructions are a bit confusing – I had to re-read them a few times. Try make simpler and easier to follow so therapists answer accurately." Question 24 (condition related factors): e) Factor added: "Patient personality type?"				a) **Added** – this will be a multiple response question and set like this on REDCap. b) **Left as is** because the word "any" is used in the question. c) Structure **changed** as stated above. d) Instructions **changed** to: *"to what extent do the following factors act as a support and/or barrier to compliance?"* e) **Checked literature** and van Stormbroek's (2018) study, personality is not stated as a factor.

Helen Buchanan	Associate professor and chair of postgraduate education at the University of Cape Town	Concluding/ general feedback: "Main comments: a) Some questions involve too many components and are thus too complex. b) The layout could do with further attention to make it more user-friendly and reduce the number of questions. Streiner et al's book on Health measurement scales is invaluable for guidance on questionnaire design (https://oxfordmedicine.com/view/10.1093/med/9780199685219.001.0001/med-9780199685219) c) The questionnaire seems to capture all relevant aspects impacting compliance. d) The methodology used for the pilot testing process is critical to ensuring a rigorous process of further development of the instrument."	a) Agreed but unfortunately, the factors are written in the way that they are as they are taken from literature van Stormbroek's (2018) study. Additionally, I am wanting to see in these factors stated in literature hold to for therapists in South Africa. Factors which are similar are also different and specific and this cannot be abbreviated and combined. b) Unable to get this book through various sources however the **layout was relooked at** by both myself and the research supervisor as well as 5 therapists which did not fall in the inclusion criteria. Changes were made according to this feedback (Appendix D). c) Thank you. d) **There is no need to pilot for the validity** of the questionnaire as it is an extension of van Stormbroek's (2018) study.

		Specific feedback: Question 1: a) Option: Every 2nd month or more. “Wording confusing.” Question 3: b) “Suggest you have a box for both.” Question 5: c) “Add option for more than 1 of these.” Question 6: d) “Add option for more than 1 of these.” e) Option: Central. “May need to explain this.” Question 8: f) Option: Limpopo. “Sefako.Makgatho (suggest you add name of university for all options rather than province / town.” Question 9: g) “Are these any PG qualifications or only in OT? Or doesn’t it matter?” Question 11: How old are you? h) “Is this relevant? Isn’t years of experience sufficient?”	a) Agreed. **Changed to** *“Every 2nd month or less.”* b) **Added.** c) **Done,** this will be set up as a multiple response question. d) **Done,** this will be set up as a multiple response question. e) **No**, therapists working in central hospitals will know. f) Agreed, **done**. g) Any, as any postgraduate qualification will influence your thinking. **Question left as is** because it already says, *“any post graduate qualifications.”* h) **This question is needed** for demographical information and to establish if the demographics of the participants are in keeping with the demographics of occupational therapists in South Africa. Years of experience are more valuable, however, a therapist at age 30 with 1 year experience will have a different perception than a

		Question 16: i) "Do you want the 3 MOST typical?" Question 20: j) If you answer no, please provide an alternative term you would propose with your reasoning for preferring this term. "Remove – makes it too long. Rather format like question 9, or just use format below. k) Do you want to know the reasoning for the answer?" Question 22: l) "Remove column that says, 'factors' and put the heading 'factors' above the actual factors." m) "I wonder whether it is important for you to distinguish the type of factor for respondents? Think about having a single section on all factors affecting compliance. That way you wouldn't need to have so many questions all worded in the same way. You could then divide into the various sub-sections in the analysis OR you could work out a way to include a column with the sub-categories so they are clearly indicated from the outset but then number all items consecutively as a single question. Hope this makes sense … See suggested layout in question 27." n) "What if they feel it is both? When you pilot this you will be able to gauge whether these 2 aspects should be separated."	therapist at age 30 with 6 years of experience. i) Yes. Question **changed and reworded** to *"From your experience, list the 3 MOST typical characteristics of a non-compliant patient."* j) Agreed and **removed.** k) **No**, decided that asking for reasoning will be too complex and take away from the next question. l) Agreed – **changed**. m) **No**, we don't feel this will change much as the length would still be the same. Numbering the factors within one question doesn't change the number of factors and may not be as understandable. n) Question **reworded** to accommodate this, and it will be a multiple response question. Rewording: *"To what extent do the following socio-economic related factors act as a support and/or*

		o) "Not convinced the difference between seldom and sometimes will be understood in the same way by all participants. Suggest you merge these into one category." p) "This question has too many components. Suggest simplifying." Question 24: q) Factor: Severity of symptoms. "Unclear why you have severity in the above item as well as here. Try to keep each to a single aspect." Question 27: r) "Contextual factors (cultural, environmental/ physical and social contexts) put in a column to the left of the factors and deleted as a heading above the question." s) Factor: Bad weather. "This could mean excessively warm or cold, rain, etc. Do you want 'bad weather' or just weather?" Question 28: t) "Rewording of question suggested as: Please list the top three strategies you use (as the healthcare professional) to facilitate compliance." Question 29: u) "Consider changing wording as shown above." Question 30: v) "Is this all OTs employed by the DOH? If so, make it clear that this does not apply to non-DOH respondents. Unless of course you want them to imagine they work for the DOH??"	*barrier to compliance?"* o) Agreed, **reworded** scale to *"Never affects, seldom affects, frequently affects and always affects."* p) **Agreed**, added 'other' at the bottom of the column of factors. q) Changed to make it clearer. **Reworded** this factor to: *"Severity of symptoms, condition and prognosis."* **Reworded previous factor to:** *"The type of injury/condition."* r) **No**, left as is for the reason stated above – we don't feel this makes much of a difference. s) **Reworded** to: *"Weather conditions."* t) Agreed, **reworded** as suggested. u) **Reworded** to: *"Please list the top three strategies used within your department/clinic/hospital/ practise to facilitate compliance."* v) Valid point. **Question taken out** as this level becomes complex and starts to derail from what the questionnaire really wants to know.

Luther Monereng	Lecturer at the University of the Witwatersrand, with experience in rural setting.	<u>Concluding/ general feedback</u>: a) "It is a good questionnaire b) Seems like an electronic format will be ideal for your questionnaire. c) How long will it take to complete this questionnaire? d) Consider rewording and combining some questions and/or factors in order to decrease the length of your questionnaire. e) Also avoid ambiguous and unclear questions – check with your supervisor whether a CVI (Content Validity Index) score is necessary for your questionnaire. f) If you have not done so, I would encourage that you get other experts in this field to critique your questionnaire. g) Well done on the hard work and good luck"	a) Thank you. b) **Yes,** hard copies will only be done for a few participants at courses and on request. c) Approximately 20 minutes. d) **Reworded where possible** but cannot be shortened further but the factors are written in the way that they are as they are taken from literature and van Stormbroek's (2018) study. Additionally, I am wanting to see in these factors stated in literature hold to for therapists in South Africa. Factors which are similar are also different and specific and this cannot be abbreviated and combined. e) We discussed that this would not be necessary now and it is late in the process as I have already received all responses from experts, but it is something valuable to consider for the future. f) **Done.** g) Thank you**.**

		Specific feedback: a) "I assume you will still work on the format of your questionnaire etc." b) "Relook at the sequence of your questions from number 4 to 12." c) "Perhaps have an overview of the questionnaire so participants know what to expect e.g., section A (demographic info), section B (?)." Question 1: d) Option: Weekly. "? Bi-weekly or every 3 weeks." e) Option: Never. "Selecting this option rules you out?"	a) Yes, **changes made** from feedback from experts. Format will also be better once on REDCap. b) Agreed. The following **changes made**: Question: 1 remains as 1. Question: 2 changed to 11. Question: 3 changed to 8. Question: 4 changed to 12. Question: 5 changed to 9. Question: 6 changed to 10. Question: 7 changed to 5. Question: 8 changed to 6. Question: 9 changed to 7. Question: 10 changed to 4. Question: 11 changed to 3. Question: 12 changed to 2. c) Overview included in the letter asking therapists to participate. But will include section A, B etc in the headings I have already included. d) We feel weekly is **self-explanatory** as once a week. If otherwise this would have been explained. e) Yes, as does the option before because the **inclusion criteria** are: *"Occupational therapists who are registered with the HPCSA and who routinely (at least weekly OR*

		Question 2: f) "Some OTs work between provinces. See if you can accommodate this." Question 3: g) "Deleted 'please specify if you select other' and added '(specify)' to the option other." Question 4: h) Options: Frequently and Occasionally. "Perhaps provide a description for each to avoid participants 'thumb sucking'." Question 5: i) "Nice descriptions. Will they be accommodated if they work in more than one setting?" Question 6: j) "Deleted 'please specify if you select other' and added '(specify)' to the option other." Question 8: k) "Write in full." Question 13: l) Option: Comment. "You are alternating between terms such as 'comment' 'explain' 'please explain'. Try stick to one e.g., elaborate." Question 16 and 17: m) "Why 3 specifically, what if they have more or less? I would suggest you remove the number and let them give you as many as possible." Question 21: n) Column: Comment. "How about you replace this term with 'reason'."	*at least monthly) treat patients with hand injuries.* f) Yes, this will be a multiple response question. *"(s)"* **added** at to the word province. g) Agreed, nice way of simplifying instructions. **Change accepted**. h) Valid point but we feel this will complicate the question. **No change**. i) Yes, this will be a multiple response question. *"(s)"* **added** at to the word setting. j) Agreed, nice way of simplifying instructions. **Change accepted**. k) Agreed and **changed**. l) All **changed** to *"reason"*. m) We don't want to make it an open-ended question as it will make the results too complicated. But to make it clearer, question **changed** to *"...list the 3 MOST typical characteristics..."* n) Agreed, **changed**.

		o) Option: Compliance is a collaborative process in which the patient and the therapist co-author the rehabilitation process. “Not sure this [co-author] is the most appropriate term to use.” Question 22: p) Column: Comment. “Use the term reason perhaps.” q) The scale. “This will be in a drop-down format or they will indicate the correct answer using ‘X’ on a hard copy?” r) “Be consistent throughout, some of your sentences are with question marks.” s) “? Add space for other.” Component of question: Please add any other factors you feel should be and are not included above... “Merge with table above.” Question 23: t) Factor: Doctor and therapist located in the same practise. “Consider rewording and combining the two i.e. Seeing the doctor and therapist on the same day at similar times. & Doctor and therapist located in the same practise.” u) Factor: Therapists’ high workload. “High patient load perhaps?” v) Factor: Confident therapists. “Not sure about this factor.” w) Factor: Inconsistencies between the multidisciplinary team. “Communication wise or?” x) Factor: Lack of clarity around the roles of each multidisciplinary team member. “Should you not combine with ‘inconsistencies between the multidisciplinary team’?”	o) Fair point but this cannot be changed as it is a definition taken from van Stormbroek's (2018) study. p) Agreed. **Changed**. q) Multiple matrices on REDCap and using ‘X’ on hard copies. r) Noted. Have relooked and **changed where necessary**. s) Great way to simplify! **Added** “*Other”* below the factors. t) **Factor taken out** as it is not explicitly stated in literature or van Stormbroek's (2018) study. Was added to accommodate private practise but factor above does do so. u) **Left as is** – we feel this is sufficient. v) **Left as is** – this came straight from van Stormbroek's (2018) study. w) **Left as is** as this is exactly how it was stated in van Stormbroek's (2018) study. x) **Left as is** – these factors are different and different reasoning for them was provided van

			Stormbroek's (2018) study and literature.
		y) Factor: Patient's assigning excessive weight to the doctor's opinion at the expense of other team members. "Not sure what you mean, consider re-wording."	y) **Left as is** – as stated in van Stormbroek's (2018) study. And we feel it is understandable.
		z) Factor: Patient's assigning excessive weight to any healthcare professional's opinion. "Not sure what you mean, consider re-wording."	z) **Factor taken out** – repetition and not stated in van Stormbroek's (2018) study or literature.
		aa) Factor: The dominance of the medical model in the South African Health System. "If you could also bring in the more westernised approach that is not contextually relevant."	aa) Valuable comment from an experienced therapist. Factor **added**: *"A dominant westernised approach that is not contextually relevant."*
		bb) Factor: Clear and understandable communication between therapist and patient. "From here and above, sounds like you are touching more on therapeutic use of self, I have attached the therapeutic use of self-slides for your perusal."	bb) **Agreed – however**, these factors needed to be stated and separated as they have been because this is how they were highlighted in literature and although they speak to one general concept, they affect compliance in different ways, and this is what I am wanting to explore.
		cc) Factor: Therapists testing the patient's understanding by allowing them to explain their understanding and demonstrating the programme that they are to perform. "Is this not part of education i.e. next factor?"	cc) **No**, it is not as this is to check understanding of home programme not to educate the patient on their therapy or condition.
		dd) Factor: Communicating the occupational therapists' and patients' roles to reach an understanding of both the patient and therapist's responsibilities. "From here to the last factor, sounds like a repetition of what is covered above – also related	dd) As stated above - these factors needed to be stated and separated as they have been because this is how they were highlighted in

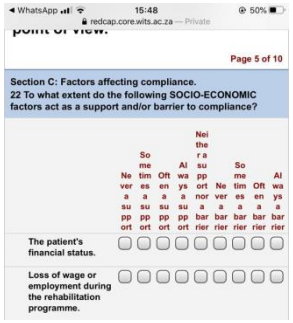
		to therapeutic use of self. Avoid repetitions as they are making your questionnaire too long."	literature and although they speak to one general concept, they affect compliance in different ways, and this is what I am wanting to explore.
		ee) Further comments on section 'other' of this question. "Will this be covered under highlighted 'scale' on the table below? If possible, avoid giving too many instructions in one sentence. I would suggest that you set up your (?electronic) questionnaire in such a way that if they provide a factor, the support, barrier drop down shows up automatically. See if you can avoid starting all your sentences with the word 'please'."	ee) **No need to add or address** and addressed by adding *"other"* below the factors.
		Question 24: ff) Factor: Immediate benefit seen by the patient and increased rate of progression of injury/condition. "What about the opposite, where the benefits are delayed?"	ff) **Changed to**: *"Patient's rate of progression."* And *"When patients are able to see/perceive their own progress."* Worded so that participants can choose each to be either a support or barrier or both.
		gg) Factor: Helping patients identify the co-morbidities that may affect their compliance, for example substance abuse or other mental illnesses. "Is this not the same as the previous factor i.e. co-morbidities (physical and mental)."	gg) No because the previous one is about the co-morbidities themselves, this factor is about understanding how their co-morbidities affect their compliance – this factor was reported on in literature (O'Brien, 2012). **Factor reworded to be clearer:** *"The therapist's ability to identify the signs and symptoms of co-morbidities that may affect compliance."*

		Question 25: hh) Factor: Grading goals from simple to complex. “Combine with next factor i.e., grading treatment according to the patient’s response.” ii) Factor: Addressing psychosocial components in conjunction with their hand injury. “Holistic approach.” Question 26: jj) Factor: Patient’s belief of their power to influence their rehabilitation. “Consider combining with highlighted factors below.” Highlighted factors: • The patient’s insight to the impact of their hand injury to their function. • Perceptions, beliefs and expectations of healthcare team and systems (e.g., that the healthcare professional has the ability to heal the patient completely of their injury). • Lack of knowledge about rehabilitation services and rehabilitation itself. • Patient’s belief about the benefit of a particular treatment. kk) Factor: Patients are often overwhelmed with information and their given situation as well as additional unrelated stressors that they don’t take in the education provided by the therapist. “Not sure about the importance of this factor.” Question 27: ll) Factor: Social support (friends, family and any other). “Consider rewording highlighted factors and combining them.” Highlighted factors: • Peer (fellow patient) support. • Work place support (support of employers and colleagues as well as structures in the work place).	hh) **No** because each factor is different, cannot combine. ii) Yes but **no need to add this**. jj) **No** because each factor is different and all have different meanings, cannot combine. kk) **Factor split and reworded**: *“Patients feeling overwhelmed by their situation and information they are receiving.”* And *“Knowing how much and what information that patients feel would be beneficial.”* These factors are important as they came up in van Stormbroek's (2018) study and were mentioned by and expert (see above). ll) **No** because all affect compliance to a different extent.

		mm) Factor: Working conditions. “Patient’s?” nn) Factor: Physical access of transport. “Is this not a repeating factor?” oo) Factor: Conflicting belief systems of the patient and the therapist. “Similar to a factor mentioned above.” Questions 28, 29 and 30: pp) “Why limit it to only 3? What if they have more? Do you want them to list a minimum of 3 strategies perhaps?”	mm) Yes. **Factor reworded** to: *“The patient’s working conditions.”* nn) **No, it is not**. oo) **No, this is different**. pp) As above, we don’t want to make it an open-ended question as it will make the results too complicated. But to make it clearer, question **changed** to *“...list the 3 top strategies...”*

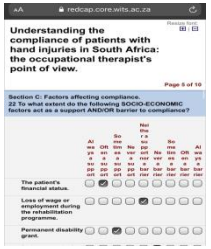
APPENDIX D: LAYOUT REFINEMENT – OCCUPATIONAL THERAPISTS' FEEDBACK

Survey questionnaire layout refinement - table summarising feedback from occupational therapists who do not fall within the inclusion criteria

Occupational Therapist (OT)	Position	Feedback	Response and changes made as discussed and decided with supervisor
Morgann Bruce	Paediatric OT in the private sector.	"The layout is great. The questions are very easy to understand."	Thank you.
		"On mobile devices this is what it looks like from page 5 – I don't think there is a way to fix it." 	I have contacted Amanda from eZone for help on this. I have **changed the layout** so the column headings are vertical instead of horizontal but with them being vertical, you cannot read the question properly on the computer. It has been decided to **keep them horizontal** as being able to read the question is of more importance.
		"It took me 15-20 minutes to complete."	Thank you.
Bronwyn Carter	Paediatric OT in the private sector.	"Format on a phone – difficult to read." 	I have contacted Amanda from eZone for help on this. I have **changed the layout** so the column headings are vertical instead of horizontal but with them being vertical, you cannot read the question properly on the computer. It has been decided to **keep them horizontal** as being able to read the question is of more importance.

		"If it is always a support then it is never a barrier... difficult to understand at first but when I re-read the question it made sense. In the beginning I didn't realise I could choose two options in each row. Maybe an example question if people don't understand? I think it makes sense to have the statements neutral, but I worry participants will only choose one option in each row. For example, people working in the public sector will see financial status as a barrier and people working in the private sector will see it as a support, but you want them to think of financial status in any setting."	The example question suggestion is a great suggestion, but we feel this will add to the bulkiness of the questionnaire and instructions. Alternatively, it has been **decided to put the "and/or" in the question in capital letters**. Adding further instructions in the section heading, saying you can pick more than one, but no more than 2 in each statement, is also an option, however this will add more reading and instructions which I want to avoid. After making this change, I asked this therapist if this provided more clarity. She agreed that it does and that it is better than adding more instructions.
		"The rest is very well worded and formatted really well. I think you will get clear groupings in categories out of it and your stats will be nice to analyse. So, from that perspective it is great."	Thank you.
		"It took me 15 minutes to complete."	Thank you.
Ella Topham	Paediatric OT in the private sector with previous experience in a rural setting.	"It looks so good. I think the tick list answers make it easy to use and easy to go through."	Thank you.
		"For the factors influencing compliance, I found reading the column headings at the top confusing... if I click always a support, isn't that the same a never a barrier. But I see that it is a way to get a twofold question and that you can select an answer in more than one column in the same row... it makes sense now."	It has been decided to **put the "and/or" in the question in capital letters**. Adding further instructions in the section heading, saying you can pick more than one, but no more than 2 in each statement, is also an option, however this will add more reading and instructions which I want to avoid. After making this change, as with the above therapist, I asked this therapist if this provided more clarity. She too agreed that it is clearer and that it is better than adding more instructions.
		"It took me 20 minutes to complete."	Thank you.

Taryn van der Westhuizen	Paediatric OT in the private sector.	"It is quite a lot of thinking and a lot of tick boxing."	Noted, thank you. Unfortunately, **not much can be changed** in this regard as this is the nature of my research topic and its content. This will be reported on as a limitation though.
		"I'm not sure if for the tick boxing that you should be allowed to tick box a few different options e.g., their creative ability level can be a support if it is a higher level but a barrier if it is a lower level so then I ticked both."	It has been decided to **put the "and/or" in the question in capital letters**. Adding further instructions in the section heading, saying you can pick more than one, but no more than 2 in each statement, is also an option, however this will add more reading and instructions which I want to avoid.
		"For the levels of care of work - I did not know what regional vs central is -->maybe a description for those?"	As discussed with my supervisor, **people working in regional or central facilities will know that they do**. This therapist works in a private practice which is possible why she doesn't know the difference between regional and central and she would pick the "not applicable as I work in private practice" option.
		"Maybe for where you are asking about 3 MOST this... maybe change it to a text box so that the participants can fill that in and still see all their answers. It was difficult to see what I had already written."	Thank you, the **size of the textbox has been changed** to allow you to see your whole answer.
		"Then for your factors affecting compliance. I was thinking maybe you rearrange the order of the headings from always a support down to eventually neither a support/barrier and then back up to always a barrier. I was getting confused."	Great suggestion! **Changed as suggested**.
		"It took me 30 minutes to complete."	Thank you.
Meagan Wijnberg	Mental health OT in	"I think it feels very long, but I guess it has to be to give you enough data, so I have nothing to compare it to."	Yes, the **length needs to stay as is** because of the depth of literature.

	the private sector.	"The only feedback is it didn't load lovely on my cell phone... I could still make out the questions, but it wasn't perfect. Maybe it's just my phone, and most people will likely access on computer?"  redcap.core.wits.ac.za Understanding the compliance of patients with hand injuries in South Africa: the occupational therapist's point of view. Page 5 of 10 Section C: Factors affecting compliance. 22 To what extent do the following SOCIO-ECONOMIC factors act as a support AND/OR barrier to compliance?	I have contacted Amanda from eZone for help on this. I have **changed the layout** so the column headings are vertical instead of horizontal but with them being vertical, you cannot read the question properly on the computer. It has been decided to **keep them horizontal** as being able to read the question is of more importance.

APPENDIX E: PARTICIPANT INFORMATION SHEET



Department of Occupational Therapy

7 York Road, Parktown, 2193 South Africa • Telegrams 'Witsmed' • Tel: +27-11-717-3701
Fax: +27-11-717-3709 • e-mail: Leilane.Bogoshi@wits.ac.za

INFORMATION SHEET

Dear Therapist,

My name is Emily Makhlouf and I am a Masters student in the Department of Occupational Therapy at the University of the Witwatersrand in Johannesburg. As part of my studies, I am required to conduct a research project. For my research project, I am interested in understanding compliance of hand -injured patients within the South African context from the occupational therapists' point of view. The "bigger picture" aim, is to better understand the patients we are treating and their health care behaviour in order to improve the treatment we are providing for them within the diverse practice settings and contexts of South Africa.

If you treat patients with any hand injuries or hand conditions on a weekly basis OR these patients are routinely part of a monthly case load, then I would like to invite you to participate in answering a questionnaire on your patients' compliance. This is an online questionnaire (please follow this link https://redcap.core.wits.ac.za/redcap/surveys/?s=RY7ET8FYC4), that will take approximately 20 minutes to complete. Please share this questionnaire with your colleagues and if you have difficulty accessing the questionnaire online please contact me on the information below so that I can arrange a different means for you to complete the questionnaire.

Please note, by participating in this research project and completing this questionnaire, you will not receive any direct benefits and there are no disadvantages of or penalties for not participating. The only potential indirect benefit which may be gained during this process is acquiring knowledge from the questions or once the research project has been completed and results of the study are made accessible. If you would like to read a summary of this research and its findings, I am happy to share this information. Please contact me on the details below.

You may withdraw from participating at any time and you may withdraw from answering any

questions that you do not want to.

Your participation will remain anonymous as I will not be asking for your name or your place of work or any other identifying information.

If you have any questions, queries or concerns throughout this process, please feel free to contact me on the details below. This research will be written up as a research report and will be available online through the university's library website.

If you have any concerns or complaints with regards to the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Medical) (M190915) on the following contact details:

Chairperson of this committee – Professor Clement Penny:
Telephone: 011 717 2301
Email: Clement.Penny@wits.ac.za

Committee secretariat:
Telephone: 011 717 2700/1234
Email addresses: Zanele.Ndlovu@wits.ac.za or Rhulani.Mukansi@wits.ac.za

Thank you in advance for your time, effort and participation.

Kind regards,



Emily Makhlouf
MSc (OT) student WITS University
emilymmakhlouf@gmail.com

Research supervisor:
Kirsty Van Stormbroek
Kirsty.vanstormbroek@wits.ac.za

APPENDIX F: ETHICAL CLEARANCE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research & Post Graduate Affairs)

TO: Ms EM Makhlouf
School of Therapeutic Sciences
Department of Occupational Therapy
Medical School
University

E-mail: emilymmakhlouf@gmail.com

CC: Supervisor: Ms K van Stormbroek <Kirsty.vanStormbroek@wits.ac.za>
and <HREC-Medical.ResearchOffice@wits.ac.za>

FROM: Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 2020/01/21

REF: *R14/49*

PROTOCOL NO: **M190915** *(This is your ethics application study reference number. Please quote this reference number in all correspondence relating to this study)*

PROJECT TITLE: *Understanding the compliance of patients with hand injuries in South Africa: The occupational therapist's point of view*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to the Government funding of the University.

MSWorks2000/Iain0007/Clearscan.wps

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Ms EM Makhlouf

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M190915

NAME: (Principal Investigator)	Ms EM Makhlouf
DEPARTMENT:	School of Therapeutic Sciences Department of Occupational Therapy Medical School University
PROJECT TITLE:	Understanding the compliance of patients with hand injuries in South Africa: The occupational therapist's point of view
DATE CONSIDERED:	2019/09/27
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Ms K van Stormbroek
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2020/01/21

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the 3rd Floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to submit details to the Committee. **I agree to submit a yearly progress report**. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in **September** and will therefore reports and re-certification will be due early in the month of **September** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature _____ Date _____

PLEASE QUOTE THE CLEARANCE CERTIFICATE NUMBER IN ALL ENQUIRIES

APPENDIX G: RESPONSE RATE TABLE

Total responses	174
Total completed responses	**69**
Total incomplete responses	**105**
Can't use incompletes at all – Including marked as "Completed responses" but never treat hands	34 (11)
Can't use incompletes - only demographics	41
Can use incompletes - demographics and definition	15
Can us incompletes - partially completed factors	15
Total responses that can be used	69 + 15 + 15 = **99**
Total responses that can't be used	34 + 41 = **75**

APPENDIX H: FACTORS AFFECTING COMPLIANCE

Socio-economic-related factors perceived to act as supports and/or barriers to compliance (n=99).

Factors	No. (%) participants who reported:									No. (%) missing responses
	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier	
The patient's financial status.	5 (5.1%)	15 (15.2%)	12 (12.1%)	0 (0%)	5 (5.1%)	0 (0%)	26 (26.3%)	37 (37.4%)	3 (3%)	16 (16.2%)
Loss of wage or employment during the rehabilitation programme.	2 (2%)	4 (4%)	6 (6.1%)	1 (1%)	2 (2%)	0 (0%)	26 (26.3%)	38 (38.4%)	10 (10.1%)	16 (16.2%)
Permanent disability grant.	1 (1%)	8 (8.1%)	19 (19.2%)	0 (0%)	8 (8.1%)	2 (2%)	30 (30.3%)	22 (22.2%)	2 (2%)	17 (17.2%)
Patient pursuit of a permanent disability grant for financial security.	1 (1%)	6 (6.1%)	11 (11.1%)	1 (1%)	3 (3%)	1 (1%)	29 (29.3%)	23 (23.2%)	11 (11.1%)	18 (18.2%)
Temporary disability grant (for the period of rehabilitation).	2 (2%)	16 (16.2%)	28 (28.3%)	2 (2%)	6 (6.1%)	0 (0%)	25 (25.3%)	7 (7.1%)	1 (1%)	17 (17.2%)
Cost of transport to and from the hospital/ clinic.	4 (4%)	2 (2%)	2 (2%)	0 (0%)	1 (1%)	0 (0%)	30 (30.3%)	41 (41.4%)	5 (5.1%)	16 (16.2%)
Financial accessibility of appropriate resources	5 (5.1%)	8 (8.1%)	8 (8.1%)	0 (0%)	7 (7.1%)	2 (2%)	29 (29.3%)	22 (22.2%)	4 (4%)	16 (16.2%)

(e.g., assistive devices and splints).										
Culture (e.g., cultural roles and responsibilities) and religion.	0 (0%)	6 (6.1%)	23 (23.2%)	2 (2%)	23 (23.2%)	5 (5.1%)	36 (36.4%)	10 (10.1%)	0 (0%)	16 (16.2%)
Social support (friends, family and any other).	12 (12.1%)	28 (28.3%)	31 (31.3%)	2 (2%)	1 (1%)	1 (1%)	17 (17.2%)	5 (5.1%)	0 (0%)	16 (16.2%)
Peer (fellow patient) support.	10 (10.1%)	32 (32.3%)	29 (29.3%)	1 (1%)	5 (5.1%)	2 (2%)	8 (8.1%)	5 (5.1%)	0 (0%)	17 (17.2%)
Workplace support (support of employers and colleagues as well as structures in the workplace).	21 (21.2%)	26 (26.3%)	21 (21.2%)	0 (0%)	1 (1%)	0 (0%)	9 (9.1%)	16 (16.2%)	1 (1%)	16 (16.2%)
The patient's working conditions.	7 (7.1%)	15 (15.2%)	26 (26.3%)	1 (1%)	4 (4%)	0 (0%)	29 (29.3%)	27 (27.3%)	1 (1%)	16 (16.2%)
Physical access of transport.	10 (10.1%)	13 (13.1%)	8 (8.1%)	0 (0%)	3 (3%)	0 (0%)	28 (28.3%)	28 (28.3%)	3 (3%)	16 (16.2%)
Distance, difficulty, and time taken to travel to the hospital/clinic and the physical accessibility of the hospital/clinic.	3 (3%)	4 (4%)	2 (2%)	0 (0%)	2 (2%)	0 (0%)	31 (31.3%)	33 (33.3%)	11 (11.1%)	16 (16.2%)
Weather conditions.	2 (2%)	1 (1%)	1 (1%)	1 (1%)	12 (12.1%)	3 (3%)	46 (46.5%)	13 (13.1%)	6 (6.1%)	16 (16.2%)
Violence in the community.	0 (0%)	0 (0%)	2 (2%)	1 (1%)	15 (15.2%)	3 (3%)	32 (32.3%)	21 (21.2%)	7 (7.1%)	18 (18.2%)

Healthcare team and system-related factors perceived to act as supports and/or barriers to compliance (n=99).

Factors	No. (%) participants who reported:									No. (%) missing responses
	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier	
Appointment reminders (via SMS or E-mail).	17 (17.2%)	29 (29.3%)	9 (9.1%)	0 (0%)	17 (17.2%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)	25 (25.3%)
Seeing the doctor and therapist on the same day at similar times.	36 (36.4%)	29 (29.3%)	9 (9.1%)	0 (0%)	3 (3%)	0 (0%)	0 (0%)	2 (2%)	0 (0%)	22 (22.2%)
Waiting times at the hospital (for appointments and for folders/ files and admin to be done).	5 (5.1%)	3 (3%)	1 (1%)	1 (1%)	9 (9.1%)	5 (5.1%)	29 (29.3%)	19 (19.2%)	4 (4%)	25 (25.3%)
Referral system.	9 (9.1%)	15 (15.2%)	11 (11.1%)	1 (1%)	9 (9.1%)	0 (0%)	21 (21.2%)	15 (15.2%)	3 (3%)	23 (23.2%)
Delayed surgeries.	1 (1%)	1 (1%)	2 (2%)	0 (0%)	5 (5.1%)	0 (0%)	25 (25.3%)	23 (23.2%)	18 (18.2%)	24 (24.2%)
Availability of hospital transport for patients.	3 (3%)	7 (7.1%)	5 (5.1%)	0 (0%)	7 (7.1%)	3 (3%)	22 (22.2%)	18 (18.2%)	11 (11.1%)	26 (26.3%)
Hospital/ clinic resources (e.g., space, assistive devices and splinting tools and materials).	1 (1%)	8 (8.1%)	7 (7.1%)	0 (0%)	9 (9.1%)	8 (8.1%)	22 (22.2%)	14 (14.1%)	5 (5.1%)	24 (24.2%)

Therapists' workload.	0 (0%)	3 (3%)	3 (3%)	0 (0%)	13 (13.1%)	7 (7.1%)	43 (43.4%)	10 (10.1%)	1 (1%)	24 (24.2%)
Absence of therapists at primary level facilities.	0 (0%)	1 (1%)	1 (1%)	1 (1%)	15 (15.2%)	2 (2%)	12 (12.1%)	25 (25.3%)	17 (17.2%)	25 (25.3%)
Clinic outreach by hospital therapists to compensate for the absence of therapists at the clinics.	4 (4%)	10 (10.1%)	18 (18.2%)	1 (1%)	21 (21.2%)	1 (1%)	7 (7.1%)	6 (6.1%)	6 (6.1%)	27 (27.3%)
Staff turnover/ poor continuity of care.	0 (0%)	0 (0%)	1 (1%)	2 (2%)	8 (8.1%)	4 (4%)	25 (25.3%)	22 (22.2%)	11 (11.1%)	26 (26.3%)
Patients' previous experience with healthcare professionals.	1 (1%)	8 (8.1%)	13 (13.1%)	1 (1%)	7 (7.1%)	3 (3%)	42 (42.4%)	15 (15.2%)	2 (2%)	25 (25.3%)
Therapist's confidence.	15 (15.2%)	16 (16.2%)	16 (16.2%)	1 (1%)	3 (3%)	2 (2%)	21 (21.2%)	12 (12.1%)	2 (2%)	26 (26.3%)
Therapist's competence.	16 (16.2%)	20 (20.2%)	12 (12.1%)	1 (1%)	3 (3%)	2 (2%)	18 (18.2%)	16 (16.2%)	2 (2%)	25 (25.3%)
Communication and co-ordination of responsibilities between the multidisciplinary team.	16 (16.2%)	19 (19.2%)	12 (12.1%)	1 (1%)	1 (1%)	1 (1%)	16 (16.2%)	19 (19.2%)	2 (2%)	25 (25.3%)
Every member of the multidisciplinary team tells the patient the same thing.	36 (36.4%)	16 (16.2%)	9 (9.1%)	1 (1%)	3 (3%)	0 (0%)	9 (9.1%)	2 (2%)	0 (0%)	24 (24.2%)

Inconsistent communication between the multidisciplinary team.	1 (1%)	3 (3%)	1 (1%)	2 (2%)	1 (1%)	1 (1%)	20 (20.2%)	21 (21.2%)	25 (25.3%)	25 (25.3%)
Lack of clarity around the roles of each multidisciplinary team member.	0 (0%)	1 (1%)	2 (2%)	1 (1%)	7 (7.1%)	2 (2%)	23 (23.2%)	21 (21.2%)	17 (17.2%)	25 (25.3%)
Patients assigning excessive weight to the doctor's opinion at the expense of input of other team members.	0 (0%)	1 (1%)	1 (1%)	1 (1%)	3 (3%)	3 (3%)	31 (31.3%)	22 (22.2%)	12 (12.1%)	25 (25.3%)
Dominance of the medical model in the South African Health System.	1 (1%)	1 (1%)	2 (2%)	1 (1%)	11 (11.1%)	3 (3%)	34 (34.3%)	14 (14.1%)	11 (11.1%)	24 (24.2%)
Dominance of a westernised approach that is not contextually relevant.	0 (0%)	1 (1%)	2 (2%)	1 (1%)	12 (12.1%)	4 (4%)	30 (30.3%)	21 (21.2%)	5 (5.1%)	25 (25.3%)
Trust, rapport and good professional relationship between the therapist and the patient.	42 (42.4%)	25 (25.3%)	4 (4%)	1 (1%)	0 (0%)	0 (0%)	3 (3%)	1 (1%)	0 (0%)	24 (24.2%)
Therapists demonstrating interest and authentic care.	48 (48.5%)	23 (23.2%)	4 (4%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	23 (23.2%)

Therapists demonstrating cultural sensitivity and humility.	48 (48.5%)	21 (21.2%)	7 (7.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	24 (24.2%)
Therapists demonstrating a positive expectation of the patient's ability to be compliant.	39 (39.4%)	28 (28.3%)	9 (9.1%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	23 (23.2%)
Therapist displays confidence in the patient's ability to take responsibility.	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Assumptions made by the therapist about the patient's insight into their injuries, condition, and rehabilitation.	1 (1%)	7 (7.1%)	19 (19.2%)	5 (5.1%)	7 (7.1%)	0 (0%)	32 (32.3%)	10 (10.1%)	6 (6.1%)	24 (24.2%)
The tone of voice used by the therapist.	9 (9.1%)	30 (30.3%)	24 (24.2%)	1 (1%)	3 (3%)	3 (3%)	23 (23.2%)	6 (6.1%)	2 (2%)	23 (23.2%)
Obtaining informed consent for therapy.	29 (29.3%)	18 (18.2%)	12 (12.1%)	2 (2%)	11 (11.1%)	3 (3%)	1 (1%)	0 (0%)	0 (0%)	22 (22.2%)
Client centred services – facilitating the patient's autonomy.	37 (37.4%)	23 (23.2%)	11 (11.1%)	1 (1%)	1 (1%)	0 (0%)	2 (2%)	0 (0%)	0 (0%)	24 (24.2%)
Collaboration and shared power between the patient and the therapist.	46 (46.5%)	18 (18.2%)	7 (7.1%)	2 (2%)	1 (1%)	0 (0%)	2 (2%)	0 (0%)	0 (0%)	23 (23.2%)
Clear and understandable	54 (54.5%)	16 (16.2%)	4 (4%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	23 (23.2%)

communication between therapist and patient.										
Language barrier.	1 (1%)	0 (0%)	1 (1%)	2 (2%)	4 (4%)	0 (0%)	22 (22.2%)	31 (31.3%)	17 (17.2%)	23 (23.2%)
Communicating in the patient's first language.	37 (37.4%)	18 (18.2%)	7 (7.1%)	1 (1%)	1 (1%)	0 (0%)	3 (3%)	8 (8.1%)	1 (1%)	24 (24.2%)
The use of translators.	15 (15.2%)	23 (23.2%)	24 (24.2%)	1 (1%)	2 (2%)	0 (0%)	15 (15.2%)	3 (3%)	3 (3%)	23 (23.2%)
Using vocabulary, language and terms that are understandable and accessible to the patient.	41 (41.4%)	27 (27.3%)	4 (4%)	1 (1%)	1 (1%)	0 (0%)	2 (2%)	1 (1%)	0 (0%)	24 (24.2%)
Using drawings and illustrations to explain concepts to patients.	39 (39.4%)	30 (30.3%)	5 (5.1%)	1 (1%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	23 (23.2%)
Therapists testing the patient's understanding by allowing them to explain their understanding and demonstrate the programme that they are to perform.	42 (42.4%)	26 (26.3%)	6 (6.1%)	1 (1%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	24 (24.2%)
Communicating to enable an understanding of both the patient and	42 (42.4%)	26 (26.3%)	6 (6.1%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	24 (24.2%)

therapist's responsibilities.										
Communicating the consequences of non-compliance.	33 (33.3%)	29 (29.3%)	13 (13.1%)	1 (1%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	23 (23.2%)
Communicating the consequences of non-compliance using fear.	4 (4%)	8 (8.1%)	25 (25.3%)	11 (11.1%)	7 (7.1%)	0 (0%)	13 (13.1%)	5 (5.1%)	9 (9.1%)	23 (23.2%)
Transparent communication by the therapist.	37 (37.4%)	33 (33.3%)	4 (4%)	1 (1%)	0 (0%)	0 (0%)	3 (3%)	0 (0%)	0 (0%)	23 (23.2%)
Frequent repetition of information.	42 (42.4%)	25 (25.3%)	7 (7.1%)	1 (1%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	24 (24.2%)
Educating the patient on their injury/ condition and expected recovery.	47 (47.5%)	22 (22.2%)	5 (5.1%)	1 (1%)	0 (0%)	0 (0%)	2 (2%)	0 (0%)	0 (0%)	24 (24.2%)
Educating the patient on their treatment and rehabilitation programme.	48 (48.5%)	21 (21.2%)	5 (5.1%)	1 (1%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	24 (24.2%)

Condition-related factors perceived to act as supports and/or barriers to compliance (n=99).

Factors	No. (%) participants who reported:									No. (%) missing responses
	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier	
The type of injury/ condition.	4 (4%)	9 (9.1%)	18 (18.2%)	0 (0%)	16 (16.2%)	0 (0%)	32 (32.3%)	16 (16.2%)	0 (0%)	27 (27.3%)
Severity of symptoms, condition, and prognosis.	2 (2%)	10 (10.1%)	10 (10.1%)	1 (1%)	7 (7.1%)	0 (0%)	34 (34.3%)	23 (23.2%)	0 (0%)	27 (27.3%)
Level of disability related to the hand-injury.	1 (1%)	9 (9.1%)	8 (8.1%)	0 (0%)	8 (8.1%)	0 (0%)	32 (32.3%)	25 (25.3%)	0 (0%)	27 (27.3%)
Extended duration of rehabilitation due to injury severity.	0 (0%)	7 (7.1%)	7 (7.1%)	0 (0%)	4 (4%)	0 (0%)	30 (30.3%)	29 (29.3%)	2 (2%)	27 (27.3%)
Patient's rate of progress.	8 (8.1%)	10 (10.1%)	13 (13.1%)	0 (0%)	6 (6.1%)	0 (0%)	38 (38.4%)	17 (17.2%)	0 (0%)	27 (27.3%)
Patients being able to see/ perceive their own progress.	23 (23.2%)	31 (31.3%)	12 (12.1%)	0 (0%)	0 (0%)	0 (0%)	8 (8.1%)	6 (6.1%)	0 (0%)	27 (27.3%)
Co-morbidities (physical and/or mental health).	1 (1%)	3 (3%)	3 (3%)	0 (0%)	1 (1%)	0 (0%)	32 (32.3%)	30 (30.3%)	5 (5.1%)	27 (27.3%)
Early identification by therapist of co-morbidities that may	24 (24.2%)	30 (30.3%)	17 (17.2%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	1 (1%)	0 (0%)	27 (27.3%)

affect compliance e.g., depression, anxiety, PTSD.										

Therapy-related factors perceived to act as supports and/or barriers to compliance (n=99).

Factors	No. (%) participants who reported:									No. (%) missing responses
	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier	
Simple, short home programmes.	35 (35.4%)	25 (25.3%)	8 (8.1%)	1 (1%)	0 (0%)	0 (0%)	2 (2%)	0 (0%)	0 (0%)	30 (30.3%)
Home programmes that interfere with lifestyle.	0 (0%)	1 (1%)	1 (1%)	5 (5.1%)	2 (2%)	0 (0%)	15 (15.2%)	27 (27.3%)	20 (20.2%)	30 (30.3%)
Prescription of numerous activities and exercises with the assumption that patients will remember at least some.	0 (0%)	0 (0%)	6 (6.1%)	4 (4%)	2 (2%)	0 (0%)	20 (20.2%)	26 (26.3%)	14 (14.1%)	30 (30.3%)
Providing the patient with a programme that is concrete and has visuals to aid memory (e.g., illustrations on a	37 (37.4%)	27 (27.3%)	5 (5.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)

paper-hand out, a video recorded on the patient's phone of how activities and exercises should be performed).										
Comfort, wearing regimes and aesthetics of prescribed assistive devices and splints.	33 (33.3%)	27 (27.3%)	7 (7.1%)	0 (0%)	1 (1%)	0 (0%)	3 (3%)	1 (1%)	0 (0%)	30 (30.3%)
Adapting protocols to suit individual patients through the use of sound clinical reasoning.	43 (43.4%)	22 (22.2%)	4 (4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Strict adherence to protocols.	3 (3%)	9 (9.1%)	24 (24.2%)	4 (4%)	8 (8.1%)	1 (1%)	25 (25.3%)	6 (6.1%)	0 (0%)	30 (30.3%)
Use of occupation-based intervention and meaningful activities.	34 (34.3%)	24 (24.2%)	10 (10.1%)	0 (0%)	0 (0%)	0 (0%)	2 (2%)	1 (1%)	0 (0%)	30 (30.3%)
Pain caused by participating in the rehabilitation programme.	0 (0%)	0 (0%)	3 (3%)	4 (4%)	2 (2%)	1 (1%)	18 (18.2%)	29 (29.3%)	12 (12.1%)	31 (31.3%)
Organising analgesia before treatment sessions.	6 (6.1%)	21 (21.2%)	24 (24.2%)	4 (4%)	9 (9.1%)	1 (1%)	2 (2%)	1 (1%)	1 (1%)	31 (31.3%)

Length of time of therapy sessions.	5 (5.1%)	19 (19.2%)	18 (18.2%)	0 (0%)	19 (19.2%)	0 (0%)	14 (14.1%)	4 (4%)	0 (0%)	31 (31.3%)
Frequency of therapy sessions (e.g., weekly, twice weekly, monthly etc.).	10 (10.1%)	21 (21.2%)	23 (23.2%)	1 (1%)	7 (7.1%)	0 (0%)	17 (17.2%)	10 (10.1%)	0 (0%)	30 (30.3%)
Grading goals from simple to more complex.	24 (24.2%)	29 (29.3%)	12 (12.1%)	0 (0%)	4 (4%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	30 (30.3%)
Grading treatment sensitively according to the patient's response.	29 (29.3%)	32 (32.3%)	8 (8.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Shared goal setting between the therapist and the patient when prioritising their treatment goals (exploring goals that are meaningful and achievable).	40 (40.4%)	23 (23.2%)	6 (6.1%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	30 (30.3%)
Continually re-evaluating treatment goals with the patient.	38 (38.4%)	24 (24.2%)	7 (7.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Addressing psychosocial components.	33 (33.3%)	26 (26.3%)	9 (9.1%)	1 (1%)	0 (0%)	0 (0%)	3 (3%)	0 (0%)	0 (0%)	30 (30.3%)

Taking an accurate history and assessment of the injured hand as well as the patient and their context.	44 (44.4%)	20 (20.2%)	5 (5.1%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	0 (0%)	0 (0%)	31 (31.3%)
Understanding the patient's narrative (their concerns, goals, expectations, beliefs, roles and what motivates them).	44 (44.4%)	22 (22.2%)	3 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Understanding the impact of the injured hand on the patient's function within their context.	48 (48.5%)	18 (18.2%)	3 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	30 (30.3%)
Availability of support (from the therapist) to deal with the demands of a rehabilitation programme.	31 (31.3%)	23 (23.2%)	9 (9.1%)	0 (0%)	3 (3%)	0 (0%)	5 (5.1%)	2 (2%)	0 (0%)	30 (30.3%)
Conflicting belief systems of the patient and the therapist.	1 (1%)	3 (3%)	2 (2%)	2 (2%)	10 (10.1%)	5 (5.1%)	25 (25.3%)	16 (16.2%)	5 (5.1%)	31 (31.3%)
Educating the patient's family.	30 (30.3%)	28 (28.3%)	9 (9.1%)	0 (0%)	2 (2%)	0 (0%)	1 (1%)	1 (1%)	0 (0%)	30 (30.3%)

Patient-related factors perceived to act as supports and/or barriers to compliance (n=99).

Factors	No. (%) participants who reported:									No. (%) missing responses
	Always a support	Often a support	Sometimes a support	Never a support	Neither a support nor a barrier	Never a barrier	Sometimes a barrier	Often a barrier	Always a barrier	
Patient's age.	2 (2%)	8 (8.1%)	23 (23.2%)	0 (0%)	20 (20.2%)	1 (1%)	29 (29.3%)	7 (7.1%)	0 (0%)	31 (31.3%)
Patient's gender.	2 (2%)	3 (3%)	11 (11.1%)	0 (0%)	44 (44.4%)	2 (2%)	10 (10.1%)	4 (4%)	0 (0%)	32 (32.3%)
Patient's pain threshold.	3 (3%)	7 (7.1%)	11 (11.1%)	1 (1%)	7 (7.1%)	0 (0%)	35 (35.4%)	19 (19.2%)	1 (1%)	31 (31.3%)
Patient's attitude.	11 (11.1%)	14 (14.1%)	14 (14.1%)	0 (0%)	2 (2%)	1 (1%)	31 (31.3%)	18 (18.2%)	3 (3%)	31 (31.3%)
Patient's motivation.	16 (16.2%)	19 (19.2%)	14 (14.1%)	0 (0%)	3 (3%)	0 (0%)	25 (25.3%)	15 (15.2%)	5 (5.1%)	31 (31.3%)
Patient's Creative Ability level.	6 (6.1%)	19 (19.2%)	20 (20.2%)	0 (0%)	11 (11.1%)	0 (0%)	25 (25.3%)	14 (14.1%)	0 (0%)	31 (31.3%)
Patient's cognitive and/ or intellectual ability.	9 (9.1%)	16 (16.2%)	14 (14.1%)	0 (0%)	3 (3%)	0 (0%)	31 (31.3%)	19 (19.2%)	1 (1%)	31 (31.3%)
The patient's level of education.	5 (5.1%)	8 (8.1%)	23 (23.2%)	0 (0%)	9 (9.1%)	2 (2%)	36 (36.4%)	8 (8.1%)	1 (1%)	31 (31.3%)
The patient's perceptions, beliefs and expectations of the condition (e.g., the cause of the injury/ condition,	5 (5.1%)	12 (12.1%)	23 (23.2%)	0 (0%)	3 (3%)	0 (0%)	35 (35.4%)	13 (13.1%)	2 (2%)	32 (32.3%)

expected recovery etc).										
The patient's belief in their power to influence their rehabilitation (patient agency).	17 (17.2%)	28 (28.3%)	16 (16.2%)	0 (0%)	1 (1%)	0 (0%)	13 (13.1%)	8 (8.1%)	0 (0%)	31 (31.3%)
The insight the patient has about the impact of their hand injury to their function.	20 (20.2%)	24 (24.2%)	18 (18.2%)	0 (0%)	1 (1%)	0 (0%)	13 (13.1%)	9 (9.1%)	0 (0%)	31 (31.3%)
Perceptions, beliefs and expectations of the healthcare team and systems (e.g., that the healthcare professional has the ability to heal the patient completely of their injury).	4 (4%)	16 (16.2%)	15 (15.2%)	1 (1%)	7 (7.1%)	0 (0%)	25 (25.3%)	14 (14.1%)	0 (0%)	31 (31.3%)
Lack of knowledge about rehabilitation services and rehabilitation itself.	0 (0%)	0 (0%)	2 (2%)	0 (0%)	3 (3%)	1 (1%)	25 (25.3%)	30 (30.3%)	8 (8.1%)	31 (31.3%)
Patient's belief about the benefit	3 (3%)	19 (19.2%)	18 (18.2%)	0 (0%)	5 (5.1%)	0 (0%)	26 (26.3%)	14 (14.1%)	0 (0%)	31 (31.3%)

of a particular treatment.										
Patients feeling overwhelmed by their situation and the information they are receiving.	1 (1%)	1 (1%)	2 (2%)	0 (0%)	2 (2%)	2 (2%)	27 (27.3%)	28 (28.3%)	7 (7.1%)	31 (31.3%)
Knowing what information, and how much information, will be beneficial to the patient.	27 (27.3%)	24 (24.2%)	12 (12.1%)	0 (0%)	1 (1%)	0 (0%)	5 (5.1%)	1 (1%)	0 (0%)	32 (32.3%)

APPENDIX I: TYPICAL CHARACTERISTICS OF NON-COMPLIANCE

Frequency of typical characteristics (n=258) of non-compliance reported by participants.

Categories	Codes	Frequency of characteristic N
Beliefs, attitudes, and values	Disinterest (n=21)	58
	Decreased motivation (n=16)	
	Poor attitude (n=13)	
	Culture (n=3)	
	Patients who believe they are disabled (n=3)	
	"Alternative belief for cause of problem" (n=1)	
	"Not willing to pay for therapy" (n=1)	
Passive engagement	Passive therapy participant (n=16)	33
	Forget their home exercise program (n=10)	
	Do not ask questions (n=6)	
	Poor concentration at initial sessions (n=1).	
Socio-economic-related factors	Low socio-economic status (n=9)	30
	Low/poor level of education (n=8)	
	Poor social support (n=4)	
	Patients with time restraints (n=3)	
	Poor employer support (n=2)	
	Urgency for return to work (n=2)	
	Contextual factors (n=1)	
	"Psychosocial factors" (n=1)	
Cognitive limitations	Poor insight (n=19)	27
	Poor cognitive function (n=6)	
	Level of creative ability (n=2)	
Pain	Presence of pain (n=7)	26
	Low pain threshold (n=5)	
	Fear of pain (n=4)	
	Fear (n=4)	
	Over exaggeration of pain (n=4)	
	Pain caused by exercises (n=2)	
Observable behaviours	Poor appointment attendance (n=13)	25
	Don't bring splint to appointments (n=5)	
	Does not wear splint (n=2)	
	"Wants immediate results" (n=1)	
	Depends on others (n=1)	
	Previously non-compliant (n=1)	
	"Less severe the injury less compliant" (n=1)	
	"Learnt non-use" (n=1)	
Socio-economic-related factors AND beliefs	Secondary gain (n=12)	14
	Perceived or experienced injustice (n=2)	

Patients' personality traits	"Overachievers who… push too hard" (n=2)	11
	External locus of control (n=2)	
	Emotional and anxious (n=2)	
	"Undisciplined AND attention-seeking" (n=1)	
	"Irresponsible" (n=1)	
	Disorganised (n=1)	
	"Self-pity AND … sick role" (n=1)	
	"Challenging behaviour" (n=1)	
Limitations in understanding	Language barrier (n=8)	16
	Lack of understanding (n=4)	
	Poor understanding of:	
	The cost of the injury (n=1)	
	Effects of non-compliance (n=1)	
	Occupational therapy (n=1)	
	What the problem is (n=1)	
Age	Old age (n=2)	6
	Young males (n=2)	
	Age (n=1)	
	Patients under 25 (n=1)	
Presence of poor mental health	Co-morbid mental condition (n=3)	5
	Poor self-care due to poor mental health (n=2)	
Healthcare team and system-related factors	Decreased trust in therapist (n=3)	3
Condition-related factors	Stiffness, decreased range of motion and decrease muscle strength (n=3	3
Therapy-related factors	Length and frequency of sessions (n=1)	1

APPENDIX J: TYPICAL CHARACTERISTICS OF COMPLIANCE

Frequency of typical characteristics (n=262) of compliance reported by participants.

Categories	Codes	Frequency of characteristic N
Positive approach and active engagement	Listens and asks questions (n=30)	86
	Interested and engaged (n=12)	
	Active participation (n=7)	
	Willing (n=10)	
	Positive attitude (n=6)	
	Concerned about their health (n=6)	
	Responsibility (n=4)	
	Positive personality traits (n=4)	
	Good self-management skills (n=3)	
	Presents “goals and solutions” (n=2)	
	Patient with the process (n=1)	
	Willing to pay for therapy (n=1)	
Cognitive abilities	Some level of insight (n=29)	44
	Higher level of education (n=12)	
	Higher Creative Ability level (n=2)	
	Presence of a mental illness (n=1)	
Socio-economic-related factors	Good social support (n=13)	42
	Need/want to return to work/occupation (n=12)	
	Higher socio-economic status (n=8)	
	"Livelihood depends on it" (n=3)	
	Reliable transport (n=2)	
	Time availability (n=2)	
	Positive work environment (n=2)	
Motivation	Internal motivation (n=20)	31
	Desire to regain function (n=7)	
	External motivation (n=3)	
	Financially responsible for own healthcare (n=1)	
Appropriate engagement in the therapy process	Good appointment attendance (n=12)	28
	Knowing and executing home program (n=11)	
	Wearing splints correctly and bringing them to the session (n=5)	
Healthcare team and system-related factors	Trust in the therapist and good therapeutic relationship (n=7)	10
	"Good rapport with therapist" (n=1)	
	How well therapist gives information (n=1)	
	“Easy access to therapist” (n=1)	
Condition-related factors	Experiencing functional improvement (n=4)	7
	Complexity of the injury (n=2)	

	Improved range and strength (n=1)	
Age	Younger patients (n=2)	4
	Age (n=1)	
	Middle-aged patients (n=1)	
Pain	"Higher pain threshold" (n=1)	3
	Decreased presence of pain (n=1)	
	“Work through (the) pain” (n=1)	
Communication	“Good communication skills” (n=1)	3
	“Language” (n=1)	
	Patient communicating their medical history (n=1)	
Gender	Females (n=3)	3
Presence of fear	“Fear” (n=1)	1

APPENDIX K: PARTICIPANTS VIEWS ON WHOSE RESPONSIBILITY PATIENT COMPLIANCE IS.

With whom the responsibility lies for patient compliance (n=96).

Categories	Codes	No. (%)
Both the therapist and the patient.	Both the patient and the therapist (n=21)	54 (54.5%)
	The patient to execute and the therapist to explain in an understandable manner (n=14)	
	Primarily the patient and secondarily the therapist (n=10)	
	The patient to execute and the therapist to provide tailored care (n=7)	
	"The patient that is facilitated by the therapist" (n=1)	
	"The patient, that is directed by the therapist" (n=1)	
More than the patient and the therapist.	The patient, their family, and the therapist (n=20)	27 (27.3%)
	The patient, the therapist, and the doctor and/or other members of the multidisciplinary team (n=7)	
The patient.	Solely the patient's (n=14)	14 (14.1%)
The therapist.	Solely the therapist (n=1)	1 (1%)

APPENDIX L: PARTICIPANTS' VIEWS ON STATEMENTS THAT BEST DESCRIBE PATIENT COMPLIANCE.

Participants' views on statements that best describe patient compliance (n=95).

Statement	Number of participants who 'Agree' (%)	Number of participants who 'Neither agree nor disagree' (%)	Number of participants who 'Disagree' (%)	Missing (%)
Compliance is about adhering to appointments and actively engaging in all forms of therapy.	91 (91.9%)	2 (2%)	1 (1%)	5 (5.1%)
Compliance involves the expert health professional giving instructions and recommendations and the patient following these.	64 (64.6%)	17 (17.2%)	13 (13.1%)	5 (5.1%)
Compliance involves the patient taking ownership and responsibility for the rehabilitation of their hand.	89 (89.9%)	5 (5.1%)	1 (1%)	4 (4%)
Compliance is a shared responsibility between the patient and therapist.	81 (81.8%)	9 (9.1%)	4 (4%)	5 (5.1%)
Compliance is facilitated by the therapist and owned by the patient.	88 (88.9%)	7 (7.1%)	0 (0%)	4 (4%)
Compliance involves mutual agreement between patient and therapist.	89 (89.9%)	5 (5.1%)	0 (0%)	5 (5.1%)
Compliance is a collaborative process in which the patient and therapist co-author the rehabilitation process.	86 (86.9%)	8 (8.1%)	0 (0%)	5 (5.1%)
Compliance is an ideology that reinforces the authority of health professionals over patients.	7 (7.1%)	20 (20.2%)	66 (66.7%)	6 (6.1%)
The term compliance implies that the patient is a passive recipient of healthcare.	7 (7.1%)	11 (11.1%)	76 (76.8%)	5 (5.1%)
Compliance relies on the patient's motivation to engage in health promoting behaviour.	77 (77.8%)	14 (14.1%)	3 (3%)	5 (5.1%)

APPENDIX M: CPD JOURNAL CLUB REGISTER

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Address	1 Perth Road Helen Joseph Hospital	**Responsible / contact person**	Tanweer Alli
Tel No.	011 489 0292/3	**Fax No.**	
Email	Tanweer.alli@gauteng.gov.za	**Accreditation No.**	MDB08/217/01/2021
COMMENT		**Activity No.**	43187

NAME OF ACTIVITY: Understanding compliance in hand therapy

Description: _____

PRESENTERS DETAILS: *Please Print Clearly*

PRESENTERS DETAILS	SAMDC NO / HPCSA NO	SIGNATURE	NO OF POINTS *(One) additional point per hour for presenting*	CONTACT TEL NO.
1. E Makhlouf	CT0097713		4.	011 489 0292
2.				
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CATEGORY	Journal Club – Various Topics	**TIME**	Start: 14h00 End: 16h00
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APPENDIX N: CONGRESS ACCEPTANCE LETTER



A-1159 Supporting patient adherence in a LMIC: the perceptions of South African occupational therapists.
Emily Makhlouf [1], Kirsty Van Stormbroek [2]
University of the Witwatersrand, Johannesburg, South Africa
Presenter: Emily Makhlouf

Dear Author,

Congratulations, your abstract has been accepted for presentation at the IFSSH, IFSHT & FESSH Combined Congress, London 2022 from 6th – 10th June.

We now ask you to **submit a video recording of 3 minutes** or less about your paper to help the scientific committee organise and structure the programme. Please focus on the research question, methodology, results (presented in as much detail as possible) and the conclusions. At this stage we are less interested in the introduction or discussion.

Based on the video, the review panel will make a decision on whether your presentation is accepted as a podium presentation or an electronic presentation.

Please check the **congress website** for detailed information on how to prepare your video clip.

Your **unique upload link** will be sent to you by **10th December 2021**.

Uploading of the video should be completed by **15th January 2022**.

After this we will be able to inform you of when in the programme and how long your presentation should be.

Yours sincerely

Jonathan Hobby, Wee Lam, Helen Buchanan and Fiona Sandford
On behalf of the Scientific Committee

Asszisztencia Kft.
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APPENDIX O: ACCEPTANCE OF TITLE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Private Bag 3 Wits, 2050
Fax: 027117172119
Tel: 02711 7172076

Reference: Mrs Sandra Benn
E-mail: sandra.benn@wits.ac.za

18 September 2019
Person No: 820826
PAG

Miss EM Makhlouf
PO BOX 98196
SLOANE PARK
Bryanston East Ext 18
2152
South Africa

Dear Miss Emily Makhlouf

Master of Science in Occupational Therapy: Approval of Title

We have pleasure in advising that your proposal entitled *Understanding the compliance of patients with hand injuries in South Africa: the occupational therapist's point of view.* has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

APPENDIX P: 'TURNITIN' REPORT

MSc Research report - E. Makhlouf 820826

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