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THE USE AND KNOWLEDGE OF TELEHEALTH AMONGST OCCUPATIONAL THERAPISTS IN SOUTH AFRICA

BY:

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A Research Report submitted to the Department of Occupational Therapy of the University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Masters of Science in Occupational Therapy, Johannesburg,

ETHICS CLEARANCE CERTIFICATE: M211050

20 OCTOBER 2025

I dedicate this research report to God, who gave me the strength and courage to continue with this project even when I felt like I wanted to quit and to my mother,

Roohi Sharrieff

who supported me and encouraged me throughout this research project

DECLARATION

I, Sara Hassan Shaik, declare that this Thesis/Dissertation/Research Report is my own, unaided work. It is being submitted for the Degree of Masters in Occupational Therapy (Perceptual Dysfunction), at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.



(Signature of candidate)

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ABSTRACT

Introduction: Telehealth is a platform of healthcare service delivery that has gained popularity in the lower middle-income countries (LMICS), including South Africa during the COVID-19 pandemic. The declaration of national lockdowns meant that healthcare services needed to continue, despite patients not being able to access healthcare facilities. Telehealth is a platform of healthcare service delivery that has proven to be successful in upper middle-income countries (UMICs) and high-income countries, like the United States of America (USA) in reaching out to rural and vulnerable groups, however the rural status of the USA is not the same as South Africa (SA). This leaves a niche research to be conducted to determine the understanding of occupational therapists about telehealth and their perceptions of its use in the future.

Aims: Through the research, the researcher aimed to gain information on occupational therapists' knowledge and willingness to use telehealth as a tool for rehabilitative service delivery in SA and compare these results between private and public occupational therapists working in SA.

Methodology: The researcher used a quantitative cross-sectional survey design. Surveys were distributed to OTs practicing in the private and public sector in South Africa through and electronic link on a secure RedCap database. The IBM SPSS Statistical software was used to analyse data to obtain percentages and calculate correlations between the groups.

Results and Discussion: Both, private and public OTs displayed knowledge about and willingness to use telehealth. There was no significant difference ($p = 0.001$) between the knowledge about telehealth amongst OTs who work in the private sector and the OTs who work in the public sectors of SA.

Conclusion: The main barrier to the implementation of telehealth services in LMICs, like SA, was considered to be the poor knowledge about telehealth amongst healthcare professionals, however, this research report states that there is no significant difference between the knowledge about telehealth amongst OTs who work in the private sector and the OTs who work in the public sectors of SA.

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NOMENCLATURE

HEALTHCARE PROFESSIONALS: A person who performs or provides a medical service and is considered suitable for this position by education, training and licencing in the particular field of medical expertise (St. Patricks 2025).

INFORMATION AND COMMUNICATION TECHNOLOGY: The use of computing and communication technology systems to manage the sharing, storing, processing and creation of digital content (Rouse & Medleva 2024).

OCCUPATIONAL THERAPY: A client-centred profession that promotes the health and well-being of clients through engagement in daily activities that are meaningful to them, that they are expected to engage in, want to engage in and need to engage in (WFOT 2025).

PANDEMIC: A disease outbreak that covers a large geographical location, which could be multiple countries or continents, and affects a significant proportion of a population (Merriam Webster 2025).

ROBOTIC TECHNOLOGY: Technology that is concerned with design, creation and automatic operation of robots (Merriam Webster 2025).

TELEHEALTH: Use of technology to provide clinical services at a distance, especially when access is limited (No author; 2025).

VIRTUAL PRIVATE NETWORK: A service that creates an encrypted tunnel while for sharing data over the internet while still maintaining user privacy and protection of confidential data (WIXNetwork 2025).

LIST OF ABBREVIATIONS

ABBREVIATION	COMPLETE TERM
AI	Artificial Intelligence
COVID 19	Coronavirus Disease 2019
HPCSA	Health Professions Council of South Africa
ICT	Information and Communication Technologies
LMICS	Lower Middle-Income Countries
NHI	National Health Insurance
OT	Occupational Therapy
OTASA	Occupational Therapy Association of South Africa
OTs	Occupational Therapists
POPIA	Protection of Personal Information Act
PwDs	People with Disabilities
RURESA	Rural Rehabilitation Therapists Association of South Africa
SA	South Africa
UMICS	Upper Middle-Income Countries
VPN	Virtual Private Networks
WHO	World Health Organization

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CHAPTER 1: BACKGROUND AND NEED FOR THE STUDY

1.1 Introduction

Telehealth has been practised among the countries of the global North since 1879, when the first telephonic consultation was conducted (Mars, 2013). Since then, however, the rapid evolution of technology has boosted the use of telehealth in the healthcare fraternity. The World Health Organization (WHO,2024) defines telehealth as a mode for the delivery of healthcare service where there is a separation between the patient and the healthcare practitioner (WHO, 2016). However, although the notion of distance between the healthcare practitioner and the patient is included in the above definition, the platform for the delivery of healthcare service is not mentioned. Nevertheless, this can be augmented by a complementary definition from the American Telehealth Association, which states that the use of electronic communication systems means to transfer of patient information from one site to another for patient care purposes (American Telehealth Association News, 2021). This definition, therefore, also refers to the use of electronic communication, which suggests the use of any electronic device or electronic form of communication.

While the Health Professions Council of South Africa (HPCSA, 2014; HPCSA, 2020) combines the above two definitions, it also adds that telehealth replaces a face-to-face interaction (consultation) between the healthcare professional and patient through a secure video-conference or a similar form of technology. This definition provides healthcare professionals with clearer guidance on what modes can be considered as part of telehealth technologies.

Telehealth is divided into two main categories: store-and-forward telehealth and real-time telehealth (Mars, 2013). Store-and-forward telehealth functions rests upon the principle of retrieving patient information and passing this information on to other healthcare professionals to diagnose and treat a patient at home or to maintain ongoing care at home (Mars, 2013). An example of store-and-forward telehealth is to collect data on a patient through images and send them to a second healthcare professional for a second opinion and advice for ongoing care.

Real-time telehealth, however, comprises interactions between the healthcare professional and the patient through person-to-person treatment sessions, usually through videoconferences (Mars, 2013). Depending on the type of consultation being conducted, other peripheral devices like Smart clothes, Smart pods/homes, and electronic stethoscopes can be used to augment the videoconference (Mars, 2013).

While telehealth has proved to be effective in extending healthcare services to rural populations in Upper Middle-Income Countries (UMICs), its acceptance has remained low among healthcare professionals and patients alike (Mars, 2013). Furthermore, Mars (2013) suggests that the key factor for low acceptance is poor education of healthcare personnel about the idea and aims of telehealth.

This research study, therefore, aims to explore the knowledge of healthcare personnel (particularly Occupational Therapists (OTs)) about telehealth to deduce their readiness for the implementation of telehealth that can improve and maintain the delivery of healthcare services in South Africa (Mars, 2013).

1.2 Problem Statement

Several sources in the literature allude to the negative influences of poverty on health (Grobbelaar & Uriona-Maldonado, 2019; Gordon, Booysen & Mbonigaba, 2020). When considering South Africa's total population, the classification of 'socio-economically poor' is 33.7% (Index Mundi, 2021). This population group's systemic exclusion from healthcare services is considered a result of lack of employment, poor infrastructure and transport systems, and this reduces their quality of life and health and access to needs such as healthy food, hygiene and healthcare (Sherry, 2015).

In addition, the incidence of people with disabilities (PwDs) in rural South Africa is observed to be higher than in socio-economically stable homes (Mutwali & Ross, 2018). Further to this discovery, it was also observed that PwDs experience inequalities in quality care when accessing healthcare services in terms of delayed treatment, poor assistive device issuing, and poor health education (Sherry, 2015). This challenge has led researchers to explore the use of telehealth to vulnerable populations, including people with disabilities and rural populations (Grobbelaar & Uriona-Maldonado, 2019).

In 2017, it was reported that the available research in SA on telehealth and evidence of its success was limited (Mars, Scott & Walters, 2018). One limitation includes the

rural populations of Upper Middle-Income Countries (UMICs), where infrastructure and budget to implement telehealth are still workable by their governments, unlike in South Africa (Brooks, et al. 2018). Another limitation comprises interest in the field of technology and its association with healthcare services.

It is notable that most of the research about telehealth is conducted by or involves Mars (2018). Furthermore, the results of research by Mars was in 2018 and there have not been significant changes in results since 2013. This may be due to the interest of researchers in merging technology and health to improve South African healthcare services.

This study, therefore, will investigate the level of knowledge occupational therapists have of telehealth to further investigate universal healthcare delivery in future healthcare service delivery.

1.3 Research Questions

What do occupational therapists in SA know about the use of telehealth as a mode of healthcare service delivery and are they willing to use telehealth as a tool for rehabilitative healthcare service delivery?

1.4 Research Aim

Through the study the researcher aims to determine occupational therapists' knowledge on telehealth and therapists on their knowledge and willingness to use telehealth as a tool for rehabilitative service delivery in South Africa.

1.5 Research Objectives

The objectives of this study are to determine:

- the knowledge of South African occupational therapists about the use of telehealth;
- the willingness to use telehealth for the provision of rehabilitative services among occupational therapists in SA; and
- the differences in knowledge, between public and private occupational therapy practitioners in SA regarding the use of telehealth.

1.6 Significance of the Study

The rapid increase in COVID-19 worldwide led the WHO to declare a global pandemic (Smith et al., 2020). The South African government declared these exponential increases in COVID-19 cases nationally as a National State of Disaster (HPCSA 2020). Communities resorted to quarantines and a national lockdown was declared to prevent community transmission. With these precautionary measures in place, the concern for continued accessibility of healthcare services to isolated communities has arisen, and the Health Professions Council of South Africa (HPCSA) has now resorted to the use of telehealth (HPCSA 2020).

Telehealth is a platform of healthcare service delivery that has gained popularity in the lower middle-income countries (LMICS), including South Africa during the COVID-19 pandemic. As previously mentioned, however, despite the notion of telehealth as an effective tool for the delivery of healthcare services, its acceptance remains low (Smith et al., 2020) In this regard, multiple sources mention the lack of knowledge of healthcare professionals about telehealth (Smith et al., 2020). This barrier, therefore, justifies the need for this study to ensure that the knowledge of the delivery of services is sound.

Education is essential for any idea to be put into action. In this case, the healthcare professional needs to know about the uses, benefits, barriers and facilitators of telehealth to ‘market’ its usage and increase its acceptance by patients, infrastructure management teams, and governments. The principle ensures current knowledge facilitates the use of telehealth in the public health sector in South Africa and this, therefore, makes this study worthwhile.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter will define telehealth and what it comprises. This also includes a further exploration of how telehealth was used before the COVID-19 epidemic and how it has changed (or is now used) after the COVID-19 threat. It will discuss how the medical fraternity and rehabilitative fraternity made use of it at that time. This section then further delves into the use of telehealth among occupational therapists. Lastly, this chapter will explore policies and legislation that govern the implementation of telehealth.

This chapter will also identify the guidelines set out by (i) healthcare professional bodies; (ii) the South African Information and Communication Technologies sector guidelines; and then (iii) evaluate the relevance of these guidelines for the current state of healthcare service delivery through telehealth in South Africa. The available research provides a baseline for this research study and for those niche areas where improvements can be made for telehealth in South African OT services. The literature also will be explored to answer whether healthcare professionals are willing to implement telehealth into the healthcare services for all individuals living in SA, despite those negative demographic environments that potentially play a role in limiting access to healthcare services.

The databases used for the literature review include the University of Witwatersrand's Library. Within this store of databases, the most frequently consulted databases included Elsevier, CINAHL Ultimate and SagePUB. Additionally, specific telehealth information was sourced from the Journal of Telehealth and Telemedicine.

2.2 What is Telehealth?

For over the last three decades, healthcare professionals and researchers have sought various methods to provide healthcare services evenly across populations of differing demographics (geography, socioeconomic status and, physical and infrastructural accessibility). After much effort, the use of telehealth was derived

through the intersection of information and communication technologies (ICT) and healthcare service delivery, thus coining the term, ‘telehealth’ (Field, 1996). Although this definition is over 20 years old, it still embodies the key components that make up the concept of telehealth, which is essentially the technology and communication platforms for the delivery of healthcare services.

Today, however, a broader definition of telehealth is made by different authors who have explored this field of medicine and technology. Holland (2022) firstly describes telehealth as basically a term used to define the delivery of healthcare services from *a distance* through the use of *an online platform* (Holland, 2022). A different source also defines telehealth as the *use of information and communication technologies* (ICT) like telephones and emails to provide healthcare services (Samnani & Dwiwedi, 2023). Yet, another source identifies telehealth as *the delivery of healthcare services through the use of video consultations* (eVisit, 2024).

The term *telehealth* is said to have been coined by clinicians providing healthcare services through the above-mentioned platforms. This term can be used inter-changeably with other terms like: tele-medicine, tele-care, tele-rehabilitation, e-medicine and m-health (Holland, 2022; Samnani & Dwiwedi, 2023; Lutkevich, Wallask, & Holman, 2024). In this present research report, the term telehealth is used to explore and explain the concept and the results of this study further.

There are now said to be two main categories that define telehealth today: (i) real-time telehealth consultations and (ii) store-and-forward telehealth consultations. Real-time telehealth primarily consists of a live consultation between a patient and a healthcare professional, while store-and-forward telehealth services include patient data that is shared with other healthcare professionals involved in the care of the patient (Mars 2013). Further research into the area of telehealth defines the use of robotics in telehealth by virtue of the use of technology to assist with management of healthcare conditions (Picozzi et al. 2023).

Further explanations with support from available research will detail the use of each strategy in the rest of this literature review.

2.3 The Use of Telehealth Prior COVID-19

According to different published articles, the introduction of telehealth services can be traced back to different dates (eVisit 2024; Holland, 2022; Samnani & Dwiwedi, 2023; Field, 1996). In terms of its current definitions, telehealth not only comprises consultations between patients and healthcare professionals, but also between medical students and patients (eVisit, 2024). Formerly, prior to the global COVID-19, explanations in the literature on the use of telehealth pandemic services indicates that video conferences and consultations between a group of medical students and patients began in 1959. Medical students stationed at a state hospital received intervention plans through video consultations and delivered these services to the patients at the state hospital at which they were stationed (eVisit, 2024). By this, the present researcher understands that this form of telehealth would most likely be categorised as 'store-and-forward' telehealth services, as multiple healthcare professionals were involved in delivering healthcare services to their patients.

Various other examples of the use of telehealth before COVID-19 do exist, however, two reports in articles found in former literature occurred where information and diagnoses were shared between two or more healthcare professionals to assist patients (Wheel, 2023; Nesbitt, 2020). In both these reports, there is a narration of an electrocardiogram (ECG) being interpreted and results being shared via radio. It can be deduced, therefore, that a medical professional was delivering information to another medical professional via the radio to diagnose a patient with a cardiac condition for a cardiac assessment, which is another example of store-and-forward telehealth (Wheel, 2023; Nesbitt, 2020; Mars, 2013).

Despite the implementation of telehealth services prior to 2019 – 2020, many sources have stated the same multiple reasons for the less enthusiastic acceptance by patients, or healthcare professionals (Wheel, 2023; Resneck, Abrouk & Steur, 2016; Jack & Mars 2014). These reasons include: (i) awareness about telehealth; (ii) costs involved in delivering healthcare services through technology; (iii) quality of care; and (iv) lack of suitable clinicians and regulatory changes (Wheel, 2023; Resneck, et al., 2016; Jack & Mars 2014). Thus, it can be concluded that despite the passage of time between various examples on record in the literature, such implementation has cost governments large sums of finance, while it demands more acceptance from both the healthcare service provider and the patient receiving these services. Therefore, it

requires more education on how to deliver these services (for the healthcare professional), and how to receive and interact with these services (for the patient). This leads to question whether OTs in SA will be willing to accept this mode of healthcare service delivery as part of their daily professional practice. This question requires further exploration as a niche in the research that deals with willingness to use telehealth among OTs in SA.

2.4 The use of Telehealth during and after COVID-19

The COVID-19 pandemic developed the use of telehealth services for healthcare service delivery. This happened when many healthcare professionals required contact to be maintained with patients to sustain their professional functions by using various new platforms of telehealth, including live consultations, health applications and telephone calls (Casa et. al., 2023; Young, 2024).

However, instead of claiming that the platforms of telehealth have changed from pre-COVID-19 to during and post-COVID-19, comments will be made on the increase in the variety of telehealth platforms compared what was available before COVID-19. This will focus on the popularity it gained in terms of its success and acceptance among healthcare professionals and patients alike.

2.4.1 Acceptance of telehealth among healthcare professionals

As seen in this literature review above, healthcare professionals have always strived to incorporate telehealth into their daily practices and during times of poor contact with their patients (eVisit, 2024; Holland, 2022; Samnani & Dwiwedi, 2023; Field, 1996; Casa et al., 2023, Young, 2024; Wheel, 2023; Nesbitt, 2020; Mars, 2013). However, some researchers do not completely agree with the implementation of telehealth systems into the current healthcare system for more serious reasons.

Firstly, Jack & Mars (2014) argue that it is possible that telehealth may not be implemented in Lower Middle-Income Countries (LMICs) like South Africa. One of the reasons identified in the literature include the motivation of the World Medical Assembly (WMA) and the World Health Organization (WHO), which both state that the financial resources of developing countries should be used instead to improve basic resources such as clean water and housing (Jack & Mars, 2014). Secondly, another possible reason for the objection to telehealth among healthcare professionals can be

the vague presentation in clinical protocols and ethical guidelines for conducting (i) telehealth services; (ii) guidelines for data security; (iii) guidelines for the education of telehealth services; and (iv) the creation of networks through telehealth services among healthcare professionals. Fully aware of the above concerns, some healthcare professionals, especially those in the public sector, have had doubts about the success of this new form of healthcare service implementation. Therefore, this leads to further research on the feasibility of telehealth in SA (Gulube & , 2000; Jack & Mars, 2014).

Jack and Mars (2014) also find that there are policies and guidelines available for the correct use and data security when telehealth is applied in healthcare, but they are only applicable to developed countries (Jack & Mars, 2014). This then leads to the question that the baseline used for the creation of telehealth protocols and guidelines is from an international healthcare system, which is more specific than that offered by the SA healthcare system.

2.4.2 Acceptance of Telehealth among patients

One study relevant to this current research indicates that telehealth is not only rejected or poorly accepted amongst patients due to poor awareness about telehealth, but it is also rejected due to cultural factors, because cultural norms surrounding illness, taking care of the ill and ongoing care differ from culture to culture (Basu, 2020).

This raises the issue of societal norms in some cultures, where it is seen as a duty to take care of the ill and elderly, thus making the need for telehealth and independent health management less important than expected (Basu, 2020). The researcher, can thus conclude that telehealth not only needs to be marketed to facilitate independence and convenience, but also needs to consider cultural, societal and political influences that will promote or prevent the uptake and acceptance of telehealth among patients.

2.5 The Use of Telehealth in the Medical Fraternity

Medical professionals have used telehealth in the simplest forms and most complex ways to maintain their contact and professional practice with patients when distance and financial constraints affected their consultations (Casa, et al., 2023; Tomita et.al. 2015). During the Coronavirus Disease (COVID-19) pandemic, a team of oncology professionals in Italy conducted a research study among cancer patients about their consultations through telehealth. The primary platforms of telehealth included the

threefold use of video consultations, the use of emails for sharing home programmes and telephone calls for follow-up consultations (Casa, et al., 2023; Tomita, et al., 2015). These basic forms of contact and communication with patients are categorised as real-time telehealth, because they include direct communication between the healthcare professional and the patient.

Another platform of telehealth across various studies is the use of SMSs conducted by medical health professionals (Tomita, et al., 2015; Biriotti, et al., 2012). Although these forms of telehealth did result in positive treatment outcomes for both patients and healthcare professionals, Mars, et al. (2021) argue that this cannot be considered as telehealth because SMSs do not align with the national guidelines of telehealth, thus they are at risk to legal exposure (Mars, et al., 2021). However, this statement is in contradiction with the definition of telehealth according to the World Federation of Occupational Therapy (WFOT), which defines the use of ICT for healthcare service delivery (Samnani & Dwiwedi, 2023) that neither includes nor excludes any particular platform of telehealth, nor does it consider one form more superior than the other.

In effect, many platforms can be used to deliver telehealth services, but some researchers identify telehealth as having certain advantages and disadvantages (Haleem et al., 2021; Gajarawala & Pelkowski 2020). Haleem et al., (2021) describe some of the benefits of telehealth as: (i) having a continuous relationship between patients and doctors; (ii) reducing costs of hospital services; (iii) reducing rates of infections during hospitalisation; and (iv) reaching a greater population size (Haleem et. al 2021). Gajarawala & Pelkowski (2020), however, suggest that there are some barriers which would include; (i) regulatory bodies presenting poor telehealth guidelines; (ii) limited comprehensiveness in physical examinations; and (iii) the lack of telehealth licencing (Gajarawala & Pelkowski, 2020).

2.6 The Use of Telehealth in Rehabilitation

With evidence of telehealth being an accomplishment across the medical healthcare fraternity, this section of the study's literature review narrows the focus of telehealth among the allied healthcare professionals, including OTs. In a definition by the World Federation of Occupational Therapists (WFOT) coined in 2014, telehealth was

considered an appropriate model for health-related services for OTs (Samnani & Dwiwedi, 2023).

Standardised assessment tools have since also undergone trials for implementation of telehealth methods to replace conventional methods of administration (Emery, et al. 2022; Carrington & Islam 2022). The North Star Ambulatory Assessment is a standardised assessment that depicts the mobility of children diagnosed with Duchenne's Muscular Dystrophy. This assessment tool was administered using a telehealth approach and resulted in the same results that one would have received during a contact assessment session (Emery, et al., 2022). Although this assessment method is conducted by physiotherapists, it is predicted that the same results would be retrieved when mobility assessments, as well as other assessments are conducted by Ots, however it is noteworthy to understand that not all assessments can be administered through a telehealth platform.

Another advantage is that occupational therapists have been reported to have conducted mobility assessments in shortened spaces of time with the assistance of telehealth (Carrington & Islam, 2022). Clients and patients are also reported as more compliant and more willing to adhere and administer home programmes independently when they receive a comprehensive assessment done and explained to them prior to the treatment plan (Carrington & Islam, 2022). From this researcher's point of view, telehealth can be used to reduce turnover rates between assessment and feedback to speed up the process and reduce the time taken to commence treatment.

A South African research paper by Coetzee, et al., (2022) has investigated the feasibility of telehealth among the allied healthcare professionals in South Africa (Coetzee, et al., 2022). Coetzee, et al., (2022) like previous researchers – Samnani & Dwiwedi (2023) and Carrington & Islam (2022) – believe that OTs can incorporate telehealth in their service delivery packages (Coetzee, et al., 2022). However, their research explored the impact of COVID-19 on the (i) education of OTs, (ii) qualifications of OTs and (iii) their knowledge about telehealth upon graduation (Coetzee et al., 2022). With Sarsak (2020), Coetzee, et al., (2022) are of the opinion that OT services provided through telehealth platforms are as effective as in-person or contact occupational therapy (Coetzee, et al., 2022; Sarsak, 2020).

Sarsak (2020) has also explored the use of OT assessments in adolescents and children in his study (Sarsak, 2020). Through the use of two-way video-conference interviews, a group of parents of individuals diagnosed with Autism Spectrum Disorder (ASD) were assessed and interviewed by OTs. The results of this qualitative study mentioned that telehealth in the forms of either OT applications or two-way video-conferences are an effective method for collaboration between the OT, teacher and parents when a transfer (carry over) of therapy is considered for children diagnosed with ASD (Coetzee, et al., 2022; Sarsak, 2020).

2.7 Telehealth Feasibility Research

In 2020, Bhaskar, et al., (2020) conducted a feasibility study to assess the readiness and stages of implementation of telehealth across various countries around the world (Bhaskar, et al., 2020). The results of the implementations each came with recommendations to either improve or to implement telehealth in a more effective way (Bhaskar, et al., 2020).

When assessing the Central Asian region, it was found that Singapore was at the forefront of the implementation of telehealth services. This is in contrast to China that has low implementation levels in some regions while other regions have a good level of implementation (Bhaskar, et al., 2020; Suzuki, et al., 2020). Bhaskar et al., (2020) concluded that the reason for this contrast between two countries on the same continent as well the contrast between two different regions of the same country is due to the distribution of rural populations (Bhaskar et al., 2020; Suzuki, et al., 2020). Bhaskar et al., (2020) further suggest rural-urban gaps need to be addressed to maintain fair distribution of the telehealth services, but they do not explore how these gaps can be closed, which tends to nullify the suggestion (Bhaskar et al., 2020; Suzuki, et al., 2020).

The same study conducted by Bhaskar et al., (2020) indicates the stage of telehealth implementation in African countries. By using a cluster analysis, they identify that telehealth can be sufficent in reaching out to remote and rural populations and delivering healthcare services adequately and efficiently (Bhaskar et al., 2020; Suzuki, et al., 2020; Holts, et al., 2020). However, Scott & Mars (2017) argue that telehealth cannot be easily implemented because there are greater basics required in LMICs –

such as food security and sanitation - that need to be addressed before implementing new forms of healthcare services (Scott & Mars, 2017). Through their updated manual on telehealth implementation, the World Health Organisation also state that telehealth can be implemented in each country regardless of resources and context (WHO, 2020), therefore further updated research needs to be conducted to explore the claim by Scott & Mars (2017) that telehealth implementation in sub-Saharan countries is difficult while organisations like WHO and other researchers (Bhaskar, et al., 2020; Suzuki, et al., 2020; Holts, et al., 2020) believe that telehealth implementation is feasible worldwide.

India's Information Technology (IT) Act of 2000 has been suggested as a limitation for the complete implementation of telehealth in Indian States (Bhaskar, et al., 2020). This Act governs the use of electronic systems, digital platforms and online platforms for any form of legal communication (IndiaCode 2000). Bhaskar et al., (2020) state that the IT Act of 2000 limits complete telehealth implementation due to the gaps in clarity regarding confidentiality, privacy and data security. However, a further exploration into this Act does state certain rules for breaches of confidentiality and breaches in privacy (India Code, 2000) in terms of penalties that accompany the breach in confidentiality and privacy. It then appears that the real gap in the telehealth literature in India is not about the poor clarity in the rules about data security, rather it is about the out-dated rules in the Act.

In Latin America, the uptake of telehealth has been mostly in Chile, while in countries like Australia, the United Kingdom, the United States of America, New Zealand and Europe, the focus remains on refining telehealth services to serve the large gaps between rural and urban populations, and between younger and elderly populations (Bhaskar, et al., 2020).

2.8 Policies and Legislation that Govern the Use of Telehealth

2.8.1 Telehealth Guidelines Around the World

The WHO's multiple policies and guidelines that guide the clinical reasoning of healthcare professionals (Haleem et al., 2021; WHO 2024). consider that healthcare services can be difficult to access, even by PwDs (WHO 2024; Haleem et al., 2021).

The substantial increase in non-contact healthcare services needed by patients during the COVID-19 pandemic escalated the necessity for clear guidelines to be constantly updated, distributed and implemented by all countries. To enable all countries to implement telehealth services regardless of the availability of resources, contexts and partners for healthcare service delivery, the WHO developed multiple tools and guidelines (WHO 2022; WHO 2024). A vast amount of research has also been done on how telehealth can be used in a safe manner when being delivered by healthcare professionals. Strict and clear guidelines and policies have been designed and distributed to all healthcare professionals that use this platform. (Garber, et al., 2023; Al-Alawy & Moonesar, 2023; Scott & Mars, 2017). For example, the WHO called for urgent action to bridge the disparities that PwDs experienced when accessing healthcare services during the COVID-19 pandemic (WHO, 2024). Another updated publication by the WHO explains the partnership between the WHO and the International Telecommunications Union (ITU) to develop a tool to outline the global standard for the technical requirements for implementing telehealth service programmes worldwide (WHO, 2024).

While set policies and guidelines govern how telehealth is presented in each country, some countries only focus on particular concerns that are relevant to their financial and political contexts (Al-Alawy & Moonesar, 2023). For example, France experienced multiple biddings prior to deciding on the billing and ethics procedures before the introduction of telehealth services to the healthcare system; while Australia's medical benefits scheme outlined that healthcare service delivery through telehealth would only be reserved for patients who lived in rural areas. However, the United Arab Emirates (UAE) focused on the billing procedures in relation to each patient's dependence on the national health insurance system (Al-Alawy & Moonesar, 2023). Such examples of ethical billing and reservation services to certain populations can certainly be included in South Africa's healthcare system when the ethical guidelines are considered for the telehealth healthcare system.

2.8.2 South Africa's Healthcare Guidelines on Telehealth Service Delivery

Booklet 10 of the guidelines established by the Health Professions Council of South Africa (HPCSA), is a complete guideline relevant to the current era (and times of global pandemics such as COVID-19) and to the health professionals who wish to use

telehealth as their mode of service delivery (HPCSA, 2021). However, while this booklet comprehensively incorporates the newly implemented Protection of Personal Information Act (POPIA), these guidelines also need to be revisited, as clauses like ‘multiple practitioner progress storage’ are vaguely touched upon. Only 4% of physicians reported encrypting patient information if sent by email, while patient information by WhatsApp was not sent to any central repository for secure data storage (Scott & Mars, 2017). Furthermore, this booklet’s main consideration is the data security of patient records, whereas billing, ethical prioritisation and distribution of telehealth services are not mentioned. This present researcher suggests that perhaps more research is required to update this booklet in such aspects that also contribute to telehealth services.

Another concern about the telehealth policies and guidelines is that the SA telehealth system contains outdated evidence about telehealth in South Africa. In particular, one paper created by the Department of Health in Kwa-Zulu Natal (where telehealth was implemented in phases) is dated from 1999 to 2004 which increases the ambiguity of the telehealth guidelines established by the HPCSA. This above research only highlights the phases in which telehealth was introduced to the healthcare system of South Africa as it explains the association between ICT networks (Telkom) and the Department of Communication, and the Department of Health (KZN Heath, 2024). However, such outdated evidence does not give a baseline on which to build current research, therefore, it becomes an unreliable source of evidence for telehealth, the collaboration of ICT networks, and the healthcare system of SA. In addition, this research was limited to a single province in SA, which does not provide evidence or support the findings that are ideal for rural countries, remote populations, and vulnerable groups, as researched by other international counterparts. This gap in recent research is, therefore, another reason for this study to be conducted in telehealth in SA.

2.9 Why Telehealth is needed in South Africa

Access to healthcare is a guaranteed basic human right outlined in Section 27 of the South African Constitution. This access includes emergency care, maternal and reproductive care, as well as the right of children to basic healthcare. Although there

are certain circumstances where healthcare can be limited, no individual approaching a healthcare service can be denied this human right completely (SAHRC, 2021).

The Constitution of SA further reinforces that, reasonable measures should be taken to ensure: (i) progressive realisation of access to healthcare through ease of access, (ii) reduction of demands on hospitals, and (iii) the provision of basic services at local clinics in SA (SAHRC, 2021). Despite this mandate, a common illustration of public healthcare in South Africa resides in terms of long waiting lists and patient backlogs, and patients who default on treatment (SAHRC, 2021).

Universal health coverage through telehealth is intended to guarantee healthcare to particularly vulnerable groups and those living in remote and rural areas (WHO, 2016). There is much evidence of the successful use of telehealth internationally (Beeri, et al. 2020). Telehealth has also been found especially effective in the management of chronic diseases, such as diabetes and mental health conditions (Brooks, et al., 2018), however, this has been met with poor acceptance in SA by both patients and practitioners alike.

Some studies indicate the reasons for the poor adoption of telehealth among patients to be (i) the low education status caused by increased responsibilities on younger generations to make an income; (ii) unhealthy lifestyles leading to chronic conditions; (iii) poor physical access and geographical access to healthcare for PwDs, and (iv) low socio-economic status (Alaba & Chola, 2013). The people with disabilities population group (PwDs) in SA are the greatest victims of unmet healthcare needs and face the greatest barriers when trying to access healthcare services (Vergunst, et al., 2017).

Furthermore, in the past decade, it has been observed that an unprecedented increase in the ageing populations in developing countries have had a negative effect on the economy, health, and society itself (Chirinda, et al. 2013). These effects have led to an unhealthy and somewhat immobile population. The reasons are qualifiers enough to motivate for the implementation of telehealth services and future research to be done in this area of healthcare in SA.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Study Design

A quantitative, descriptive cross-sectional survey design was used. Information was obtained and recorded on numerical and statistic forms at a single point in time. Research instruments included structured questionnaires adapted from existing questionnaires to obtain information about telehealth knowledge among occupational therapists in SA (Creswell & Cresswell 2018).

3.2 Study Population

The target population of occupational therapists were registered with the HPCSA at the time of the data collection period and also practised in the public and private sectors of SA during March 2022 to June 2022. The sample population for this study was the whole target population registered at the HPCSA during the data collection period described above (Windham, 2019).

3.3 Sampling

In May 2021, there were 8 802 practising Occupational Therapists in SA recorded on the database of the HPCSA (Health Professions Council of South Africa, 2021). Whole-population sampling was done, to enable this survey link's later distribution to all occupational therapists registered with the HPCSA as practitioners during the data collection period (mentioned above in Section 3.2). Thereafter, a power of the study sample was calculated using the Roasoft sample size calculator (1 – type ii error calculation method). Snowballing on social media to ensure maximum returns was used as a method of distribution of the surveys. The social media platforms used were: Facebook Telehealth SA group, WhatsApp OT class group of 2018, the WhatsApp Assistive Device and District OT groups, and the Facebook schools' groups.

Inclusion Criteria	Exclusion Criteria
OTs registered with the HPCSA	Vocational rehabilitation occupational therapists for vocational rehabilitation
Must be practicing in SA during the data collection period	Medicolegal occupational therapists

Rationale for exclusion: telehealth questionnaire does not accommodate for additional vocational and medico-legal items that are used by these OTs, however participation in the survey is voluntary.

3.4 Data Collection

3.4.1 Research Tools

The researcher developed a demographic questionnaire (Appendix A) to gather basic demographic information from all participants. Thereafter, a survey on telehealth, was developed (Appendix B) which consisted of a total of five domains. Each domain had a set of questions for participants to answer by using a 5-point Likert scale, where the score was to be interpreted as follows:

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

The first domain was the ***Computer Access and Literacy***, which included questions regarding the awareness, use, and frequency of technology devices for communication. The second domain was ***Telehealth Knowledge***, which explored the practitioner's knowledge of the use and training obtained on telehealth. The third domain explored the ***Past and Current Use of Telehealth*** to provide service delivery. The fourth domain had questions related to the ***Willingness to Integrate the Use of Telehealth in Practice***, while the fifth domain asked questions related to knowledge and ***Perceptions of The Future of Telehealth*** in SA. The survey was accompanied by an introductory information sheet (Appendix C) to ensure that the research was carried out ethically. Participation in the survey was considered as consent. Because the sample size was too small, a content validity or pilot study was not conducted.

3.4.2 Data collection procedure

The demographic questionnaire (Appendix A), the research questionnaire (Appendix B), and the research information sheet (Appendix C) were uploaded on Research Electronic Data Capture platform (REDCap), where OTs accessed the survey through a generated link to complete questionnaire. The information about the research project and the supporting link to participate in the study were also distributed by the Occupational Therapy Association of South Africa (OTASA) and Rural Rehab South Africa (RURESA) at the request of the principal investigator.

3.5 Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to analysed data obtained from the research as follows:

Objectives	Variables	Type of data	Display of data	Test
Demographics	• Age • Gender • Racial Classification • Field of practice • Years active • Type of practice setting • Practice location • Employment sector	• Interval • Nominal • Ordinal	• Percentages	• None
Determine the knowledge of South African OTs about telehealth.	• Computer access and literacy domain • Knowledge of telehealth domain	• Interval • Nominal • Ordinal	• Tables • Percentages • Graphs	• Chi-square analysis for multiple groups
Determine the readiness for the use of telehealth for the provision of rehabilitative services among OTs in SA.	• Telehealth willingness domain of the questionnaire • Telehealth perception domain of the questionnaire	• Nominal • Ordinal	• Percentages	• Chi-square analysis for multiple groups
Determine the difference in levels of knowledge between public and private OTs of telehealth in SA.	• 2 levels of telehealth use	• Ordinal	• Percentages • Correlations	• Chi-square analysis for multiple groups

3.6 Ethical Considerations

Institutional approval was obtained from the Human Research Ethics Committee (Medical) of the University of Witwatersrand for the research (Appendix G: M211050). Each participant received an information sheet discussing a description of the study, its reasons, duration, procedures, and risks and benefits. The information sheet ended with a declaration of consent to assure the participant that participation is voluntary and withdrawal can be made at any time in the study in alignment with chapter 3 of the Protection of Personal Information Act of South Africa (POPIA). Data confidentiality and anonymity were also maintained in accordance with Chapter 3 of the POPIA of South Africa (POPIA 2021). When processing and releasing the results through the assistance of a biostatistician, research codes were used. All data obtained from the research has been uploaded and stored on REDCap's storage space to be accessible if the research is published the data will be stored according to the author guidelines of the specific journal. If the research is not published the data will be deleted from the researcher's laptop and will be kept on a secured online platform for five years. After this period the online data will be deleted.

CHAPTER 4: RESULTS OF THE STUDY

4.1 Introduction

To establish the use of telehealth and its integration into daily occupational therapist practices in SA, a questionnaire was designed using previous data from the available literature. This chapter includes the results of 106 participants who answered the questionnaire, including their demographics.

The results of the first two objectives are presented in terms of the knowledge about telehealth, and use of and willingness to use telehealth by the participants in their work settings, respectively. Since the third objective of the study is to compare the knowledge about telehealth between occupational therapists from the private sector and OTs in the public sector, the correlation of these variables is also presented.

4.2 Demographics

4.2.1 Personal Demographics

The majority of the participants were female (n = 101), which made up 95.28% of the sample, while only 4.72% (n = 5) of the participants were male. Approximately 60% of the participants (n = 61) reported that their home language is English (Table 4.1) and a small percentage (3.8%) of the participants (n = 4) reported that they spoke a different language (other). The average age of the participants was 35.73 years (calculated mean). Most of the participants were within the age range of 20 – 29 years and the median age was calculated to be 32 years (Table 4.1).

Table 4.1: Personal Demographics

		N = 106 n	Percentage (%)
Gender	Female	101	95,3
	Male	5	4,7
Home Language	English	61	57,5
	Afrikaans	31	29,2
	African language	10	9,4
	Other	4	3,8
Age (years) (n=101)	20 - 29	45	42,5
	30 – 39	21	19,8
	40 – 49	20	18,9
	50 – 59	12	11,3
	60 – 69	2	1,9
	70 – 79	1	0,94

4.2.2 Qualifications and employment

Most of the participants have a Bachelor's of Science degree in occupational therapy. This represents 40% of the entire sample. Twenty-nine percent of the sample have a Bachelor's degree in occupational therapy (Figure 4.1).

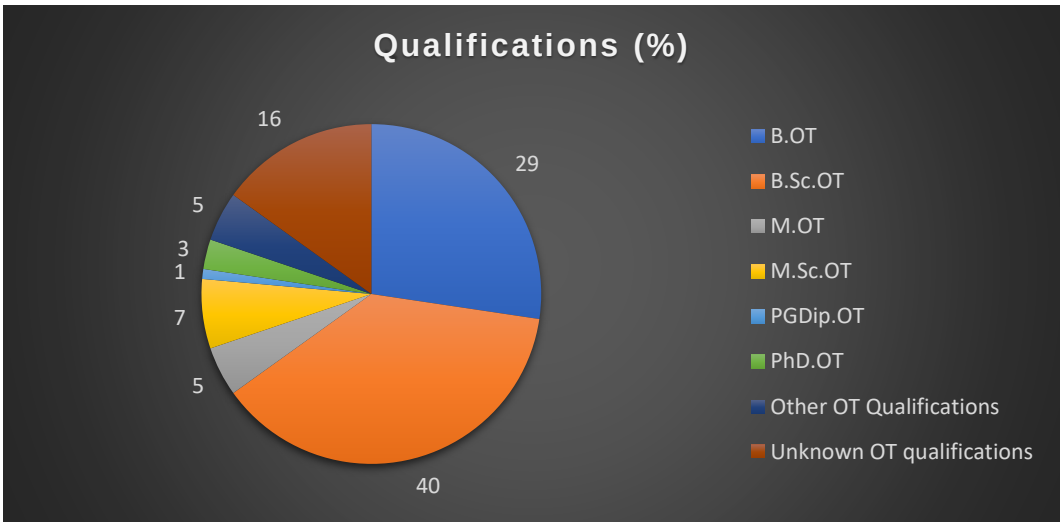


Figure 4.1: Qualifications as percentage (%) (N=106)

In the experience in practice range of '1 – 5 years', there were 42 participants (39.62%), which showed that there were almost 40% of the participants whose knowledge was less compared to the OTs working for longer time (Figure 4.2), while only two participants (1.89%) fell in the category of practising for more than 40 years. The category of unknown OT qualifications included participant records that mentioned their professional category, like: 'community service OT', instead of their obtained qualification.

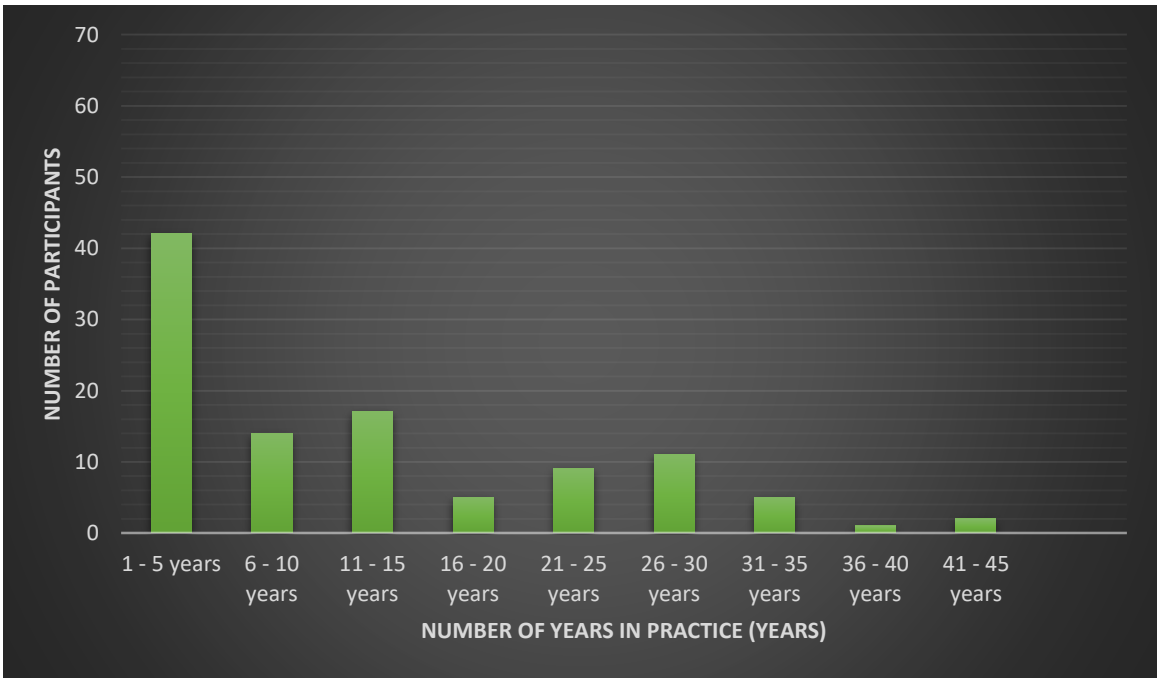


Figure 4.2: Practice experience (N=106)

All participants responded to the location of their practice in South Africa. Gauteng province had the highest number of participants (n = 59) while the least OTs practised in the Eastern Cape, Northern Cape, and North-West provinces (Table 4.2).

Table 4.2: Geographical location of Practice (N=106)

Province	N = 106	Percentage (%)
Gauteng	59	55,7
Eastern Cape	2	1,9
Northern Cape	2	1,9
Mpumalanga	3	2,8
Free State	4	3,8

Western Cape	19	17,9
KwaZulu-Natal	11	10,4
North-West	2	1,9
Limpopo	4	3,8
Total	106	100,0

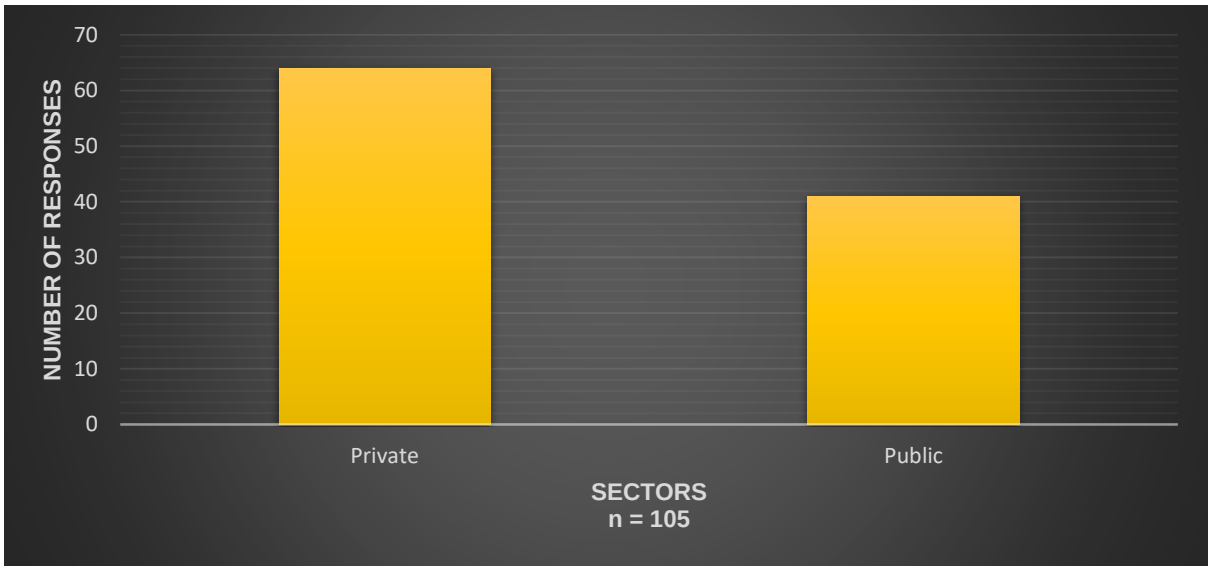


Figure 4.3: Number of Participants in public and private sectors (N=106)

Of the 106 participants, 60.4% worked in the private sector, while 38.7% worked in the public sector. There was one missing response to this question, which was responsible for the missing 0.9% (Figure 4.3).

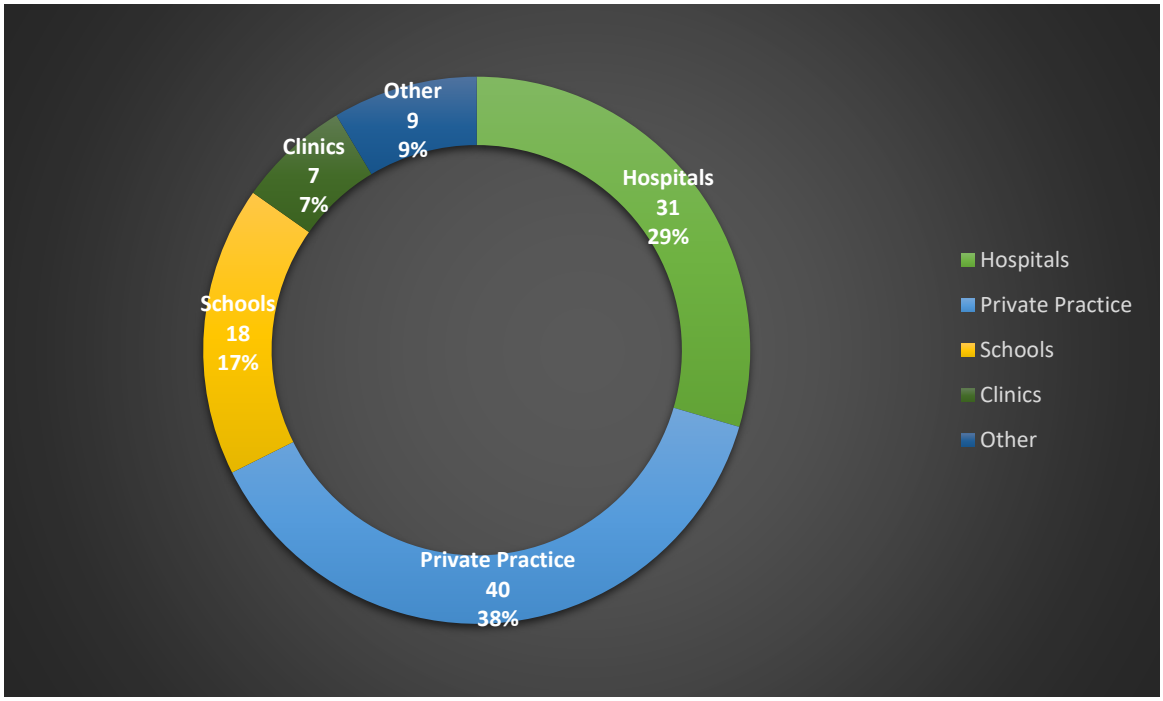


Figure 4.4: Work Settings of Participants (N=106)

Most (38%) of the occupational therapists worked in private practice (n = 40), while others worked in hospitals (n = 31) (Figure 4.4). The category of 'other' settings included NGOs (n = 1; 11%), home-based rehabilitation centres (n = 1; 11%), insurance (n = 1; 11%), corporate companies (n = 1; 11%), and universities (n = 2; 22%) (Figure 4.5).

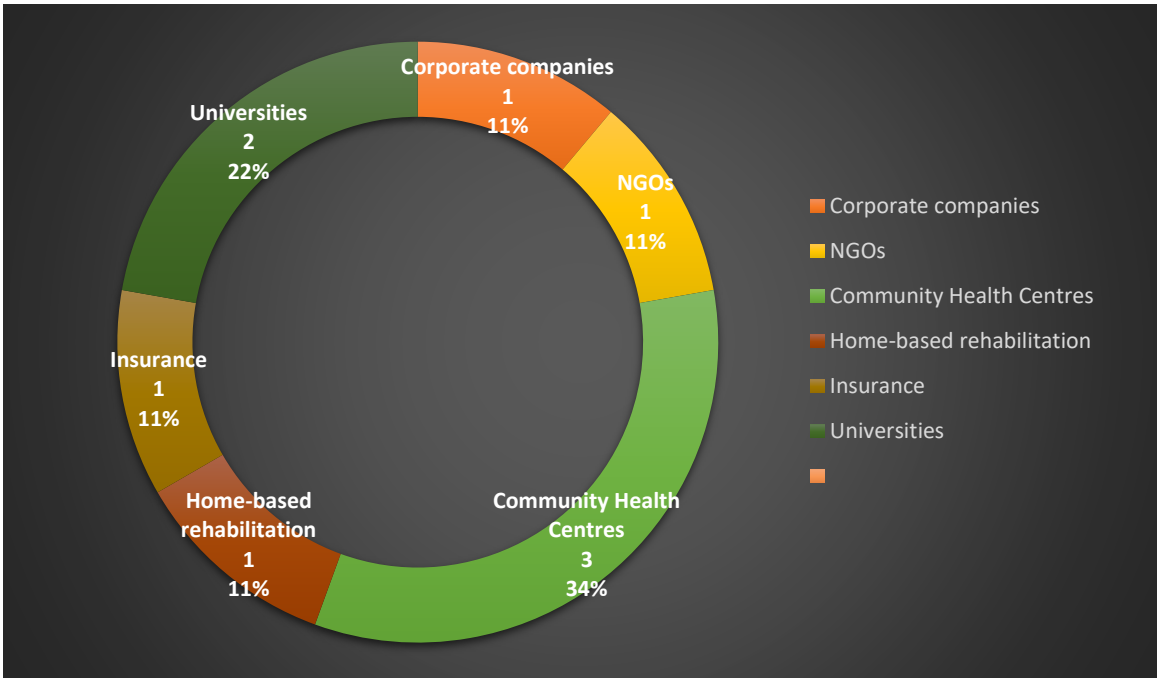


Figure 4.5: 'Other' work settings (n=9)

4.3 Telehealth Questionnaire

A five-point Likert scale questionnaire was used for the telehealth questionnaire. The questions ranged from (i) information about computer access and literacy; (ii) knowledge about telehealth; (iii) the use of telehealth and the willingness to use it; and (iv) the perceptions of the therapists of the potential to integrate telehealth in their practices when providing occupational therapy services to those in need.

4.3.1 Knowledge of and access to Telehealth

In terms of access and computer literacy, only 94 participants indicated they had personal technological devices (Table 4.3) out of a total of 106 participants. Of these 94 participants, almost 50% owned at least two or fewer personal devices. Another 23.4% owned three personal devices. One participant indicated that he/she owned 10 personal devices.

Table 4.3: Number of personal devices owned

Number of personal digital devices	n = 94	Percentage (%)
0	1	1,1
1	10	10,6
2	35	37,2
3	22	23,4
4	18	19,1
5	5	5,3
6	2	2,1
10	1	1,1

Between 50% and 80% of the participants indicated that they use technology at home and at work on a daily basis (Table 4.6). These activities included the use of Microsoft Office software, financial management applications, research, and communication with family and friends, and for communication at work through emails and telephone calls. When it came to awareness (or knowledge) of telehealth in the healthcare sector, 63% of the participants indicated that they knew that the use of telehealth requires a secure Internet connection (Table 4.6). There was no specific reference made to the use of wi-fi or data.

Participants also indicated that they were aware of telehealth technology (44,3%) (Table 4.6), but were not familiar with rehabilitation applications available to provide occupational therapy services. A further 37.7% agree that they are telehealth aware. This percentage of participants amounted to 9.4% of the total. Furthermore, 9.5% of the participants indicated that they had attended meetings, conferences, and webinars using online meeting platforms (Table 4.6). Approximately 10% of the participants indicated that they were aware of the uses and guidelines for the use of telehealth internationally, while approximately 15% indicated that they were aware of the ethical guidelines for the use of telehealth established by the HPCSA (Table 4.6).

Only 26,4% disagreed that they had any knowledge about the use of telehealth in SA, while 29.2% of the participants indicated that they knew about the use of telehealth among OTs in SA (Table 4.3). Thirty-four participants strongly disagreed with the fact that their institutions had established ethical guidelines, policies, and protocols that indicate how to use telehealth when providing OT services to clients and patients who need the services (Table 4.3; see opposite page).

Table 4.4: Knowledge, and Computer Access and Literacy

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Computer Access and Literacy						
I use a computer / laptop at home at least once a day. (n = 106)	Count	1	11	3	17	74
	%	0,9%	10,4%	2,8%	16,0%	69,8%
I use a computer / laptop at my place of work at least once a day. (n = 106)	Count	1	7	9	19	70
	%	0,9%	6,6%	8,5%	17,9%	66,0%
I use Microsoft Word, Excel, and Power-point at least once a day. (n = 104)	Count	2	6	12	22	62
	%	1,9%	5,8%	11,5%	21,2%	59,6%
I search for information online at least once a day. (n = 106)	Count		2	6	18	80
	%		1,9%	5,7%	17,0%	75,5%
I conduct financial transactions online at least once a week. (n = 106)	Count	3	6	4	30	63
	%	2,8%	5,7%	3,8%	28,3%	59,4%
I interact with people via emails and social media at least once a day. (n = 106)	Count		1		14	91
	%		0,9%		13,2%	85,8%
Knowledge of Telehealth						

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am aware of telehealth technology. (n = 106)	Count		6	13	40	47
	%		5,7%	12,3%	37,7%	44,3%
I am familiar with rehabilitation applications available from telehealth technology. (n = 106)	Count	8	37	25	26	10
	%	7,5%	34,9%	23,6%	24,5%	9,4%
I am familiar with tools that are required for telehealth. (n = 105)	Count	7	36	23	26	13
	%	6,7%	34,3%	21,9%	24,8%	12,4%
I have attended conferences, workshops and seminars, and meetings at my institution regarding telehealth technology. (n = 105)	Count	32	29	10	24	10
	%	30,5%	27,6%	9,5%	22,9%	9,5%
I am familiar with the use of telehealth technology nationally. (n = 106)	Count	13	28	22	31	12
	%	12,3%	26,4%	20,8%	29,2%	11,3%
I am familiar with the use of telehealth internationally. (n = 106)	Count	10	35	19	31	11
	%	9,4%	33,0%	17,9%	29,2%	10,4%
I am familiar with ethical guidelines outlined by the HPCSA about telehealth. (n = 106)	Count	15	30	10	35	16
	%	14,2%	28,3%	9,4%	33,0%	15,1%

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My institution has set telehealth guidelines / protocols in place to ensure healthcare service delivery. (n = 106)	Count	34	30	13	19	10
	%	32,1%	28,3%	12,3%	17,9%	9,4%
Telehealth requires a secure internet connection. (n = 106)	Count	1	5	7	26	67
	%	0,9%	4,7%	6,6%	24,5%	63,2%

Among the questions relating to knowledge of telehealth, participants were asked to identify what they considered to be modes of telehealth. Their responses are indicated in the diagram below (Figure 4.6):

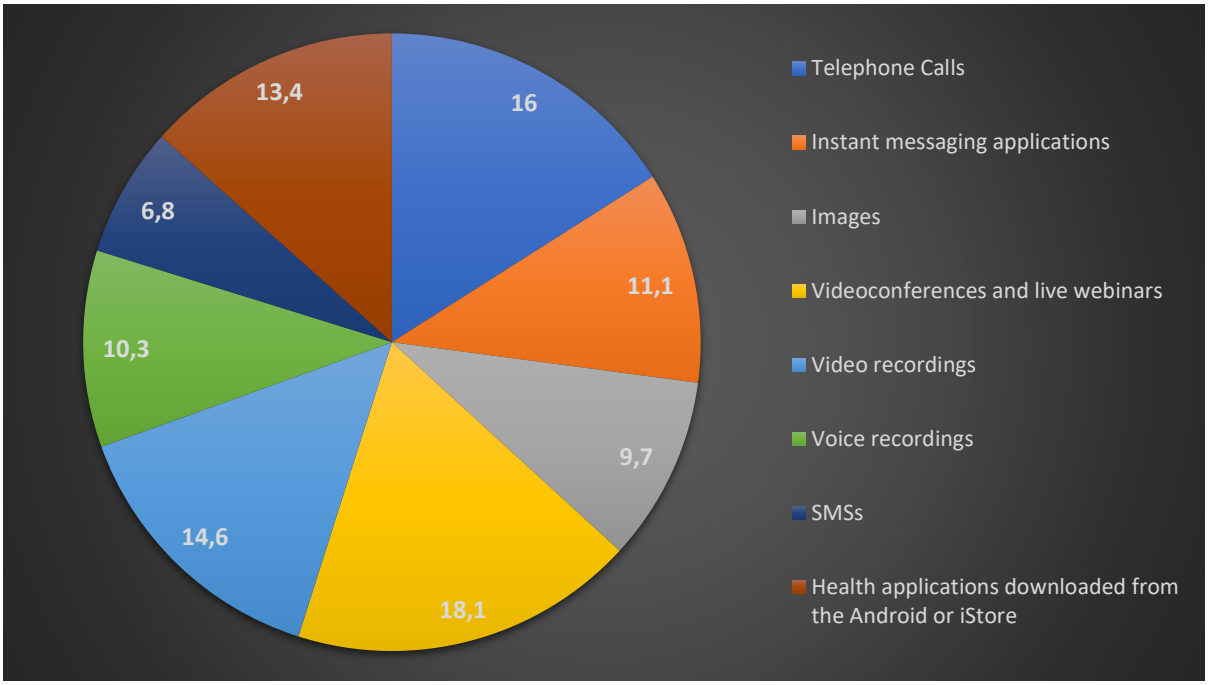


Figure 4.6: Participant responses on types of telehealth platforms

Around 13% of the participants stated that health applications downloaded from the iStore or the Android store are accepted as a platform for the delivery of telehealth services. Telephone calls were rated as platforms for the delivery of healthcare services by the least number of participants – 6.8% - and most of the participants accept that video conferences and live webinars are considered platforms for telehealth.

4.3.2 Perceptions of using Telehealth in South Africa

When considering comfort, trust, and exchange of patient information, between 26% and 28% of the participants agreed that telehealth is a good source of healthcare service delivery, while between 5% and 10% disagreed that telehealth is safe for exchange and use of patient information (Table 4.4). This is quite low.

There were only 104 participants who responded to the use of social media for patient consultations and treatment. Of the 104 participants, only 8.7% strongly agreed with the idea, while the majority, 32 participants (30.8%) strongly disagreed with the idea of telehealth for patient consultation and treatment (see Table 4.4). Fifty-nine

participants strongly agreed that they use the Internet and social media to maintain their professional knowledge and skills in occupational therapy (Table 4.4).

When it came to the desire to use telehealth and educate colleagues and patients about the use of telehealth for the delivery of OT services, a range of 35 to 45 participants agreed, while between two and seven participants showed a strong disagreement with the use of social media and the education of colleagues and patients about it for occupational therapy services (Table 4.4).

There was an overall neutral response to questions related to the integration of telehealth among occupational therapists in SA. For example, approximately 34% of the participants agree that telehealth is time saving, however, an approximate 37% indicated a neutrality when asked if telehealth can be integrated with future healthcare systems like NHI (Table 4.4). Forty-four percent of the participants agree that it is cost-effective, but an average of 33.43% of the participants indicate that they disagree with the sufficiency of resources for telehealth integration (Table 4.4).

Furthermore, they also disagreed that patients who receive OT services from them are likely to use telehealth to receive OT services, as they have previously indicated that these patients also do not have the resources to access telehealth services (Table 4.4). There were 40 participants who strongly disagreed that telehealth services will be of benefit to patients of all socioeconomic backgrounds.

Table 4.5: Understanding, Willingness and Potential to use Telehealth

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Understanding of Telehealth						
I am comfortable with the integration of telehealth in my daily practice. (n = 106)	Count	11	24	23	28	20
	%	10,4%	22,6%	21,7%	26,4%	18,9%
I trust the use of telehealth platforms for patient care. (n = 105)	Count	6	20	35	31	13
	%	5,7%	19,0%	33,3%	29,5%	12,4%
I have exchanged patient information with other professionals via social media and Information and Communication Technologies. (n = 106)	Count	14	24	6	43	19
	%	13,2%	22,6%	5,7%	40,6%	17,9%
I have been questioned about being contacted online by patients. (n = 106)	Count	18	34	21	22	11
	%	17,0%	32,1%	19,8%	20,8%	10,4%
I have used social media / the Internet to obtain information to provide to patients (e.g., images of the home programme, documents and videos). (n = 106)	Count	3	2	8	47	46
	%	2,8%	1,9%	7,5%	44,3%	43,4%
I currently use social media/internet to obtain information to provide to patients (e.g., images, documents, and videos of the home programme). (n = 105)	Count	6	1	12	46	40
	%	5,7%	1,0%	11,4%	43,8%	38,1%
I have used social media/internet for patient consultations and treatment. (n = 106)	Count	18	31	16	29	12
	%	17,0%	29,2%	15,1%	27,4%	11,3%
I currently use social media/internet for patient consultations and treatment. (n = 104)	Count	32	30	13	20	9
	%	30,8%	28,8%	12,5%	19,2%	8,7%

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I have used social media/internet for literature searches about rehabilitative conditions and their treatments. (n = 106)	Count	2	2	1	40	61
	%	1,9%	1,9%	0,9%	37,7%	57,5%
I currently use social media/internet for literature searches about rehabilitative conditions and their treatments. (n = 106)	Count	2	7	4	38	55
	%	1,9%	6,6%	3,8%	35,8%	51,9%
I have used social media/internet as a means to maintain my professional knowledge and skills. (n = 106)	Count		3	6	35	62
	%		2,8%	5,7%	33,0%	58,5%
I currently use social media/internet as a means to maintain my professional knowledge and skills. (n = 106)	Count		2	9	36	59
	%		1,9%	8,5%	34,0%	55,7%
Willingness to use telehealth						
I would like to use telehealth to network with colleagues in my specialty, while I remain at my place of work. (n = 106)	Count	2	4	19	38	43
	%	1,9%	3,8%	17,9%	35,8%	40,6%
I am keen on observing assessment and treatment by colleagues in my specialty via telehealth. (n = 106)	Count	3	9	21	41	32
	%	2,8%	8,5%	19,8%	38,7%	30,2%
I am keen on educating patients about assessment and treatment via telehealth. (n = 106)	Count	7	15	23	35	26
	%	6,6%	14,2%	21,7%	33,0%	24,5%

Perceptions About Telehealth						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
There is a general dissatisfaction among healthcare professionals about healthcare service delivery that can easily be resolved by telehealth. (n = 105)	Count	2	24	44	26	9
	%	1,9%	22,9%	41,9%	24,8%	8,6%
Telehealth is a viable approach for provision of rehabilitative services to patients / clients. (n = 106)	Count	4	20	40	30	12
	%	3,8%	18,9%	37,7%	28,3%	11,3%
The use of telehealth technology is appropriate considering current situations of the healthcare system. (n = 106)	Count	3	21	28	37	17
	%	2,8%	19,8%	26,4%	34,9%	16,0%
Telehealth is timesaving. (n = 105)	Count	7	22	18	36	22
	%	6,7%	21,0%	17,1%	34,3%	21,0%
Telehealth can be integrated with the current healthcare system. (n = 105)	Count	5	17	27	39	17
	%	4,8%	16,2%	25,7%	37,1%	16,2%
Telehealth can be integrated with future healthcare systems (such as the NHI). (n = 106)	Count	5	10	37	38	16
	%	4,7%	9,4%	34,9%	35,8%	15,1%
There are sufficient and precise ethical guidelines and policies outline by professional boards for the use of telehealth in South Africa. (n = 106)	Count	7	18	44	25	12
	%	6,6%	17,0%	41,5%	23,6%	11,3%
South Africa has sufficient infrastructure to develop a telehealth system (e.g., government collaborations and partnership with network companies, locations for telehealth network receptors, electricity lines, etc.) (n=106	Count	28	46	17	9	6
	%	26,4%	43,4%	16,0%	8,5%	5,7%

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
There is a great potential for ICT in the healthcare system. (n = 105)	Count	5	17	35	30	18
	%	4,8%	16,2%	33,3%	28,6%	17,1%
Telehealth is cost-effective. (n = 106)	Count	7	11	25	47	16
	%	6,6%	10,4%	23,6%	44,3%	15,1%
There are sufficient resources nationally for the development of a telehealth system (e.g., funds, human resources, materials, knowledge, etc.) (n = 106)	Count	25	42	26	12	1
	%	23,6%	39,6%	24,5%	11,3%	0,9%
The speed of connections is appropriate for use of ICT in patient care. (n = 106)	Count	18	39	26	18	5
	%	17,0%	36,8%	24,5%	17,0%	4,7%
Hardware and software are sufficient for use of telehealth. (n = 105)	Count	14	32	31	22	6
	%	13,3%	30,5%	29,5%	21,0%	5,7%
Hardware and software are affordable for the use of ICT for patient care. (n = 105)	Count	19	41	30	13	2
	%	18,1%	39,0%	28,6%	12,4%	1,9%
Patients who receive rehabilitative assistance from me are likely to use telehealth services. (n = 106)	Count	21	31	27	22	5
	%	19,8%	29,2%	25,5%	20,8%	4,7%
Patients who receive rehabilitative assistance from me have sufficient resources to engage in telehealth programmes (e.g., electricity, internet access, smartphones, technology literacy, funds to access telehealth programmes). (n = 106)	Count	27	27	16	28	8
	%	25,5%	25,5%	15,1%	26,4%	7,5%

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Telehealth services will benefit both males and females equally. (n = 106)	Count	2	5	24	45	30
	%	1,9%	4,7%	22,6%	42,5%	28,3%
Telehealth will benefit patients from all social and socioeconomic backgrounds equally. (n = 106)	Count	40	29	16	11	10
	%	37,7%	27,4%	15,1%	10,4%	9,4%

4.4 Differences of knowledge regarding the use of telehealth, between private and public OTs in SA

There was no significant difference between OTs in the public sector and OTs in the private sector, except when it came to familiarity with telehealth, with a significant difference of p = 0.001. In terms of the use of telehealth, the frequency of use of the Internet and social media for patient consultations and treatment was found to be significant (p=0.001) (Table 4.5). When perceiving the benefit of telehealth for patients receiving rehabilitative assistance, there was a significant difference of p = 0.003 (Table 4.5).

Table 4.6: Comparison of knowledge about and familiarity with Telehealth between private OTs and public OTs in SA

		N = 106 n = 105	**Percentage**	**Mean**	**Std. deviation**	**p-value**
Familiarity with telehealth	Public	41	39.05	2,74	0,86	**0.001**
	Private	64	60.95	3,35	0,92	
Frequency of use of computer/laptop and common software	Public	41	39.05	4,22	0,89	0.223
	Private	64	60.95	4,44	0,88	
Frequency of financial transaction, emails, info searches	Public	41	39.05	4,60	0,49	0.827
	Private	64	60.95	4,63	0,56	

		N = 106 n = 105	Percentage	Mean	Std. deviation	p-value
Keenness to use telehealth	Public	41	39.05	3,88	1,01	0.760
	Private	64	60.95	3,82	0,83	
Frequency of use of social media/ Internet as a means to maintain my professional knowledge and skills	Public	41	39.05	4,48	0,63	0.740
	Private	64	60.95	4,43	0,72	
Frequency of use of social media/ Internet to obtaining information to provide to patients	Public	41	39.05	4,02	1.00	0.245
	Private	64	60.95	4,23	0,83	
Frequency of use of social media/ Internet for literature searches on rehabilitative conditions and their treatments	Public	41	39.05	4,34	0,90	0.723
	Private	64	60.95	4,40	0,73	
Frequency of use of social media/ Internet for patient consultations and treatment	Public	41	39.05	2,28	0,90	**0.001**
	Private	64	60.95	3.00	1,08	

		N = 106 n = 105	Percentage	Mean	Std. deviation	p-value
Integration (and gender benefit) of telehealth	Public	41	39.05	3,49	0,90	0.982
	Private	64	60.95	3,50	0,67	
Role of telehealth in solving problems with healthcare delivery (including inequality)	Public	41	39.05	2,68	0,77	0.775
	Private	64	60.95	2,73	0,97	
Benefit of telehealth for patients receiving rehabilitative assistance	Public	41	39.05	2,26	1,05	**0.003**
	Private	64	60.95	2,90	1,07	
Resources needed for telehealth	Public	41	39.05	2,50	0,98	0.774
	Private	64	60.95	2,55	0,90	

4.5 Summary of Results

The two objectives presented are in terms of knowledge and use of telehealth among OTs in SA. The third objective compared the difference in knowledge between occupational therapists who work in the private sector and occupational therapists who work in the public sector in South Africa.

4.5.1 Demographics

The majority of the participants are female and the average age of the participants is 32 years. Forty percent of the participants have a Bachelor's degree in occupational therapy and 60% of the participants practised in the private sector. There were 42 participants with a work experience between 1 and 5 years. The participants worked in hospitals, schools, clinics, universities, corporate companies and private practices.

4.5.2 Telehealth Questionnaire

More than 50% of the participants indicated the use of technology at home and at work. Furthermore, almost 50% indicated having two personal devices or less. Although 44% of the participants indicated that they were aware of telehealth technology, 9.7% indicated that they were unaware of telehealth technology. Only 37% agreed that there may be a possibility of integrating telehealth into future healthcare care systems, such as the NHI, and 37.7% strongly disagreed that telehealth technology will benefit the patient population regardless of their socioeconomic status.

4.5.3 Use and knowledge of Telehealth of occupational therapists practising in the private and public sectors of *South Africa compared*

There is no significant difference between the use and knowledge of telehealth in SA between OTs working in the public sector and in the private sector, except for its familiarity and its frequency of use for patient consultations. A significant difference was observed when the benefits of telehealth were perceived for future use.

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter discusses the results of a research study conducted in SA with OTs employed in the private sector or in the public sector. The discussion includes the demographics of the participants and the objectives of the study.

5.2 Demographics

A sample of 106 OTs (Table 4.1) who worked in the private or public sectors of SA participated in this study. It was found that 95.28% (n = 101) of the OTs were female, and the remaining 4.72% (n = 5) were male. These results correspond closely with a recent study conducted by Tiwari (2020), who reported that OTs in SA comprised of almost 95% female, while the remaining 5% were male (Tiwari 2020). Although the study conducted by Tiwari (2020) was done four years ago, the researcher deduces that there have not been drastic changes in the trends of female to male ratios in OTs in SA over the past 4 years.

After grouping the ages of the participants (Table 4.1) into intervals of 10 years, it was established that 45 participants (42.5%) were between the ages of 20 and 29 years old. The average age was recorded as 35.73 years (Table 4.1). Although the age of participants in majority is young and healthy, which can support the load of the healthcare system, it also indicates less experienced OTs at the forefront of the workforce.

This study also recorded one participant (0.94%) who was 75 years old. As the age of retirement is 65 years old in the government sector in SA, the researcher infers that this participant could have either been retired and still participated in this study or that the participant may have been working in the private sector as a private practice manager, but not necessarily involved in clinical activities. Although this participant is an outlier in the study, he/she was included in the study, because the research questionnaire was completed accurately.

This research found that the age range for people who work as OTs in SA to be less than those indicated in a previous study conducted by Tiwari, (2020). Tiwari, (2020) indicated that most of the OTs were between the age range of 25 and 35 years of age while practising as professional OTs in SA (Tiwari, 2020), while the results of this study indicate that most OTs practising in SA were between the ages of 20 and 29 years old (Table 4.1).

When examining the language demographics of the results (Table 4.1), it was found that 57.5% (n = 61) of the participants selected English as their home language, while Afrikaans was the second most spoken language with a percentage of 29.2% (n = 31), and African languages as 9.4% (n = 10). The category of '*other languages'* indicated 3.8% (n = 4) of the study population.

These demographic results were also compared to diversity in a recent South African study, and that study found that most of the OTs belonged to the *"white"* population group (Tiwari, 2020). By comparing the current study with the recently mentioned study (Tiwari, 2020), the correlation with languages and racial groups cannot be made, however, the researcher can still deduce that both studies were exposed to a sample group with a wide enough range of diversity to indicate equal opportunity for all OTs in SA to participate in the study.

In the evaluation of geographical locations (Table 4.2), this study indicates that 55.7% (n = 59) of the participants were employed in Gauteng, followed by 17.9% (n = 19) of the participants working in the Western Cape and 10.4% (n = 11) were practising in Kwa-Zulu Natal. These results correlate exactly with former research by Tiwari (2020), who explained that most OTs are "located in more densely populated and urbanised provinces" (Tiwari, 2020; p.7). Tiwari further classified this claim by mentioning the ranking order of provinces with most OTs to least number of OTs as Gauteng, then the Western Cape, and then Kwa-Zulu Natal (Tiwari, 2020).

Tiwari (2020) also claims that there are more OTs practicing in the private sector than in the public sector (Tiwari 2020). This pattern has also been observed in this study, where 60.4% (n = 60) of the participants worked in the private sector, while 38.7% (n = 40) worked in the public sector (Figure 4.3).

In their study, Mutwali and Ross (2018) refer to the private healthcare sector of South Africa as highly specialised and well-resourced (Mutwali & Ross, 2018). As seen in

the results of this study, most of the participants (n = 60; 60.4%) are employed in the private sector, which means that most OT human resources for service delivery are found in the private sector.

There were only 40 participants (38.7%) in this study who practised in the public sector (Figure 4.3), which is indicative of less human resources employed in the public sector. Although, Mutwali & Ross 2018 did not conduct their study on a particular group of healthcare professionals, they state this human resource deficit is also a possible reason for healthcare service delivery. This claim can be extended to the results of this current research study, as the ratio of private OTs to public OTs displays the same trend as the research of Mutwali & Ross (2018).

5.3 Knowledge of South African OTs on the Use of Telehealth

A telehealth questionnaire, using the existing available literature to inform the design of the questionnaire, was used for data collection. The questionnaire explored various aspects of telehealth. These domains were created from a literature paper that developed questionnaire designs to understand the feasibility of telehealth (Pollack, et al., 2019). In this paper, five domains were created, each referring to a key component of telehealth. The first two domains; *Computer access and literacy* and *Knowledge about telehealth* were grouped together to identify basic knowledge about technology and the daily use of digital devices in both the personal lives of the therapists and workplace settings. There were 74 participants (69.8%) in this study who indicated that they had access to a computer or laptop at least once a day at work or at home (Table 4.3). Further to this result, 63 participants (59.4%) indicate using digital devices and technology for personal work such as financial transactions and 91 participants (85.8%) indicated the use of social media for communicating with friends and family (Table 4.3). With this information obtained from the study, we can conclude that South African OTs do exhibit adequate knowledge about technology.

Although healthcare professionals have reported using technology for personal commitments, it cannot be deduced that they do indeed have a solid knowledge of telehealth. Access to computers and digital devices was also indicated in the results of this study. Of a sample size of 106 participants (100%), only 94 participants

(88.68%) indicated that they owned a personal digital device. Of the 94 participants, 83 participants (88.29%) indicated that they had two or more devices for personal use. The number of devices of each participant provides the readers with information regarding versatility of use of each device. Again, we can see that the participants have access to technology and information and communication technology, as stated in the study results. Khoja, et al., (2007) found that it is necessary for the staff of healthcare institutions to have access to and be aware of the use of technology and digital platforms to deliver healthcare services (Khoja, et al., 2007), because one key component for the implementation of telehealth services is the infrastructure that supports the use of telehealth (Brooks, et al., 2018).

More information on the level of knowledge about telehealth was explored in the second domain of the questionnaire in this study. The results indicate that occupational therapists understand that there are various types of platforms that can be considered telehealth. Overall, these platforms were identified as telephone calls (16%), instant messaging applications (11.1%), videoconferences and live webinars (18.1%), images (9.7%), video recordings (14.6%), voice recordings (10.3%), SMSs (6.8%) and health applications (13.4%) that were used for the delivery of healthcare services according to the responses obtained from this study, which indicates knowledge in alignment with software and technology used currently. However, there was strong disagreement with some of the questions about knowledge of telehealth. A range of 25 to 35 participants strongly disagreed or disagreed with (i) having attended live webinars online; (ii) knowing about the availability of the telehealth tools used in South Africa and internationally; and (iii) knowing the ethical guidelines for the use of telehealth institutionally and nationally. In an outdated research study conducted by Mars (2011), there was a clear concern that healthcare professionals in SA lacked or had limited knowledge about telehealth (Mars 2011).

Since this trend has not changed over the past 13 years, this present researcher also considers exploring why the trend has not changed. In this researcher's opinion, the limited knowledge about telehealth among healthcare professionals is not only about awareness, but also depends on financial costs that are involved in learning about new trends in healthcare service delivery. In South Africa, each healthcare professional is expected to maintain and update their knowledge in their field of expertise annually, which leads to compliance with HPCSA and as far as these

courses are concerned. This researcher, therefore, is aware that as courses come at a financial cost by the course co-ordinator. This may result in poor or limited knowledge about telehealth, as many institutions may have provided some level of telehealth training as required, for example, during the COVID-19 period.

5.4 Willingness of South African OTs to use Telehealth for Service Delivery

The current use, the willingness, and the potential to integrate telehealth into the current OT practices were indicated by the last three domains of the telehealth questionnaire. The combination of these three domains provides information on how occupational therapists currently use telehealth and how they perceive it to benefit both themselves and patients in future healthcare advancements.

When exploring the *Use of Telehealth* (Table 4.4)**,** more than a third of the participants ranged from 'agreeing' (43.8%) and 'strongly agree' (38.1%) with the current use of telehealth or digital platforms to provide healthcare services through technology to their patients and colleagues. In his research, Mars (2011) has highlighted that the private sector serves the affluent socioeconomic classes, who have access to telehealth services. When comparing the responses between the use of telehealth by occupational therapists in the private sector with those in the public sector, this researcher found that OTs in the private sector (60.38% or 64 participants of the total sample) were more willing to use telehealth. This is over half the sample size, which indicates an above average rate for the uptake of telehealth.

An analysis of each question of this domain (Table 4.4) provided more information on the use of telehealth for daily OT practices. The data indicated that 28 participants (26.4%) were comfortable with the use of telehealth, 35 participants (33.3%) had neutral views about the trustworthiness of telehealth, and 47 participants (44.3%) indicated that they used telehealth for the promotion and carry-over of patient health (obtaining and sharing home programmes to optimise rehabilitation).

The fourth domain was headed *Willingness to Use Telehealth* (Table 4.4)*,* and the responses of this domain are detailed below. Forty-one of the participants (38.7%) indicated that they would like to use telehealth in their daily practice and 35.8% of the participants (n = 38) showed a keenness in observing their colleagues perform

assessments and treatments using telehealth. Seven participants (6.6%) indicated that they would not like to teach their patients about assessment and treatment using telehealth platforms, while 35 participants (33.0%) agreed that they would like their patients to learn about assessments and treatments through telehealth.

There was general disagreement when observing the results of OTs who used telehealth for OT consultations in the past and present (Table 4.4). In this research study 31 participants disagreed about having previously used telehealth for consultations and treatment, while 30 participants disagreed with using telehealth for current consultations and treatment. Bingham, Rossi & Truong, (2022) suggested that there is a reluctance to incorporate telehealth into daily OT practices due to a lack of experience in telehealth and preparedness for its implementation (Bingham, et al., 2022). However this researcher questions this view, because there could be other possibilities that prevent the uptake of telehealth among OTs in SA, such as infrastructure. One possibility rests on the success of marketing the idea to patients for whom this platform was intended to benefit in the first place. This inference made by this researcher is supported by the work of Vergust, et al., (2017), which suggests SA's rural populations struggle to access healthcare services with ease, particularly those patients who suffer from residual effects of physical disabilities (Vergunst, et al., 2017). This researcher understands the suggestion to mean that finances and infrastructure are not the only barriers to receiving OT services, but there is also the question of the physical accessibility for patients before one can explore the idea of its incorporation into patients' daily lives.

Telehealth has been labelled as disruptive, complex, and demanding extensive education and training before implementation (Smith, et al., 2020) and the seven OTs did not deem it feasible or desirous to educate their patients about the use of telehealth for OT to due to many multifaceted factors. To this researcher, however, the uptake of telehealth by OTs makes more sense than a mere a lack of knowledge and experience.

Another reason for the poor uptake of telehealth has been due to the organisation of the healthcare system (Smith, et al., 2020). *The Potential to Use Telehealth* (Table 4.4) was the final domain in which participants needed to evaluate the South African healthcare system and derive the possibility to incorporate and use telehealth in the

future for the delivery of OT services. In this domain, 37.7% of the participants (n = 40) were ‘neutral’ about telehealth being a viable provision for OT services, while 28.3% (n = 30) ‘agreed’ that telehealth is a viable approach to providing healthcare services (Table 4.4).

Smith, et al., (2020) also found that funding constraints have been given as the reason for slow uptake of telehealth. Internationally, telehealth is exclusively funded for patients in rural and remote locations, however, geographical factors are not the only constraint. In SA, the preferred mode of transportation in rural areas is the local taxi system, which is public transport. Transport rates differ depending destinations and patients in severely poverty-stricken areas are also vulnerable to inability to afford transport fares. This present researcher argues that telehealth can be just as effective in metropolitan areas where they can be of more benefit. This is because populations in metropolitan cities are denser and therefore burden the healthcare system more with larger numbers for medical and rehabilitative needs.

Over a third (34,3%) of the participants ‘agreed’ that telehealth is time saving and can be integrated with the current healthcare system (n = 39; 37,1%) and future healthcare systems (n = 38; 35.8%) in SA. Contrary to these responses, 41% (n = 44) participants were ‘neutral’ about the relevant ethical guidelines being developed for institutions using telehealth in SA, while 43% (n = 46) ‘disagreed’ that there is enough infrastructure to develop and maintain telehealth and incorporate it into healthcare systems in SA (Table 4.4). However, when considering the presumed lack of guidelines, both national guidelines for the implementation of telehealth, can be found in detail in Booklet 10 of the Telemedicine Guidelines outlined by the HPCSA (HPCSA 2014). Furthermore, there are a multitude of resources available from the WHO that guide the implementation of telehealth for all countries (WHO, 2022). The Consolidated Implementation of Telemedicine Guide has been designed to consider the steps and implementation to optimise the delivery of healthcare service and ensure that it is sustainable. This is a guide that also outlines a costed investment plan to ensure that it is indeed a viable approach for the delivery of healthcare service (WHO, 2022).

5.5 Comparison of knowledge of Telehealth use between private and public OTs in SA

When comparing the difference in knowledge between OTs practising in the public sector of SA and OTs practising in the private sector, the means and standard deviations will be discussed. Table 4.3, illustrated the access, familiarity and frequency for personal and work use. The perception of telehealth for future OT service delivery will be explored by the OTs' responses in Table 4.4.

OTs were further divided in two groups depending on the sector in which they practised. The first group comprises OTs who practise in the public sector and the second group shows OTs who practise in the private sector (Table 4.5).

5.5.1 Computer Access and Literacy, and Knowledge of Telehealth

When considering the use of technology, digital platforms, and social networks by OTs for personal and vocational use, both OTs in the public sector group and in the private sector group indicated that they had access to computer literacy and technology and were knowledgeable about telehealth. The standard deviations between the two groups were 0.01, which is a negligible value and indicates that both groups had equal access to some form of technology, digital device or ICT device, which they use on a daily basis (Table 4.5).

5.4.2 The usage, willingness and the potential for telehealth among occupational therapists in South Africa

An exploration of the familiarity with telehealth in SA between the public and private sector groups resulted in a significant difference of 0.001 (Table 4.5). Mars (2011) found that there are public institutions that contain virtual private networks (VPNs) that connect public institutions to each other and across South African provinces for video-conference clinical mentoring for both professionals and patients. However, there is a shortage of professionals to conduct these online video-conference consultations and mentoring programmes (Mars, 2011). There is also a shortage of professionals to teach each other how to make the process easier and incorporate video-conferencing, a form of telehealth, within their daily practices (Mars, 2011). This study continues to further suggest that more affluent private sector OTs could possibly bridge the knowledge gap in the use of telehealth by helping in terms of teaching and clinically

conducting video-conference consultations. That could result in a possible revision of the use of telehealth (Mars 2011).

The results of the present study conducted by the principal researcher, however, indicate a difference in standard deviations of 0.05 when comparing the use of telehealth between public sector and private sector OTs (Table 4.5). It would now appear that the usage of telehealth platforms is more prominent among the OTs who practise in the private sector of the healthcare system in SA. Although the study conducted by Mars (2011) is considered outdated, we can still see the significance of the gap in the integration of telehealth between OTs working in the public sector and the private sector.

A more recent study by Bingham, Rossi, & Truong (2022) reinforces the idea that telehealth education can be introduced as part of curriculum design in universities and medical colleges to bridge the gap between knowledge and the use of telehealth among healthcare professionals (Bingham, et al., 2022). When the standard deviations of private sector OTs and public sector OTs were compared, there were large differences between the standard deviations in the frequency of use of social media to provide OT services. Furthermore, the standard deviations of the private sector OTs were higher than the public sector OTs. This indicates a gap in the use of telehealth between the two groups. Reasons for this difference need further research since the recent evidence provides solutions for education (Bingham, et al., 2022), telehealth guidelines (WHO, 2022), and knowledge about telehealth as have been outlined by the results of this study. However, there is no evidence about what prevents complete implementation of telehealth in the daily practices of OTs in SA regardless of what sector they work in.

5.6 Limitations of the study

There were three limitations indicated by this present study conducted:

- Multiple sources have hypothesised on the potential of the infrastructure, human resources, and financial resources to use telehealth in SA, while the literature provides other solutions in terms of closing the gap in education (Mars, 2011; Mars et al., 2022; HPCSA, 2014; WHO, 2022) and policy development. This study focused on the knowledge about telehealth among OTs in SA rather than further exploring what gaps there are that prevent

telehealth from being implemented among OTs in SA. Therefore, further research is needed.

- There are multiple sources of literature that indicate the use of telehealth among OTs internationally. However, this research was only conducted in UMICs. LMICs like SA consider basic ICT like the use of SMS, social media like WhatsApp and videoconferences as their form of telehealth implementation. More research is needed to explore how SA can implement telehealth to be specifically tailored to each field of medicine, as this study did not explore details of what forms of telehealth are used by OTs and if they find it effective.
- This study's design is a cross-sectional survey using questions for scoring on a Likert Scale. Since survey design cross-sectional questionnaires can also have open-ended questions to make the research topic being studied more voluminous in terms of data, this researcher could have improved the data in this study by adding open-ended questions about why participants had certain views on the feasibility of telehealth in OT in SA. This may also be interpreted through the use of a thematic analysis for more insight into the perceptions of OTs into the future use of telehealth with OT services.

CHAPTER 6: CONCLUSION

Access to healthcare is a guaranteed basic human right outlined in Section 27 of the South African Constitution (SAHRC 2021). This includes emergency care, maternal and reproductive care, as well as the right of children to access basic healthcare. Although there are certain circumstances where healthcare can be limited, no individual approaching a healthcare service can be denied this human right completely (SAHRC, 2021). However, South Africa's rural and remote populations are unable to access healthcare services with ease, particularly patients who suffer from residual effects of physical disabilities (Vergunst, et al., 2017).

The COVID-19 pandemic facilitated the integration of telehealth services to reach the public in various fields of the healthcare system. Multiple studies that were mentioned in Chapter 2 of this research report reiterate that telehealth has benefitted the lives of many patients in rural and remote populations (Scott & Mars, 2017) and they also mention that telehealth is feasible across all countries in the world (WHO, 2022).

Despite these changes, successes and possibilities, most LMICs experience a deficit in telehealth readiness assessments and resources (Bingham, et al., 2022). Although one study mentions that education and awareness of telehealth among users and healthcare providers is a possible barrier to poor acceptance of telehealth, other publications point out the acceptance limitations in terms of infrastructure deficits (Bingham et al., 2022; Scott & Mars 2017). In another study, the author specifically speaks of poor knowledge about telehealth among healthcare professionals as a barrier preventing acceptance (Mars, 2011).

The recurring theme that appears in the Mars' literature (Scott & Mars, 2017; Mars, 2011; 2017), the main barrier to implementing telehealth services is the understanding and knowledge of telehealth services itself (Scott & Mars 2017; Mars, 2011), especially among healthcare professionals. This study's was to understand the knowledge of telehealth and willingness to use telehealth by OTs in the South African healthcare system and to cover disparities between geographical locations (rural and remote populations), socioeconomic status, and different groups of functional performance from the perspective of South African OTs.

This study was also aimed at assessing how much knowledge OTs had about telehealth and if they were willing to integrate this platform as a complementary aid to reach their patients. During this study, it was found that both groups of OTs, (public and private), had knowledge of, and access to some form of telehealth platform. When the results of the use of public service OTs telehealth platforms were compared to the use of private sector OTs, this research study found that the use and efficiency of telehealth was less among the public sector OTs. Khoja, et al. (2007) have hypothesised that this phenomenon in LMICs is due to a lack of resources (Khoja, et al., 2007). This research study has indicated that 41 public service OTs anticipate the benefits of telehealth, which comprised the whole public OT group in this study.

Despite the lack of resources in the public sector, the results of the 41 public health OTs also reiterate Mauco et. al's (2020) suggestion that there may be the need to develop a framework and tool to prepare for more telehealth usage (Mauco et. al, 2020). In addition to this, this study indicates that OTs are willing to learn from OT colleagues in the private sector on how assessments and treatments are carried out using telehealth in day-to-day delivery of OT services. It is anticipated that this can potentially address the barrier of education and training about telehealth (Bingham, et al., 2022) among OTs in SA.

The WHO acknowledges that telehealth services need an enabling environment to function at their optimal performance level (WHO 2022). Thus, it has developed guidelines for implementation and success globally (World Health Organization 2022; WHO, 2022). These guidelines provide governments with investment ideas in telehealth, while taking policies, governance, and finances into consideration (WHO, 2022). South Africa can use these guidelines to work in tandem with the HPCSA telehealth guidelines to establish a firm telehealth network across the country. However, there are clinical implications and recommendations that need to be addressed before implementation of telehealth can benefit the populations it claims it can benefit.

6.2 Clinical Implications of the Study

Information about telehealth identified in the literature specifically in SA was outdated or carried out by one specific author (Mars). Consequently, this study has only

explored the feasibility of a telehealth readiness tool as a guide to understand the level of knowledge about telehealth OTs in SA. There are differences in the frequency of use of telehealth and there are differences in how OTs viewed future integrations of telehealth within the healthcare system. Despite these differences, there is still curiosity and a desire to learn how to use telehealth in OT in SA, which is a step in a positive direction.

6.3 Recommendations

6.3.1 Recommendations for OT Departments at Universities offering OT degrees

There is a lack of emphasis on education and training among OTs about telehealth in SA. This is a literary gap that can be addressed by further research and education being done in the field of OT in a South African context.

It is also recommended that universities that have OT courses begin to explore and integrate the use of telehealth during theoretical and practical fieldwork, to prepare these students for the future of OT in a digital context (Bingham, et al., 2022).

6.3.2 Recommendations for HPCSA and the Government Telehealth System (SATMA)

This research study used a telehealth readiness survey questionnaire to understand how OTs view telehealth to be beneficial to their patient population. It is recommended that statutory bodies governing good practices of OTs review past pilot studies of telehealth implementations in South African hospitals and build on the results of these studies to update information and research about telehealth in SA.

From these revisited plans, the South African Department of Health can recreate the liaison between the ICT Departments and the healthcare system to collaborate in the restoration of a national telehealth system that not only includes the use of telephones, emails and internet communication, but also links these services to rehabilitation applications and safe digital patient data storage. This includes budget planning for all infrastructure for a smooth telehealth platform.

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APPENDICES

Appendix 1: Demographic Questionnaire

ARE YOU AN OCCUPATIONAL THERAPIST?			
	Yes		No
What is your qualification? _____			
Thank you for your willingness to participate in this study.			

RESEARCH CODE (to be filled by researcher):			
AGE			
How old are you? _____			
GENDER			
What gender do you identify with? _____			
HOME LANUGUAGE			
What home language do you speak? _____			
YEARS ACTIVE IN SPECIFIED FIELD OF PRACTICE			
How many years have you been practicing for as an occupational therapist? _____			
PROVINCE OF CURRENT PRACTICE			
	Gauteng		Western Cape
	Eastern Cape		Kwa-Zulu Natal
	Northern Cape		North West
	Mpumalanga		Limpopo
	Free State		
EMPLOYMENT SECTOR			
	Public		Private
EMPLOYMENT SETTING			
	Hospital		Clinic
	School		Private practice
	Other (please specify):		

Appendix B: Telehealth Awareness Questionnaire

A smart device is an electronic device that can easily understand simple commands, act on it and link to other smart devices for efficiency in daily activities. The design of a smart device is to be small or compact, but have a storage space of a few gigabytes (GB). Smart devices can include smartphones, tablets, smartwatches, smart glasses and smart television (Techopedia, 2021).

Based on the above definition, please indicate how many <u>personal</u> smart do devices you have? _____

Using the key below to guide you, please complete the questionnaire that follows:

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

COMPUTER ACCESS AND LITERACY	**1**	**2**	**3**	**4**	**5**
I use a computer / laptop at home at least once a day.					
I use a computer / laptop at my place of work at least once a day.					
I use Microsoft Word, Excel and Power-point at least once a day.					
I search for information online at least once a day.					
I make financial transactions online at least once a week.					
I interact with people through email and social media at least once a day.					
KNOWLEDGE OF TELEHEALTH	**1**	**2**	**3**	**4**	**5**
I am aware of telehealth technology.					
I am familiar with the rehabilitation applications available from telehealth technology.					
I am familiar with the tools required for telehealth.					
I have attended conferences, workshops and seminars, and meetings at my institution on telehealth technology.					
I am familiar with the use of telehealth technology nationally.					
I am familiar with the use of telehealth internationally.					
I am familiar with the ethical guidelines outlined by the HPCSA on telehealth.					
My institution has established telehealth guidelines / protocols to ensure the delivery of healthcare services.					
Telehealth requires a secure Internet connection.					

I consider the following as telehealth platforms (select all applicable answers):			
	Telephone calls		Health applications from the Android and iStore
	Instant messaging applications		Videoconferences and live webinars
	Images		SMSs

	Video recordings		Voice recordings

USE OF TELEHEALTH	1	2	3	4	5
I am comfortable with the integration of telehealth in my daily practice.					
I trust the use of telehealth platforms for patient care.					
I have exchanged patient information with other professionals via social media and Information and Communication Technologies.					
I have been questioned about being contacted online by patients.					
I **have used** social media / internet for obtaining information to provide to patients (e.g., home programme images, documents and videos)					
I **currently use** social media / internet for obtaining information to provide to patients (e.g., home programme images, documents and videos)					
I have used social media / the internet for patient consultations and treatment.					
I currently use social media / the Internet for patient consultations and treatment.					
I have used social networks and the Internet for literature searches on rehabilitative conditions and their treatments.					
I currently use social media / the Internet for literature searches about rehabilitative conditions and their treatments.					
I have used social media / the/ the internet as a means of maintaining my professional knowledge and skills.					
I currently use social media / the Internet as a means of maintaining my professional knowledge and skills.					
WILLINGNESS TO USE TELEHEALTH	**1**	**2**	**3**	**4**	**5**
I would like to use telehealth to network with colleagues in my specialty, while I am at my office.					
I like to observe the evaluation and treatment of colleagues in my specialty through telehealth.					
I am keen to educate patients about evaluation and treatment through telehealth.					
PERCEPTIONS OF TELEHEALTH	**1**	**2**	**3**	**4**	**5**
There is a general dissatisfaction among healthcare professionals about the delivery of healthcare services that can be easily resolved by telehealth.					
Telehealth is a viable approach to provide rehabilitative services to patients / clients.					
The use of telehealth technology is appropriate considering the current situations of the healthcare system.					
Telehealth saves time.					
Telehealth can be integrated with the current healthcare system.					
Telehealth can be integrated with future healthcare systems (such as the NHI).					
There are sufficient and precise ethical guidelines and policies articulated by professional boards for the use of telehealth in South Africa.					
South Africa has sufficient infrastructure to develop a telehealth system (e.g., government collaborations and partnership with network					

companies, locations for telehealth network receptors, electricity lines, etc.)					
There is great potential for ICT in the healthcare system.					
Telehealth is cost-effective.					
There are sufficient resources nationally for the development of a telehealth system (e.g., funds, human resources, materials, knowledge, etc.)					
The speed of connections is appropriate for the use of ICT in patient care.					
Hardware and software are sufficient for the use of telehealth.					
Hardware and software are affordable for the use of ICT for patient care.					
Patients who receive rehabilitative assistance from me are likely to use telehealth services.					
Patients who receive rehabilitative assistance from me have sufficient resources to participate in telehealth programmes (e.g., electricity, internet access, smartphones, technology literacy, funds to access telehealth programmes).					
Telehealth services will benefit both males and females equally.					
Telehealth will benefit patients of all social and socioeconomic backgrounds equally.					

Appendix C: Information Sheet

The Use and Knowledge of Telehealth Among Occupational Therapists in South Africa

Good day

My name is Sara Shaik. I am a Master's student in the Department of Occupational Therapy at the University of the Witwatersrand. I am conducting this research as part of my Master's studies.

I am requesting your participation as an occupational therapist, because this research study aims to determine the knowledge about telehealth among occupational therapists working in South Africa. I would like to you to participate in a survey, which would last approximately 30 minutes. Your participation is voluntary. If you agree to participate, I will ask you questions pertaining to the use of and willingness to implement in your daily practice as a rehabilitative care professional, and your perceptions of it becoming a possible mode of occupational therapy service delivery in the future. There are no right or wrong answers. This is about your perception of aspects of telehealth. My role in this survey is to make sure I understand your point of view. You may refuse to answer any question with which you are uncomfortable, and you may say you don't know the answer to a question.

If you decide to participate in my study, nobody will know whether you have chosen to participate or not, unless you tell them yourself. The survey will be conducted online, through a survey link, which will be distributed to you in an email.

Confidentiality

The information you give will be treated as private and confidential. Only myself and my university supervisor will know who participated in the survey. All participants will be assigned a code. Only myself and my supervisor will have access to the codes. Your name will not be used on any part of the survey and nobody will know your answers to the survey questions.

Your name will not be used in any publications that arise from the study.

Consent

If you agree to participate in the study, you may access the link attached in the email with this information letter. Your willingness to participate in this survey will be regarded as consent for participation in this survey.

Did we get permission to do the study?

Permission to carry out the study was granted by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand (Clearance certificate number:).

Who can be contacted for more information?

We are happy to answer any questions about this research project. If you want to contact the chairperson or administrator of the Human Research Ethics Committee (Medical) you, can use the contact details below:

Chairperson HREC

Professor Clement Penny

Email: Clement.penny@wits.ac.za

Telephone: 011 717 2301

Administrative officer

Ms. Zanele Ndlovu

Email: Zanele.ndlovu@wits.ac.za

Administrative officer

Mr. Rhulani Mkhansi

Email: Rhulani.mkansi@wits.ac.za

Administrative officer

Mr. Lebo Moeng

Email: Lebo.meng@wits.ac.za

Telephone: 011 717 2700 / 2656 / 1234 / 1252

If you have questions about the research study itself, you can contact myself or my supervisor:

Principal Researcher

Miss S.H Shaik

Email: 850564@students.wits.ac.za

Telephone: 011 411 3579

Supervisor

Ms. M. Botha

Email: Marica.botha@wits.ac.za

Telephone: 011 717 3713

Thank you for reading this information sheet.

Appendix D: Memorandum of Agreement Form

Faculty of Health Sciences, Postgraduate Office
Phillip Tobias V Building, 2nd Floor
Cnr York & Princess of Wales Terrace, Parktown 2193
Tel: (011) 717 2745 | Fax: (011) 717 2119 Email: Mathoto.senamela@wits.ac.za

STATEMENT OF PRINCIPLES FOR POSTGRADUATE SUPERVISION

IN A CONTEXT OF ACADEMIC FREEDOM AND WITHIN A FRAMEWORK OF INDIVIDUAL AUTONOMY AND THE PURSUIT OF KNOWLEDGE THIS STATEMENT IS WRITTEN IN THE BELIEF THAT THERE IS A RECIPROCAL RELATIONSHIP AND MUTUAL ACCOUNTABILITY BETWEEN SUPERVISOR AND STUDENT.

THE SUPERVISOR AND THE STUDENT:

1. Will establish agreed roles and clear processes to be maintained by both parties. In the case of joint supervision everybody's role needs to be clarified.
2. Will meet regularly and as frequent as is reasonable to ensure steady progress towards the completion of the proposal, research report, or dissertation or thesis. This time varies but the normal minimum requirement for face-to-face contact spread across each year of registration is: 10 contact hours for an Honours project, 15 contact hours for a Masters by a research report and 24 contact hours for a Masters by dissertation and a PhD.
3. Will keep appointments, be punctual and respond timeously to messages.
4. Will keep one another informed of any planned vacations or absences as well as changes in his/her personal circumstances that might impact on the work schedule. Unplanned absences or delays should be discussed as soon as possible and arrangements should be made, to catch up lost time.
5. Will ensure that research on animal or human subjects is concluded according to the procedures and the requirements of the relevant University Ethics committee.
6. Will together complete progress reports on the research project, as requested by each Faculty Graduate Studies Committee.

THE SUPERVISOR

1. Undertakes to provide guidance for the student's research project in relation to the design and scope of the project, the relevant literature and information sources, research methods of data analysis.
2. Has a responsibility to be accessible to the students.
3. Will be prepared for the meeting with the student. This includes being up-to-date on the latest work in his/her area of expertise.
4. Will expect written work as jointly agreed, and will return that work with constructive criticism within a timeframe (a suggestion of 2-4 weeks) jointly agreed at the outset of the research.
5. Will provide advice that can help the student to improve his/her writing. This may include referrals for language training and academic writing. The supervisor will provide guidance on technical aspects of writing such as referencing as well as on the discipline specific requirements. Detailed correction of drafts and instruction in aspects of language and style are not the responsibility of the supervisor.
6. Will support the student in the production of a research report, dissertation or thesis. Provision should be allowed for adequate, mutually respectful, discussion around recommendations made.
7. Will assist with the construction of a written time schedule, which outlines the expected completion dates of successive stages of the work.
8. Will ensure the student has the opportunity to present work at postgraduate/staff seminars/national/international conferences as appropriate.
9. Will assist with the publication of research articles appropriate.
10. Will discuss the ownership of research conducted by the student in accordance with the University guidelines and rules on intellectual property, co-authorship and copyright.
11. Will ensure that the research is conducted in accordance with the university's policy on plagiarism.
12. Will ensure that the student is made aware in writing of the inadequacy of progress and/or of any work where the standard is below par. Acceptability will be according to criteria previously supplied to the student.
13. Has a duty to refuse to allow the submission of sub-standard work for examination, regardless of the circumstances. If the student chooses to submit without the consent of the supervisor, then this should be clearly recorded and the appropriate procedures followed.

THE STUDENT

1. Undertakes to work independently under the guidance of the supervisor. This includes reading widely to ensure that the literature pertinent to his/her chosen topic has been identified and consulted.
2. Is obliged to make appointments to see the supervisor and will arrange meeting times well in advance.

3. Will think carefully about how to get maximum benefit from these contact sessions by planning what s/he wants in these sessions.
4. Should submit written work for discussion with the supervisor well in advance of a scheduled meeting. The kind and frequency of written work should be agreed with the supervisor at the outset of the research.
5. Written work that is submitted should be relatively free from basic spelling mistakes, incorrect punctuation and grammatical errors. Responsibility for the accuracy of language, the overall structure and coherence of the final research report, dissertation or thesis rests with the student.
6. Undertakes to heed the advice given by the supervisor and to engage in discussion around suggestions made. Ultimately the student has to take responsibility for the quality and presentation of the work.
7. Should strive, within reasonable bounds, to maintain a focus on his/her research area and to work within the agreed time schedule.
8. Will prepare material for presentations at seminars and conferences.
9. Undertakes to submit papers for publication.
10. Agrees to honour agreements about ownership of the research and in accordance with the University's guidelines and rules in relation to co-authorship, copyright and intellectual property.
11. Will ensure that the work contains no instances of plagiarism and that all citations are properly referenced and that the list of references is accurate, complete and consistent.
12. Agrees to work in accordance with the criteria of acceptability as supplied by the supervisor.
13. Undertakes not to place the supervisor under undue pressure to submit work for examination until the supervisor is satisfied that it has reached an acceptable level of quality. We confirm that we have read and understood this statement and agree to be guided by its principles for as long as we continue to work together.

Name of student: **SARA HASSAN SHAIK** Student's signature:



Name of Supervisor: **MARICA BOTHA** Supervisor's signature: 

Name of Co-Supervisor: **NONE** Co-Supervisor's signature: **NOT APPLICABLE**

The broad area of study is: Telehealth in Occupational Therapy

Provisional submission date is: February 2024 Degree: MSc Occupational Therapy

School: School of Therapeutic Sciences Faculty: Faculty of Health Sciences

Date: 07/06/2021

Specific agreement pertaining to: ownership and joint publication, funding, may be attached and signed.

GRIEVANCE PROCEDURES: It should be acknowledged that during the course of the research that both students and supervisors can feel aggrieved. In this event, these should be dealt with as swiftly as possible by the parties involved and, if necessary, the Postgraduate Coordinators and Committees. There is, in addition, a University Grievance Policy to help guide deliberations.

Appendix E: Appointment of Supervisor Form



RECOMMENDATION FOR APPOINTMENT OF SUPERVISOR(S) OF RESEARCH REPORT, DISSERTATION OR THESIS

Motivation / Reason for Appointment:

Mrs Botha is an expert in the field of learning difficulties and child development and will be able to guide the student appropriately during the study

Recommendation of Division / Department / School:

Masters in Occupational Therapy Coursework and Research/ Occupational Therapy Department/ Faculty of Health Science

see above recommendation

Student Surname and Full name(s)	SHAIK, SARA HASSAN
Student number	850564
Degree	MScOT
Div / Dept / School	Department of Occupational Therapy/School of Therapeutic Science
Title	THE USE AND KNOWLEDGE OF TELEHEALTH AMONG OCCUPATIONAL THERAPISTS IN SOUTH AFRICA

(Supervisor 1): Marica Botha

(Name &Surname)

Supervision %: 100%

Supervisor Qualifications: MSc. Occupational Therapy (WITS)

Supervisor Department: Department of Occupational Therapy

Supervisor Telephone: 082 335 6386 E-mail: marica.botha@wits.ac.za

Student Signature:



Supervisor 2: None

(Name &Surname)

Supervision %: N/A

Supervisor Qualifications: N/A

Supervisor Department: N/A

Supervisor Telephone: N/A E-mail: N/A

Student Signature:



Supervisor 3: None

(Name &Surname)

Supervision %: N/A

Supervisor Qualifications: N/A

Supervisor Department: N/A

Supervisor Telephone: N/A E-mail: N/A

Student Signature:



Supervisor 1 Signature: 

Supervisor 2 Signature: N/A

Supervisor 3 Signature: N/A

RECOMMENDATION BY HEAD OF DIVISION / DEPARTMENT / SCHOOL:

Dr. Janine van der Linde _____ JvdLinde _____ 17/06/2021

(Full name(s) and Surname) (Sign) (Date)

APPROVAL BY CHAIR OF ASSESSOR GROUP:

(On behalf of the FGSC)

_____ _____ _____

(Full name(s) and Surname) (Sign) (Date)

PLEASE NOTE: RECOMMENDATION FOR APPOINTMENT OF SUPERVISOR(S) FOR CIRCULATION TO THE FGSC FOR APPROVAL

26/05/2015

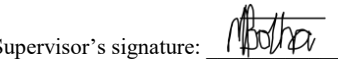
Appendix F: Student Supervisor Agreement Form

Statement of principles for postgraduate supervision

In a context of academic freedom and within a framework of individual autonomy and the pursuit of knowledge, this statement is written in the belief that there is a reciprocal relationship and mutual accountability between supervisor and student

THE SUPERVISOR AND THE STUDENT:

1. Will establish agreed roles and clear processes to be maintained by both parties. In the case of joint supervision, the roles and responsibilities of each supervisor and the student need to be clarified.
2. Will meet regularly and as frequently as is reasonable to ensure steady progress towards the completion of the proposal, research report, dissertation or thesis. This time varies but the normal minimum requirement for face-to-face contact spread across each year of registration is: 10 contact hours for an Honours project, 15 contact hours for a Masters by coursework and research report and 24 contact hours for a Masters by dissertation and a PhD.
3. Will keep appointments, be punctual and respond timeously to messages.
4. Will keep one another informed of any planned vacations or absences as well as changes in his or her personal circumstances that might impact on the work schedule. Unplanned absences or delays should be discussed as soon as possible and arrangements should be made, to catch up lost time.
5. Will ensure that research on animal or human subjects is conducted with prior approval and according to the procedures and the requirements of the relevant Ethics committee.
6. Will both complete Progress Reports on the research project as required/requested by the relevant Faculty Graduate Studies Committee.

THE SUPERVISOR:	THE STUDENT:	We confirm that we have read and understood this statement and agree to be guided by its principles for as long as we continue to work together.
1. Undertakes to provide guidance for the student's research project in relation to the design and scope of the project, the relevant literature and information sources, research methods and techniques and methods of data analysis. 2. Will provide guidance at the commensurate NQF level requirements for autonomy and accountability that the student is expected to demonstrate. 3. Has a responsibility to be reasonably accessible to the students. 4. Will be prepared for meetings with the student. This includes being up-to-date on the latest work in his/her area of expertise. 5. Will expect written work as jointly agreed, and will return that work with constructive criticism within a timeframe (a suggestion of 2-4 weeks) jointly agreed at the outset of the research. 6. Will provide advice that can help the student to improve his/her writing. This may include referrals for language training and academic writing. The supervisor will provide guidance on technical aspects of writing such as referencing as well as on discipline specific requirements. Detailed correction of drafts and instruction in aspects of language and style are **not** the responsibility of the supervisor. 7. Will guide the student in the production of a research report, dissertation or thesis. Provision should be allowed for adequate, mutually respectful, discussion around recommendations made. 8. Will assist with the construction of a written time schedule, which outlines the expected completion dates of successive stages of the work. 9. Will encourage the student to present work at postgraduate/ staff seminars/national/international conferences as appropriate. 10. Will assist with the publication of research articles as appropriate. 11. Will discuss the ownership of research conducted by the student in accordance with the University rules on intellectual property, copyright, **guidelines on authorship/co-authorship**, and **policy on research integrity.** 12. Will ensure that the student is aware of the University's Plagiarism Policy, knows what plagiarism is, and what the consequences are for academic dishonesty and violation of research integrity and intellectual property. 13. Will ensure that the student is made aware in writing of the inadequacy of progress and/or of any work where the standard is below par. Acceptability will be according to criteria previously supplied to the student.	1. Takes full responsibility for the research and its successful completion; including managing the process under the guidance of supervisor (s). 2. Will attend such courses and lectures that are compulsory for the degree, and undertakes to catch up fully on any work, lectures and/or assignments, that are missed. 3. Undertakes to work independently under the guidance of the supervisor(s). This includes reading widely and critically to ensure that the seminal **and** current literature pertinent to his/her chosen topic has been identified, consulted and critiqued. 4. Undertakes to work in accordance with the academic standards expected by the University for the commensurate NQF level of qualification. 5. Is obliged to make appointments to consult the supervisor(s) and arrange meeting times convenient to both parties well in advance. 6. Should submit written work for discussion with the supervisor(s) well in advance of a scheduled meeting. The kind and frequency of written work should be agreed with the supervisor(s) at the outset of the research. 7. Written work that is submitted to the supervisor, including final submissions to examiners, should be relatively free from basic spelling mistakes, incorrect punctuation and grammatical errors. Responsibility for the accuracy of language, the overall structure and coherence of the final research report, dissertation or thesis rests with the student. 8. Cannot expect the supervisor to be proof-reader and editor of his/her work or to approve work with any of the weaknesses spelt out in **7** above. 9. Undertakes to heed the advice given by the supervisor(s) and to engage in discussion around suggestions made. Ultimately the student has to take responsibility for the quality, integrity and presentation of the work. 10. Should strive to maintain a focus on his/her research area and to work diligently within the agreed time schedule. 11. Agrees to honour agreements about ownership of the research and in accordance with the University's guidelines and rules in relation to coauthorship, copyright and intellectual property. 12. Will ensure that the work contains no instances of plagiarism, violation of intellectual property and research integrity standards, that all citations are properly referenced, and that the list of references is accurate, complete and consistent.	Name of student: SARA HASSAN SHAIK Student Number:… 850564 Student's signature:  Name of Supervisor: MARICA BOTHA Supervisor's signature:  Name of Co-Supervisor: NONE Co-Supervisor's signature: NOT APPLICABLE The broad area of study is: The use and knowledge of Telehealth in Occupational Therapy Provisional submission date is:

14. Has a duty to refuse to allow the submission of sub-standard work for examination, regardless of the circumstances. If the student chooses to submit without the consent of the supervisor, then this should be clearly recorded and the appropriate procedures followed.	13. Agrees to work in accordance with the criteria of acceptability as supplied by the supervisor(s). 14. Undertakes not to place the supervisor(s) under undue pressure to submit work for examination until the supervisor is satisfied that it has reached an acceptable, **examinable*** level of quality.	Degree: M Sc Occupational Therapy School School of Therapeutic Sciences Faculty: Faculty of Health Sciences Date 05/06/2021 **Specific agreements pertaining to:** ownership, joint publication, funding, confidentiality and disclosures pertinent to the Certificate of Clearance and ETD Form which the student and/or supervisor are required to sign, must be attached to this agreement as and when appropriate and kept in the Faculty Office. In the event of disagreements between the supervisor(s) and student, the parties should act in accordance with the University Grievance Policy. ***Note: Consent by supervisor**(s) to submit work for examination does NOT guarantee that the work will pass. The appointed examiners assess and determine whether the work is of a passable standard. **(2019/09/30)**

Appendix G: Ethics Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R49 Ms SH Shaik

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M211050

NAME: (Principal Investigator)	Ms SH Shaik
DEPARTMENT:	School of Therapeutic Sciences Department of Occupational Therapy Medical School University
PROJECT TITLE:	*The use and knowledge of Telehealth amongst Occupational Therapists in South Africa*
DATE CONSIDERED:	2021/10/29
DECISION:	Approved unconditionally
CONDITIONS:	
NOTE:	If contact information regarding student study participants is required, please contact the Registrar's office - <Nicoleen.Potgieter@wits.ac.za>
SUPERVISOR:	Ms M Botha
APPROVED BY:	CB Penny Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2022/02/21

This Clearance Certificate is valid for 5 years from the date of approval. An extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office secretariat 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 **October** and therefore reports and re-certification will be due in the month of **October** each year. Unreported changes to the study may invalidate the clearance given by the HREC (Medical).

Shaik

Signature of Principal Investigator

07.06.2022

Date

Appendix H: Approval of Title

UNIVERSITY OF THE
WITWATERSRAND
JOHANNESBURG

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

Reference: Ms Sandra Munesar
E-mail: Sandra.munesar@wits.ac.za

16 January 2025
Person No: 850564
PAG

Miss SH Shaik
18 Tainton Street
Dewetshof
2198
South Africa

Dear Miss Sara Shaik

Master of Science in Occupational Therapy: Approval of Title

We have pleasure in advising that your proposal entitled *The use and knowledge of telehealth among occupational therapists in South Africa* 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

Ms Sandra Munesar
Faculty Registrar
Faculty of Health Sciences

Appendix I: Plagiarism Report (Turnitin Similarity Index)



TII REPORT

by Sara Hassan Shaik

Submission date: 27-Feb-2025 06:38AM (UTC+0200)
Submission ID: 2600005828
File name: 2094_Sara_Hassan_Shaik_TII_REPORT_54301_32352008.docx (189.63K)
Word count: 14272
Character count: 77714

TII REPORT

ORIGINALITY REPORT

5%	3%	3%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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8	gerardcambon.net Internet Source	<1%
9	Bainbridge, Jane. "Visual Perceptual Processing and Occupational Performance in South African Adults with Traumatic Brain Injury - A Validity Study of the Test of Visual	<1%

Perceptual Skill-3", University of the Witwatersrand, Johannesburg (South Africa), 2025
Publication

10	Bense, Megan Sylvia. "The Effect of an Oculomotor-Vestibular-Proprioceptive Sensory Stimulation Programme on Reading Skills in Children Aged 8 to 12 Years 11 Months", University of the Witwatersrand, Johannesburg (South Africa), 2025 Publication	<1%
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38	Anthony Jejelaye, Lebogang Maseko, Denise Franzsen. "Occupational therapy services and perception of integration of these at primary healthcare level in South Africa", South African Journal of Occupational Therapy, 2019 Publication	<1%

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