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HOW OCCUPATIONAL THERAPISTS ATTEMPT TO OVERCOME LANGUAGE BARRIERS IN SOUTH AFRICA

Nica Pietersen

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

Johannesburg, February 2023.

Declaration

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

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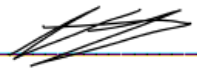
Signature:  Date: 31-10-2024

1

Abstract

Background: South Africa is a diverse country with twelve official languages and a number of protected languages. There is no expectation for healthcare practitioners to be conversant in multiple languages, creating potential language barriers within healthcare settings. The National Health Act, as well as other important policies driving healthcare provision, outline the importance of patient understanding of healthcare provisions. Overcoming these potential language barriers is therefore paramount to ensure patients' participation healthcare. This report aims to explore how occupational therapists attempt to overcome language barriers in South Africa.

Aim: The aim of this research is to determine whether occupational therapists in South Africa perceive a language barrier to be present in their interaction with patients, and to describe the methods (if any) they use to overcome such perceived barriers.

Methods: This study employed a quantitative cross-sectional descriptive survey design. Data were gathered through closed- and open-ended questions.

Results: The study included 232 participants. Occupational therapists in South Africa experience language barriers more often than not when practicing. By gathering information about their patients' language preferences, implementing various translation methods (ad hoc translation, machine translation, non-verbal communication and attempted learning of their patients' language), occupational therapists felt competent in overcoming these barriers to ensure effective provision of services, contradicting the experiences reported by occupational therapists practicing in the Global North, possibly as a result of the high frequency of a common language being used in therapy.

Conclusions: Occupational therapists in South Africa experience high frequencies of language barriers but feel competent and confident in overcoming these barriers through an implementation of various techniques simultaneously. Further research into patients' experience must be done.

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Nomenclature

Definitions

Ad hoc translation	:	The translation of words from one language to another by a person who is untrained in formal interpretation (1)
Caregiver	:	Any person providing care to a recipient of occupational therapy services, both formally and informally trained (2)
Code-switching	:	Using single words or short phrases of another language, interspersed with gestures and demonstrations to promote understanding (3–5)
Cultural competence	:	The ability for a person to understand how another's cultural values and beliefs determine behaviour, and the ability to plan health interventions based on this understanding (6–8)
Cultural sensitivity	:	The ability for a person to be aware that another's cultural values and beliefs determine behaviour, and acknowledging that each perspective is unique and therefore cannot truly be understood (9,10)
Global North	:	Countries that are considered highly developed when considering their economy and industry; usually located north of lesser developed countries (11)
Global South	:	Countries that are considered under-developed when considering their economy and industry; usually located south of more developed countries (11)
Language barriers	:	An absence of effective communication occurring when participants in conversation have a difference in mother tongue languages, or when participants lack a shared language of dual proficiency (12,13)
Machine translator	:	Programs that implement the use of computer programs to translate between languages (14)
Neurocognitive impairment	:	Refers to persons with neurological conditions resulting in impaired cognition and language ability, as well as persons

		with psychiatric conditions. This includes, but is not limited, to the DSM-5 diagnosis of neurocognitive disorder (15)
Patient	:	Any person receiving occupational therapy services

Abbreviations

ADL	:	Activity of daily living
CHC	:	Community Health Centre
CPA	:	Consumer Protection Act
CVI	:	Content Validity Index
CVR	:	Content Validity Ratio
GT	:	Google Translate
HCP	:	Healthcare Practitioner
HCW	:	Healthcare Worker
HPCSA	:	Health Professionals' Council of South Africa
INSTOPP	:	The Institute for Occupational Therapists in Private Practice
MScOT	:	Master of Science in Occupational Therapy
NGO	:	Non-Government Organization
NHA	:	National Health Act
NPO	:	Non-Profit Organization
OT	:	Occupational therapy
OTASA	:	Occupational Therapy Association of South Africa
POPIA	:	Protection of Personal Information Act
PT	:	Physiotherapy
p-value	:	Probability-value
Research Electronic Data Capture		RedCap
SLT	:	Speech and Language Therapist
UK	:	United Kingdom
USA	:	United States of America

1 INTRODUCTION

Introduction

South Africa has long been celebrated for the multi-lingual country that it is, referred to as the "Rainbow Nation" with 12 official languages, a larger number of protected languages and a variety of cultures (16). However, a pluralistic society such as South Africa with its notable divide between the private and public health sectors poses many challenges, related to providing access to the array of health services necessary to optimally serve a diverse population (17). One such challenge could be making services understandable from a language perspective, not only to ensure informed consent but also compliance to treatment protocols. In 2007 already, research has found that an overwhelming majority of interactions between healthcare practitioners (HCPs) and patients occur in the presence of a language and/or cultural divide (18).

The National Health Act (NHA) outlines the practitioner's duty to provide sufficient information to patients to allow them to make an informed decision regarding their healthcare needs (19). However, the NHA is not the only piece of legislation that makes provisions regarding information to patients (as consumers of healthcare services). The Consumer Protection Act (CPA) indicates that a consumer must be provided with information in a way that they can understand (20). Importantly, however, the CPA does not require the practitioner to provide this information in the consumer's, i.e. patient's, home language, but it does require the party providing the information to take the consumer's experience as a consumer into account (20). While the CPA is not typically included in the array of medical legislation taught to occupational therapists and other healthcare practitioners, Van Niekerk (2019) noted that healthcare practitioners must also be aware of non-medical legislation that could affect how they practice (21). The CPA requirement to provide information in an understandable way places a nuanced duty on HCPs: practitioners should not only provide enough information to patients, but also in a way that they can understand (20). How HCPs make themselves understood when interacting with a patient in the presence of a language barrier, may be an important consideration.

Penn, in her seminal research, found that one of the ways practitioners use to overcome a language barrier is to use an interpreter (18), but it is unclear whether practitioners are using other means, now 14 years later. Most of the literature seems to focus on doctors and medical

contexts rather than a rehabilitation context with rehabilitation practitioners such as occupational therapists (5,18,22–24).

1.1 Problem Statement

With a growing number of refugees and immigrants, South Africa is home to 12 official languages and up to 44 other languages (24), some of which are Constitutionally protected (25). As a result of these numbers, there has been continued research around the presence and effects of language barriers on healthcare service provision in South Africa.

As early as 2007, Penn discovered that more than 80% of the discussions between medical professionals and patients in South Africa occur in the presence of a language-barrier (18). Levin in 2006 found in his study that 94% of all medical interviews were conducted in a language other than the patient's home language (13). More recent literature echoes this research, emphasising that the language barriers continue to hinder access to quality healthcare in South Africa, highlighted not only in research, but in the complaints reported by patients between 2018 and 2019 in the government healthcare sector (24,26–28).

Rehabilitation services, including occupational therapy, rely on effective communication between patient and therapist to ensure informed consent, active patient participation, and compliance to therapy (22,29). Globally, therapists have reported that the language barrier is one of the greatest challenges to provided effective, patient-centred treatment (30). In the presence of a language barrier patients experience significantly lower levels of service satisfaction, with both patients and practitioners identifying a lower quality of service provision (13). Furthermore, occupational therapists feel that the presence of a language barrier directly affects their ability to form a strong therapeutic relationship, a key element in service provision (31). Lastly, language barriers limit communication between therapist and patient, limiting ability to include the patient as an active participant in goal-setting and the therapy process, thus directly hindering implementation of the client-centred approach, an approach underlying effective occupational therapy service provision (31–33).

A vast majority of the research around this topic has taken place in countries situated in the Global North. Owing to the higher immigration rates in countries within the Global South, it

stands to reason that these countries would have higher rates of language barriers as noted by Swartz et al, however research in these countries is limited (12).

Research in healthcare in general has explored the effects of use of formal interpreters versus the use of *ad hoc* interpreters. Research into the presence of language barriers in occupational therapy specifically focused on how language barriers affected the therapeutic relationship, as well as how they impeded implementation of the client-centred approach. Although there are some studies proving how common language barriers are when accessing health care in South Africa, there are no studies indicating how these language barriers are managed in the clinical settings by Occupational Therapists (5,23,24,29). If this information is not known, it will be unclear whether practitioners are compliant with provisions such as those from the CPA regarding presenting information in an understandable manner to patients.

The purpose of this research is therefore to explore whether South African occupational therapists who do not share a common language with a patient, perceive a language barrier between themselves and patients, and how they mitigate for this perceived barrier.

The more current literature is also deeply reliant on research dated around 2006 and 2007 and therefore newer information should be gathered in order to paint a more accurate picture of the current situation.

This information is important as it will allow the reader to gain a better understanding into the current perception of language barriers, thus providing a starting point on which to make changes that could improve communication in healthcare, specifically within the occupational therapy profession.

1.2 Justification of the Study

The HPCSA, which prescribes minimum standards of training for occupational therapists, have not made proficiency in multiple South African languages a requirement of occupational therapy curricula. Because the NHA and CPA require practitioners to provide sufficient information in an understandable manner, it is necessary to understand whether occupational therapists perceive a language barrier to be present in their interaction with patients, and to describe the methods (if any) they use to overcome such perceived barriers.

Occupational therapists are specifically trained in evaluating the effect of context and environment on a person's engagement in occupation. Accessing medical care is described as part of the Instrumental Activities of Daily Living category of occupations. Understanding the

effect that language barriers have on informed consent, confidentiality and compliance to occupational therapy intervention is crucial, and it is therefore meaningful for an occupational therapist to conduct this research, as enhanced communication between HCP and patient may impact patients' health-seeking behaviour. The outcome of this study will contribute to occupational therapists' understanding of how to bridge language gaps. Additionally, this study may be of value to other fields of healthcare regarding overcoming language barriers.

1.3 Research Question

Do South African occupational therapists experience language barriers and how do they attempt to overcome language barriers with patients, or patient caregivers, when they perceive such a barrier to exist?

1.4 Aim of the Study

The aim of this research is to determine whether occupational therapists in South Africa perceive a language barrier to be present in their interaction with patients, and to describe the methods (if any) they use to overcome such perceived barriers.

1.5 Objectives of the Study

a) To determine how often South African occupational therapy practitioners experience language barriers

b) To determine the extent to which occupational therapists gather information regarding their patients', or patient caregivers', home language and other languages they speak/understand

c) To describe the measures, if any, that Occupational Therapists employ to overcome language barriers

1.6 Outline of this research report

Chapter 1: Introduction

This chapter provides insight into the diverse range of languages existing in South Africa, and a brief consideration on how legislation guides the practice of occupational therapy in the presence of a language barrier. Proceeding this, a statement of the current problem was made

through a description of previous literature on the topic, and a research question identified. Following this, the aims of the study, the study objectives and the limitations of the study were outlined.

Chapter 2: Literature review

This chapter outlines the current body of knowledge, as well as the apparent gaps in knowledge, surrounding the experience of language barriers while providing occupational therapy services in South Africa. This is presented by exploring the current healthcare situation in South Africa, how often language barriers occur in practice, the effects of these barriers, overcoming these language barriers, and the legislation available to guide current practice.

Chapter 3: Methodology

This chapter describes the study design and outlines the procedure followed to gather and analyse data. This was done by presenting information around the study participants, the data collection process (with a focus on validity and reliability of the instrument used), the data analysis process and the ethical considerations employed during all aspects.

Chapter 4: Results

This chapter presents the outcomes of the data analysis process. A description of the participants was provided, and the findings around therapist perceptions of language barrier occurrence was discussed, followed by finding around how occupational therapists currently attempt to overcome language barriers, and their perceptions around the effectiveness of various translation tools.

Chapter 5: Discussion

This chapter provides a discussion of the research results, first by comparing the participant demographics to those already existing in literature around the population demographics, then by comparing and relating the results of the study to the study aims and objectives, in order to identify the meeting of the purpose of the study. Suggestions for further research are made in this chapter.

Chapter 6: Conclusion

The conclusion chapter provides an overall summary of the report, with additional recommendations made regarding further research.

Conclusion

This study aims to explore how occupational therapists attempt to overcome language barriers in South Africa; a relevant and under-researched topic considering the vast number of official and national languages. The problem statement outlined gaps in literature, and the aims and objects of this study were geared towards filling these gaps, justifying the study and the importance of its findings in facilitating a better understanding of the relationship between occupational therapists in South Africa and language barriers.

2 LITERATURE REVIEW

Introduction

This literature review addresses the importance of effective communication between patients and healthcare workers (HCWs). The efficiency of various interpretation tools including formal interpretation, *ad hoc* interpretation, and machine translation is explored in general and in regard to their use in the healthcare setting. Additionally, the effects of language barriers on therapists is explored, with emphasis on how this barrier affects the compulsory community service year and therapists' feelings of competence. Furthermore, the difference between language and culture is outlined, and the current laws and legislation surrounding language barriers is explored throughout.

The literature was gathered through exploration of the following platforms: Library of the University of the Witwatersrand, PubMed, and Google Scholar between the years of 2021 and 2024.

2.1 Current healthcare situation in South Africa

At the beginning of the twenty first century, healthcare started to transform from the paternal medical model to a more client-centred model with greater focus on adequate communication and patient goals driving treatment, with communication seen as a two-way venture between healthcare worker (HCW) and patient (34,35). Occupational therapy, as a client-centred profession, grew exponentially with this change in model, with an average of a 7.1% annual increase in registered occupational therapists in South Africa (36). As South Africa progressed through the apartheid to post-apartheid era, emphasis was placed on empowering the voice of the people and thus fostering patient autonomy.

Through this transition, both in terms of healthcare as well as the country as a whole, the National Department of Health committed to the improvements of quality service delivery in the public health care sector, which were most recently described in the Strategic Plan outlining how these improvements would be effected between 2020 and 2025 (28,37). The mission of this plan is to improve service provision of the health care system through increasing "access, equity, efficiency, quality and sustainability" (13 Pg12), outlining goals that should be achieved by 2030. Goal three of this strategy is focused on improving the quality of care provided in the public sector. This goal directly correlates with pillar five of the Presidential Health Summit;

that of improving the quality and quantity of healthcare (28). This plan additionally outlines that the current level of inadequate communication and poor sharing of medical information to the patient is a direct risk that would impede achievement of the quality of outcome (28). It therefore stands to reason that overcoming these language barriers would directly improve the healthcare service delivery and may improve the quality of healthcare in South Africa.

2.2 Are language barriers common?

In one of the earliest studies of its kind, 2007, Penn found that more than 80% of the discussions between medical professionals and patients in South Africa occur in the presence of a language-barrier (18). Even earlier in 2002, South African psychiatrists outlined both the importance of communication in patient treatment as well as the limited research available on language barriers in South Africa, referring to the presence of language barriers as being part of the norm and even becoming invisible in their existence (38).

This sentiment has remained largely unchanged in recent literature, however the body of research around the presence of language barriers in healthcare communication has expanded. More recent research outlines that the presence of a language barrier is the primary factor influencing healthcare equity across the globe (39). This is reiterated by Hussey in her research, who stated that the language barrier remained the most 'overlooked' challenge to equitable healthcare provision in South Africa (40).

Most of the research around language barriers in health-care has taken place in countries that form part of what is considered the Global North, however language barriers between patient and practitioner are inevitably more common in the Global South as these countries have the highest refugee rate and higher migration rates, with South Africa being the second leading country in the world for number of refugees (12). This, in combination with the large number of official languages, and South Africa's extensive and complex history explains why language barriers in healthcare have expanded to the 80% that Penn outlined.

When regarding the patients' report of frequency of language barriers, research conducted in the context of South African healthcare specifically noted that 69% of patients (inclusive of caregivers) were dissatisfied with the communication received, both in the amount as well as the quality of communication (13). When examined further, it was noted that 64% of this dissatisfaction was as a result of a stark language barrier. Furthermore, 54% of patients felt that

the healthcare professionals did not understand their concerns or problems, directly affecting their quality of treatment (13).

This feeling is echoed by occupational therapists in their community service year, where around 74% of therapists felt that language barriers negatively affected their treatment (32). The attitude of HCWs towards language barriers is reflected in other research by Claasen et al, which shows that 88% of HCWs, specifically doctors and other HCWs in the Cape Town area, were motivated to learn a new language owing to the importance they placed on 'successful communication' in patient treatment (5).

"*I know that if I could communicate in my home language, that person would get a* ***much*** *better service than what I am currently offering"* (26 Pg7).
This statement, made by an occupational therapist working the rural government sector in South Africa, encapsulates this view on the effects of language barriers of quality of patient treatment.

2.3 Effects of language barriers

With the limited research around language barriers between occupational therapists and patients, this section will explore the effects of language barriers experienced by other healthcare providers in South Africa, as well as by occupational therapists globally.

In the context of South Africa, patients receiving pharmaceutical services reported that even though they did experience notable language barriers, they were satisfied with their level of care from, and interactions with, their pharmacist (4). These patients stated that the use of 'code-switching', which refers to using single words or short phrases of the patient's language, interspersed with appropriate gestures and using demonstration, allowed the patients to feel that they had a good understanding of the pharmacist's instructions. This indicates that when language itself could not be used, other forms of communication could be implemented, the effectiveness of which is unknown, albeit satisfactory to the patient. Notably in this research however, the pharmacists themselves felt increased levels of frustration in trying to communicate across the language barrier, however their view differed regarding the quality of care provided, stating that they were adequately able to educate their patients and provide effective treatment (4). When considering this opposing view, the nature of the service provided must be taken into account, with the role of a pharmacist and occupational therapist

differing largely in its administration, thus making it difficult to compare the two different views on how the provision of each service is affected by a language barrier.

In contrast to this, results of a questionnaire examining parents' perceived effects of language barriers to the healthcare of their children as provided by medical doctors outlined a largely negative perspective, namely inaccuracies with medications provided, misdiagnoses, poor understanding of medical explanations and overall receiving a low quality of medical care (13).

Furthermore, patients experiencing language barriers globally have voiced dissatisfaction in the following areas regarding service delivery by their medical doctor: when receiving their medical diagnosis, discussions around their medical condition, methods of treatment, results of treatment and the discharge process (29,42). Importantly, eight percent of all complaints logged between 2018 and 2019 in South African public health care sector were regarding a lack of access to medical information, mirroring this patient experience in the South African setting (28).

This feeling of being misunderstood and disregarded leads to increased feelings of distrust and increased suspicion around the agenda of practitioners, causing a fragmented and weak foundation of the budding therapeutic relationship (43). Additionally, these patients have increased risk factors during their hospital stay, such as decreased compliance to treatment, greater risk of complications and a higher rate of readmission (22,29). Most importantly however, patients were shown to receive less education around their medical needs, possibly the reason for their increase in risk factors (44). In addition to this, Hunter-Adams and Rother in their research found that the presence of a language barrier greatly impedes quality service provision in healthcare, with emphasis on the lack of trust fostered between the healthcare provider and the patient (26). Their study on language barriers between nurses and cross border migrants in South Africa provides rare insight into the effects of a language barrier from the migrants' point of view (26). This study, as an unintended consequence, discovered that the issue of language barriers arose in all discussions related to accessing healthcare in South Africa, evoking strong negative emotional responses from the migrants (26).

In contrast, a scoping review on language barriers between nursing and patients found that although they required more time to attend to patients in the presence of a language barrier, this time spent improved therapeutic relationship, as well as fostering personal growth within the nurses and overall improved service delivery to these patients overtime as a result of learning and adaptation by the nurses (1).

Although most of these outcomes are specifically related to patients and their interactions with other HCWs, they adequately capture the extent of the problems faced by patients in the presence of a language barriers in the South African setting. These studies, when viewed as a map of information rather than individual experienced, points to the likely conclusion that language barriers can have both negative and positive effects on HCW-patient interactions. The contrast between the positive and negative experiences does not allow for the painting of a picture regarding the experiences of patients receiving occupational therapy, or occupational therapists' perceptions of the effects of language barriers on patient treatment in South Africa, highlighting a gap in literature.

2.4 Client centredness and the therapeutic relationship

Occupational therapy is client-centred by (33). It is through partnership with patients that therapy is effective, and that occupational therapists place value on the patient's personal experiences and perceptions, as well as acknowledging that patients have knowledge and a skillset of their own which can contribute to making therapy effective (33).

A descriptive case study completed in the United States of America (USA) on the effects of language discordance on patient-centred care in occupational therapy identified that the presence of a language barrier was the primary obstacle to client-centredness (31). It was determined that language barriers have an effect on patients' understanding of what occupational therapy is and why it is required, preventing the patient from identifying occupations that were of greater meaning to him and preventing them from articulating these to their occupational therapist (31). Additionally, a language barrier impedes the ability of the occupational therapist to set client-centred goals, form an understanding of patient priorities for treatment, explain clinical reasoning around treatment and allow for adequate education around the purpose of occupational therapy and its benefits (31).

This emerging theme is supported in the South African setting through a study on novice occupational therapists, where the occupational therapists felt that they were using their own clinical judgement and reasoning to create goals instead of incorporating their patient's input owing to the presence of a language barrier (32). Furthermore, the occupational therapist in this study stated that she guided intervention and was unable to view the patient as an active stakeholder in their therapy decisions (32). This one-sidedness does not allow for fostering of

a strong therapeutic relationship, but rather reflects the paternal medical model that is antithesis to the ethos of occupational therapy's client-centred stance.

A scoping review on barriers to cultural competence in rehabilitation services outlined that the process of building report between patient and healthcare practitioner in the presence of a language barrier requires significantly more time to nurture, and although this was stated as a negative aspect, the scoping review of language barriers between nurses and patients discussed earlier were of the perception this time spent could be viewed as inherently improving the therapeutic relationship, indicating that the perception of a barrier may be of greater importance that the barrier itself (30).

In contrast to this however, a 2015 study by McCorquodale and Kinsella found that therapists are more drawn to patients with whom they share commonalities, spending more time with these patients and engaging in conversation that is not always therapy related (45). Additionally, therapists spend less time with patients to whom they cannot relate, creating an unintentional injustice that might affect the strength of the therapeutic relationship formed through the spending of time (45). Furthermore, the same study outlines that forming a good understanding of a patient's subjective experience during the therapeutic process greatly enhances the therapeutic relationship, an element which is lost in the presence of a language barrier (45). One aspect of attempting to 'understand' a patient's subjective experience is cultural sensitivity.

2.4.1. Cultural sensitivity

It cannot be assumed that people who share a language, also share a culture, necessitating practitioners specifically to be sensitive to cultural differences (46). This sensitivity is important to assist practitioners to ensure that services are acceptable (47). While many papers continue to use the term "cultural competence", this research report will continue to use the term "cultural sensitivity" as it is imperative to acknowledge that although one is able to appreciate another's culture, only those who live within any particular culture are competent in it. Cultural sensitivity is defined as acknowledging, appreciating and behaving accordingly to persons of a culture that is different from one's own (10). Culture encompasses the customs, beliefs, morals, values and habits, passed through generations, that form the base of societal norms and directs the action of the people. This relies on the commonality of shared experiences and perceptions of these experiences (9,48). In order to understand a culture that

is different to one's own, one must first recognize that culture itself is multi-layered, some easily identifiable and others only visible after deep emersion in each culture (9).

Culture has been described using three main concepts, namely attitudes, values and behaviours, and direct the differentiation one culture from the other. The use of language has been linked to the concept of behaviour, indicating that language makes up a significant part of culture, but is not all encompassing of culture (9).

Why is cultural sensitivity important in health care communication?

Client-centredness and cultural sensitivity are both approaches that are used in order to improve healthcare services (6). Cultural sensitivity can be considered as a single aspect of patient centredness. Patient centredness is based on the early belief (1969) that each patient should be considered "unique human-being" (49) and therefore interactions should differ between patients accordingly.

The current occupational therapy paradigm in South Africa is based on western practice. By implementing this paradigm, occupational therapists look at their patients through this westernised lens, and inherently apply these westernised cultural practices to patients who are largely non-westernised (50). It can therefore be critiqued that the occupational therapy practice as a whole assumes that all cultures are a loose adaption of westernised culture. While research as an entity is based on using smaller populations to predict the behaviour of larger populations, these smaller populations should be a true or as accurate as possible reflection on the larger population. The minority population of westernised culture on which most of the occupational therapy paradigm has been created is not a true reflection of the population of South Africa, and it must therefore be assumed that our practice will require adaption to accommodate for these differences. The question then arises, how does one become aware of the adaptions required, or how to implement these adaptions, if cultural sensitivity is not sought after and at least partially achieved (51)?

2.5 Overcoming language barriers

Through the study of how language barriers affect both patients and HCWs, there have been various programs implemented aimed at realistic and appropriate methods of limiting this barrier.

Research completed by Levin (2011) regarding English-Hispanic therapist-patient interactions indicates that after HCWs participated in a Spanish learning program, patients experienced higher satisfaction with their care (27). It is also noted that if the therapist simply attempts to speak to the patient in their home language, the patient's attitude towards the therapist changes positively and the therapeutic relationship is inherently improved (52). Consistent with this idea, when health care workers in the Western Cape (South Africa) underwent a 10 week course in basic Xhosa, the most common language spoken in that area, patient satisfaction increased significantly. Patients expressed that they believed their HCW's to be more concerned about them, that their problems were well understood, that the HCW respected them and that their concerns were listened to (27). Additionally, the HCWs in Levin's study experienced far lower frustration levels after the study was completed, and therefore increased job enjoyment and fulfilment, significantly improving their overall work experience (27). The complication arises with the presence of 12 official South African languages, not all of which can be studied. A possible solution is to include a language course as part of each occupational therapists' community service year in the most common language spoken within the area of that particular facility. Although this will not ensure that each therapist is proficient in all languages, it would allow for all occupational therapists within South Africa to have a better understanding of the basics of at least one additional language, making a small start in bridging the language barriers they will be exposed to when practicing.

The literature describes various methods and tools practitioners use to overcome language barriers. Formal interpreters, ad hoc interpretation and machine translation will be discussed in this section.

2.6.1 Formal interpreters

According to the guidelines published by the Health Professionals' Council of South Africa (HPCSA), the health care practitioner should implement the use of a qualified, formal interpreter when experiencing a language barrier between themselves and a patient (53). This formal interpretation has varying merits and difficulties within the South African context.

The implementation of formal interpreters is supported by international studies that outline that the use of formal interpretation is imperative to patient treatment and sets it out as the golden rule for addressing language barriers (1,31). These studies however are conducted in what can be referred to as the Global North, where time and money is in abundance compared to a

country such as South Africa, situated in the Global South, with its vast and varied challenges of a lower income country.

This golden-standard model whereby information is directly translated from one language to another, requires the interpreter to remain neutral to the information translated, limiting the emotional or physical aspects around the information translated and without translating the context of the information (4,54). Research conducted in South Africa specifically, found that in a society with such an array of cultures, the traditional interpretation model is impractical and unrealistic (54). Furthermore, the same study noted that the use of a model which specifically breaks down this formal interaction has potential to significantly improve overall communication (54).

In contrast to this, other studies found that the formal interpreter creates what is referred to in literature as a 'bridge' between the practitioner and the patient (26). This bridge insinuates a gap between both parties which can take various forms. While this gap can be created by poor understanding of one-another, it can also be created by cultural differences. The formal interpreter can be thought of as not only a bridge to improve verbal understanding, but can also provide insight into each party's social and cultural context (1). It therefore stands to reason that a formal interpreter who does not solely translate direct language but is rather able to translate various aspects of communication would be the ideal solution; however, further aspects must be considered, such as the cost implications and accessibility of this option.

Qualified interpreters are an extra cost for each hospital, and the number of interpreters required to cover each patient facing a language barrier could be exponential (24). Incorporating qualified interpreters is therefore unrealistic in the South African setting, both in the government and private sector, and interpreters are rarely employed by hospitals.

Regarding patient and therapist perception of formal interpreters, a study whose participants were a combination of therapists, namely occupational therapists, physiotherapists, and speech and language therapists stated that with the use of a formal interpreter, there was an absence of what they referred to as informal 'chit-chat' which they regarded as important to understanding patient goals and the parts of their life that they considered most meaningful, thus limiting a more holistic view into the patient (55). Building on this idea, a review of patient-practitioner communication by Penn and Watermeyer (2012) emphasised the importance of small talk in healthcare conversations, referring to this 'chit-chat' as 'asides' (54). These titbits of conversation are not always related to the topic at hand. Penn and Watermeyer's study indicated that although these asides are often thought of as unnecessary, they play an important role in

the building of trust between practitioners and patients (54). Additionally, these asides often create awareness around issues that are not always perceived as strictly medical, such as providing information about the patient's context or environment in terms of resources and barriers, specifically against the complex and diverse cultural background of South Africa; however, it is because this information is deemed "unmedical" that asides are often left out during interpretation (54). Research further indicated that when interpretation takes place formally, patients have lower levels of comfort, while their comfort levels increase during a more informal, 3-way patient-interpreter-practitioner conversation (26).

The use of an interpreter, while widely considered the best care scenario in terms of accuracy in translation, still allows for miscommunication unless both the therapist and the interpreter have been taught how to effectively implement this technique (27). Furthermore, it has been noted that with the use of formal interpreters in the healthcare setting, the interpreters take on a secondary role as a 'co-diagnostician', thus affecting the relationship within the patient-therapist-interpreter triad (56). Medical interpreters are trained to act as a translation machine, thus limiting their emotional involvement with the patient. As mentioned above, a good rapport between a patient and therapist is paramount to ensuring effective treatment and the meeting of functional goals, therefore this emotional disengagement from a third party could negatively influence this relationship (56,57).

Levin's 2011 study found that once therapists underwent a language training course, they felt that the use of interpreters, both formal and *ad hoc*, were significantly less effective than they had previously thought (27). This perception proved accurate in a study that identified that although professional interpreters had a lower percentage of omission and false-fluency errors, their errors in the less frequent categories of addition, substitution and editorialization were actually higher than both ad hoc interpreters and no interpreters at all (see table 2-1) (58).

TABLE 2-1: A COMPARISON OF ERRORS BETWEEN AD HOC (INFORMAL) AND PROFESSIONAL (FORMAL) INTERPRETATION (58)

	Type of Interpreter, %		
Error Category	**None**	**Ad Hoc**	**Professional**
Omission*	54.2	46.3	41.9
False-fluency error†	35.9	31.6	13.6
Addition†	1.5	6.5	17.9
Substitution†	2.5	9.0	13.3
Editorialization†	5.9	6.6	13.3

*P=.001 by χ^2 test for comparison of types of interpreters.
†P<.01 by χ^2 test for comparisons of types of interpreters.

Of all the errors made through all forms of interpretation in this study, 18% had potential for causing major clinical error, however this percentage (12%) was far lower during professional translator than for ad hoc (22%) and no translator at all (20%). It is interesting to note that no translator yielded fewer errors of clinical consequence than ad hoc translators did (58). Although level of experience in interpretation did not affect the number of errors made, the years of professional training in interpretation did, with increased time spent in training correlating to fewer interpretation errors made (58).

An additional con of formal interpreters is the time needed to book or organise the interpreter. A speech and language therapist in the United Kingdom (UK) identified that a session that only lasted for 30 minutes, took a week to plan and that only 15 minutes of actual therapy took place as it required double the time to translate all the information required (55). This is likely not to feasible in the South African healthcare context, which is often characterised by resource constraints.

Opposingly, while ad hoc interpreters usually have other job requirements and are usually only used for brief translations, formal interpreters do not have other responsibilities and therefore can be available for longer durations, facilitating the entire session of assessment or treatment. Therefore, not only do the use of qualified interpreters improve the quality of services provided, they also allow services to be provided more efficiently, allowing for group therapy to occur

with the translator available throughout. The use of group therapy is paramount in South Africa owing to the exceedingly low therapist to patient ratio.

2.6.2 *Ad Hoc* interpretation

The most commonly used translators in South Africa are informal, or *ad hoc*, interpreters in the forms of other staff members (ranging from qualified health care practitioners to cleaning staff), other patients, as well as patients' friends or family members (1,18). These interpreters are readily available and free, thus increasing their ease of use, with the premise being that partial communication is better than no communication at all (5). This form of interpretation is most often relied upon in the absence of formal interpreters (1).

Research appears divided in promoting or limiting the use of ad hoc interpretation. Benjamin et al (2016) and Martinez et al (2015) outline the dangers of using ad hoc interpretation (24,31). The main concern of both papers was one of ethics: patient confidentiality. The informal interpreter will gain medical information about the patient during the translation process. This concern was also the main concern around ad hoc interpretation following a scoping review of language barriers between nurses and patients (1). This concern could be overcome through the signing of a disclosure form by the patient; however, this form should be provided in the patient's home language to ensure adequate understanding.

Further disadvantages of ad hoc interpretation includes the interpreter omitting medical information that they do not wish for the patient and/or therapist to know, thus compromising the appropriateness of the treatment plan created by the therapist (18). Additionally the untrained interpreter potentially takes on the emotional burden of the conversation as well as inadvertently taking on the role of an informal advocate for the patient (59). Other risk factors include substituting medical terms for more lay or colloquial terms which can alter the nature of the matter discussed, sharing incorrect information, as well as interpreters intentionally making adjustments to the information according to their own bias (18,29,31). It should be noted that the use of *ad hoc* interpreters is most commonly out of therapist necessity and the patient is rarely asked for their preference of interpretation (4).

In contrast, a community health centre (CHC) located in the Midwest, United Stated of America (USA), implemented the official use of *ad hoc* interpreters in 2004 as described by Larrison et al (2010) (60). These interpreters were assessed according to their efficiency in both Spanish and English but no other formal training in medical interpretation was provided. The Client Satisfaction Scale, used to measure patient's level of satisfaction with the services

provided by the CHC, found that without these ad hoc services patients were significantly less than satisfied with the CHC's service, with more than 100% increase in satisfaction noted with the implementation of these ad hoc interpreters, with 80% stating that the ability to communicate their needs to healthcare providers was the main increase in satisfaction (60).

A consistent theme noted through Larrison et al's study is that these *ad hoc* translators were required to translate verbatim, but found that they often had to adjust their translation in order to convey the correct meaning across cultures, thus improving cross-cultural communication instead of simply providing information, ultimately the difference between translation and interpretation (60).

In the same way, family members acting as *ad hoc* translators often have a good understanding of the patient's culture and can provide insights into the cultural underpinnings of language instead of merely translating the spoken word (55)**.** It must be noted however that this study has not been replicated in the context of South Africa at the point of this study, and that these views may not be shared by South Africans.

A study completed by Professional et al (2012) on practitioner's view of various translation modalities indicated that they viewed the use of ad hoc translators (mostly using a patient's family member or friend) as being of good to excellent quality (61). This study showed no strong difference in satisfaction between ad hoc and formal translators. It was noted, however, that the clinicians were most satisfied with video calls with a formal translator than with any other interpretation modality. Professional et al's study, however, was viewed through a specific lens, solely from the perspective of the practitioner, and did not account for the patient's perspective (61). Considering the patient-centred approach as discussed above, this omission renders the study rather futile in its findings, however it does open up a different view of using technology to assist in translation.

2.6.3 Machine translators

The idea that computers could be used to translate languages came about only a year after the first computer was developed, a whopping 75 years ago (1947). The difficulty and magnitude of this task was soon appreciated and remains highly debated within language studies, but significant progress has been made over the past 10 years, allowing translation apps to be used widely throughout healthcare transactions (62,63).

Machine translators are commonly used in the presence of language barriers owing to their low cost as well as their ease of use, with options such as Google Translate (GT) allowing translation of the patient's direct speech for more commonly spoken languages (64).

Google Translate uses an algorithm to search for and analyse previously translated resources to translate new material, but this algorithm means that grammatical errors are common (65). Google Translate is renowned for being able to translate more than 100 different languages, however the only South African languages included in its array are English, Afrikaans, Zulu and Xhosa, which encompasses fewer than half of the 12 official languages of the country (65).

When translating complex sentences, GT has proven to translate incorrectly 66% of the time, with the main point of the sentence being lost (66). Only 8% of the translations were considered accurate enough to match the quality of a formal interpreter (66). More recent results indicate that when compared to the effectiveness of an interpreter, GT has an average accuracy 45% when translating African languages, indicating that the interpretation these languages will produce gross miscommunications when including medical jargon (65).

Although GT is a free resource globally it does require internet connection and is therefore limited in areas with unstable internet connection or high data fees such as South Africa. Additionally the information shared on this platform becomes directly usable by Google, which, coupled with lack of security features, could breach patient confidentiality (64). Patients should therefore be informed of the possibility of breach of confidentiality when using tools such as GT and must provide informed consent for whatever means is used to attempt to overcome a language barrier. Lastly, it must be noted that human interpreters not only act to interpret language, but also context and culture, as previously explored in this paper. When making use of a machine translator, this aspect is presumably lost (67).

Interestingly, a recent study found that most of the time using machine translation assisted in improving rapport between patients and HCWs, although this was not always the case (68). While some patients responded well to their HCW using an app to improve communication, others found it frustrating or confusing to try use an unfamiliar and novel method of communication. From the therapist perspectives, occupational therapists reported in this study that using translation apps improved their patients' participation in activities of daily living (ADL's) as their patients' understood what was being asked of them, as compared to when no translation app was used (68).

The same study however outlined the challenged with using machine translation, specifically that the apps would not work as effectively for various dialects or accents. The most significant challenge faced was the presence of cognitive impairments in patients, further increasing the difficulty of using a novel and complex interpretation system (68).

Research into the use of interpretation apps within healthcare at present is limited, with the study mentioned above, published in 2022, being one of the first to investigate this niche area. Further research into machine interpretation and translation should be conducted to gain a better understanding as to the benefits and shortfalls, specifically in a country that forms part of the global-south, where exposure to such technology may be limited. This is particularly important when regarding the policies and ethics that guide the use of various methods of interpretation, and if machine translation fits into these aspects.

2.6 Policies and ethics

Occupational Therapist are guided in their practice by legislation that protects both the patient and the practitioner. When faced with a language barrier, occupational therapists should refer to this collection of legislation to gain a better understanding on how to navigate these barriers.

A person receiving a healthcare service can be viewed through two lenses; one being that of the health perspective, and second being that of a consumer perspective, thus labelling said person as either a patient or a consumer. A sociology study completed in South Africa show that the behaviour or character of the person can change and adapt to fit the label assigned, thus showing the importance of this labelling (69). As healthcare in South Africa moves away from the paternalistic approach, it seems fitting that the patient is regarded more as a consumer, emphasising the autonomy that they have over their healthcare decisions, empowering the patient to play an active role in their medical decisions and thus opening lines of communication between the patient, or consumer, and the healthcare provider (69).

The CPA aims to protect the rights of the consumer, in this case, the patient (20,70) . The CPA proposes eight “consumer rights”, two of which directly relate to the bioethical principles and considerations used in health-care, namely the right to make informed decisions between desired options (autonomy) and the right to privacy in these decisions (which is linked to the principle of confidentiality) (20,71). When a patient is unable to fully understand the information provided to them in therapy, it becomes clear that the Act itself requires further exploration. During inadequate translation, medical jargon is often misinterpreted, thus

hindering this right to informed autonomy, and medical information is shared with the translator, often ad hoc, therefore hindering the right to confidentiality (72).

Challenging the idea of viewing the patient as a consumer, it must be considered that when the healthcare professional views themselves as a provider of a service, it creates a space where bioethical principles are replaced by business ethics. This has potential for the consumer to demand medical services which the healthcare professional deems inappropriate based on their clinical knowledge (69).

Rowe and Moodley state in their research that the two largest barriers in patient education and empowerment in South Africa regarding personal autonomy are culture and language barriers. These barriers force both the patient and the healthcare provider back to the paternalistic approach where the healthcare provider has to make decisions on the patient's behalf, correlating to the experience of occupational therapists in chapter 2.4 (69).

The National Health Act of 2003 simply states that medical information should be provided to patients "in a language that the user understands" (19). It does not however elaborate on how this should be done in the presence of a language barrier.

A more in-depth layout of policy is described by the National Department of Health: Language Policy of 2015. This policy stipulates that each national health institution should outline how all twelve official languages will be used for communication, as well as describe how they will provide information and effectively communicate with patients whose languages differ from the official languages (73). Language policy across the various provinces agree that this should be done through implementation of a language services unit which provides professional interpreters as needed to all government entities (74).

The Patients' Rights Charter aims to protect the rights of all patients, aiming to improve access to healthcare for all people of South Africa (75). This Charter provides two important realisations. Firstly, that the patient has a right to participate in decision making around their care. Secondly, under the heading of "access to healthcare", it is stipulated that information around treatment must be given to the patient in a way that they can understand it, and that all medical information should be provided in a language that the patient understands (75). It becomes clear that providing medical information across a language barrier therefore directly conflicts with the Patients' Right Charter, a conflict that occurs daily without any guideline as to overcome this within the reality of service provision of professional interpreters in South Africa.

Conclusion

Clear, understandable communication between a HCP and patient is important, because it enhances informed consent, active participation in treatment and compliance to therapy (22,24,29,52). Current translation options, including formal translation, ad hoc translation and machine translation each have their advantages and disadvantages, although national policies guide therapists to use formal translation as their sole method of translation. It is, however, the duty of the health-care practitioner to implement the necessary interventions to bridge a language gap in order to provide the level of service required by the Consumer Protection Act of 2008. There has been some research into implementation into language programs that could be a viable long-term solution to bridging the gap that arises in the presence of a language barrier, however occupational therapists need to implement other methods until these programs are researched further. When considering that all means of interpretations have shortfalls, the best means of practice would be to use various elements of each at the same time while ensuring patient confidentiality throughout by making the patient aware of these shortfalls prior to commencement of therapy.

3 METHODOLOGY

Introduction

This chapter describes the study design, the participants in this study and how they were selected using inclusion and exclusion criteria, followed by the methods used to gather data, including the pilot study and the final research questionnaire. How the data were analysed, regarding both the platforms as well as the techniques used, and the ethical considerations made during this research is then highlighted.

3.1 Study design

This study employs a quantitative cross-sectional descriptive design (76). This allows for a description of therapists' perceptions of and their attempts to overcome language barriers at a specified moment in time, which in this study is between 15-08-2022 and 22-03-2023. A cross-sectional design allows for data to be gathered from an available sample in an attempt to describe a population, allowing for the prevalence of various variables to be obtained and compared (76). A single electronic, self-report questionnaire was sent out to participants to gather data.

3.2 Participants

3.2.1. Target Population

The target population consisted of occupational therapists in South Africa who work in rural, urban and peri-urban areas, but may originate from a different area (especially in the case of community service practitioners) all of which may result in them having to communicate with a patient in a communal, but not necessarily home language.

Unfortunately, the HPCSA does not collect data about practitioners' current work status when they renew their registration annually, thus its register is not an accurate reflection of the population of registered occupational therapists working in South Africa. Most recently, a 2018 paper reflected the number of active occupational therapists as 5180 occupational therapists (36). This number, calculated over five years prior to the writing up of this research, is an inaccurate reflection of the number of currently practicing therapists owing to the fact that occupational therapists who have retired or immigrated can remain on the HPCSA register.

Ideally, the population size for this study would be calculated using the various platforms through which the questionnaire was disseminated, including the number of Occupational Therapy Association of South Africa (OTASA) members, as well as number of The Institute for Occupational Therapists (INSTOPP) in Private Practice) members. It is probable that some therapists are members of both organisations and therefore an average would ideally be calculated between the two groups to identify an estimated population size.

In 2023, OTASA had 2598 members as reported by their marketing coordinator. This number remains unpublished but was gathered through direct email contact with OTASA. Although direct contact was attempted with INSTOPP, no response was received regarding their membership numbers for 2023.

Lastly, the social media groups used to disseminate the questionnaire included the Facebook groups of Occupational Therapists (RSA) which has 2924 members, once again allowing for therapists who are not living or working in South Africa or those who are no longer practicing, as well as the Allied Health in South Africa (Professionals only) group which has 12 309 members made up of all the allied professions. Owing to these groups' members not being formally regulated, these membership numbers will not be included in calculating the population size.

Therefore, for the purposes of this research, the population size will be based on the 2018 paper that investigated the full demographics of occupational therapists registered under the HPCSA at the time, being 5180 (36). This comparison will allow for a better understanding of whether the sample size is a true reflection of the population. Based on the population size of 5180, this study aimed for a sample size of 385 participants at a confidence interval of 95% (Appendix A).

3.2.2. Sample Selection

Inclusion criteria

The participants must be qualified occupational therapists currently working in South Africa.

Exclusion criteria

None.

Sample Strategy

This study used non-probability sampling strategies. A convenience sample was used by disseminating the survey to OTASA and INSTOPP members, as well as online platforms such as two Facebook groups as outlined in the table below (77).

This study made use of a multi-modal recruitment strategy similar to the strategy used in the RESONATE study (77).

TABLE 3-1: THE MULTI-MODEL STRATEGY USED IN THIS STUDY

Category	Strategy	Platform/Agency/Medium
Associations	Association to send an email invitation containing the link to the online questionnaire. Participants will be requested to send the invitation to participate to fellow practitioners	OTASA
		INSTOPP
Social Media	Invite members of social media groups for practitioners to participate in the study	Facebook groups • Allied health in South Africa (Professionals only) • Occupational Therapists (RSA)
		WhatsApp groups

The sampling strategy likely means that data was not normally distributed. Additionally, results are unlikely to be generalizable and the sampling strategy necessarily brings about bias and limitations, which will be handled as set out below.

TABLE 3-2: THE MITIGATION OF LIMITATIONS OR BIAS

Limitation/source of bias	Mitigating action
Distortion risk early in the study, due to low number of participants (78)	Starting with a convenience sample of OTASA and INSTOPP members produced a larger number of participants. Additionally, participants were also recruited via Facebook groups with member numbers above 2000 which produced a large number of participants. (See figure 3.1)
Recruitment bias (79): survey is only available electronically; recruitment is online	Due to the COVID-19 pandemic, it was anticipated that most practitioners have access to email, or other forms of internet. No requests for hard-copies were received but were available through postage if needed.
Despite the convenience sampling, the study does have a propensity towards self-selection bias (77)	Using a comprehensive, multi-modal recruitment strategy, which includes dissemination through OTASA, INSTOPP, as well as using social media groups/platforms
Measurement instrument bias (79): the questionnaire was designed by the researcher	A Content Validity Index was used to ensure the measurement instrument was valid prior to questionnaire distribution
Analysis bias (79): the researcher looking for specific information while analysing results according to her opinion	The program of SPSS and statistical analysis was used to ensure that opinion cannot affect results

3.3 Data collection

3.3.1. Instrumentation

The data required for this research project were gathered through a 25-item questionnaire developed by the researcher (Appendix B). It contained a demographics section and a section, based on the current available literature on the topic (80). The literature was divided into topics,

and from these topics measurable variables were derived. The demographics section included questions specifically related to the inclusion criteria to ensure information was gathered from the target population only. The remaining questions were particularly pertaining to the aims and objectives of this study.

The questionnaire was placed on Research Electronic Data Capture (REDCap), a secure online platform designed for research data collection that is housed on the University's secure servers (81,82). The questionnaire included the following types of questions: yes/no questions, multiple choice questions, statements using a 5-point Likert type scale and open-ended questions.

Internal consistency of the questionnaire was measured through the Cronbach Alpha coefficient to ensure reliability (83). This was completed through a pilot study.The pilot study was completed by sending the questionnaire to ten participants, ensuring completion of at least five questionnaires. Five completed pilot surveys were received. The pilot study participants were occupational therapists known by the researcher from either her place of work or through the university, and who had completed the MSc(OT) degree, thus ensuring that they fall into the target population, and have experience in research.

Content validity is a measurement of the degree to which the set of items in the questionnaire will adequately provide the information needed to meet the research aims and objectives (84). A rating scale was completed by each pilot study participant to assess the content validity of the questionnaire, allowing for calculation of the Item Content Validity Index (I-CVI)(Appendix C)(85). A rating >0.79 to be considered excellent, and <0.50 indicating need for revision.

The content validity ratio (CVR) for each question was calculated on CVR= (Ne-N/2)/(N/2) where Ne= number of responses of a score of three or four, and N was the total number of responses. The mean CVR was then calculated to provide a CVR of the entire questionnaire as outlined.

Mean CVR for all questions is calculated 20.2/25= 0.808 indicating an excellent content validity rating (Appendix D). This rating indicates that the questions were relevant to the meeting of the study aims and objectives, ensuring good construct validity.

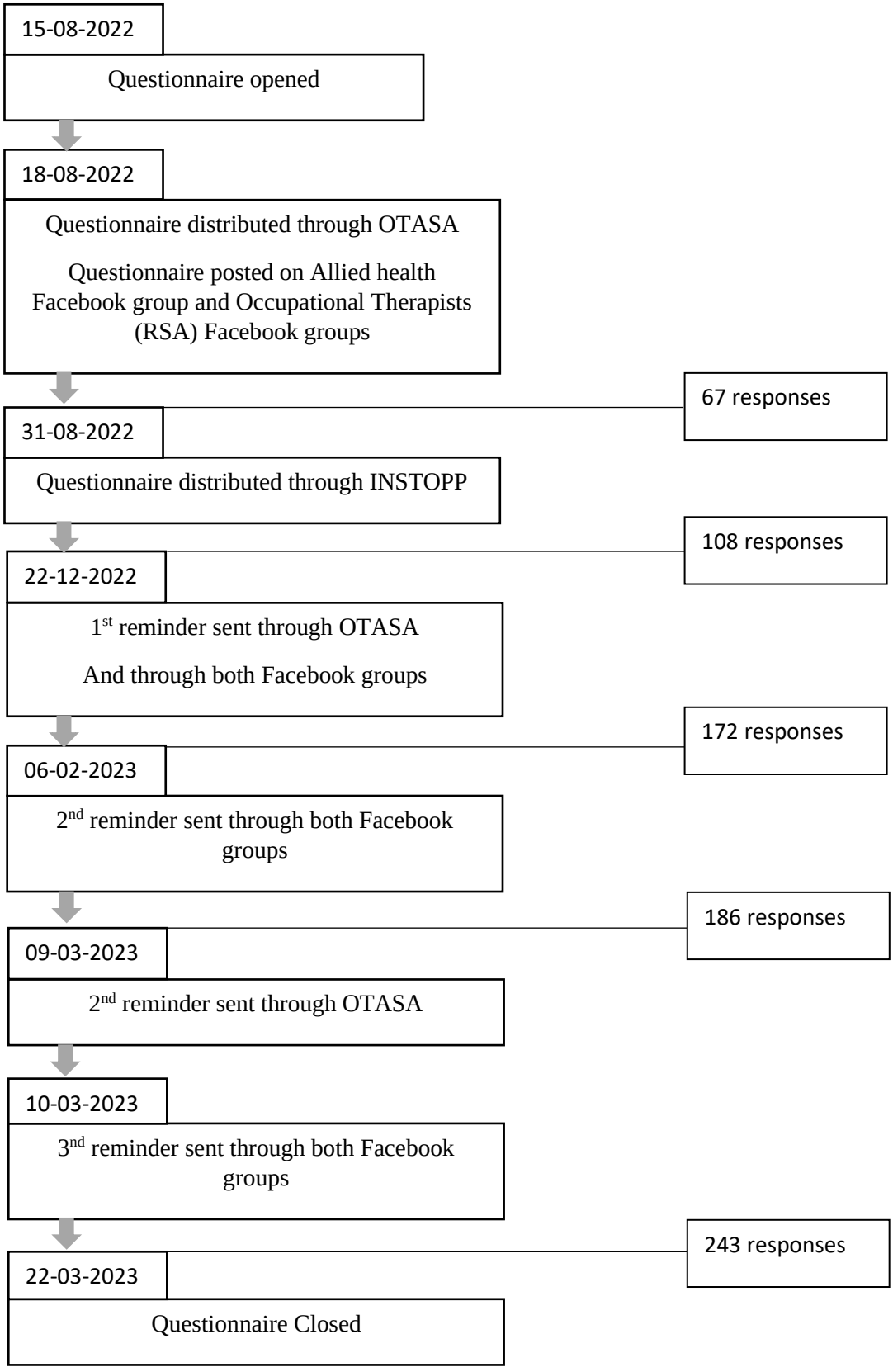
Considering the clarity of the questions, the CVR was calculated according to the ratings with an average calculated at 23.8/25= 0.952 indicating excellent clarity of the questionnaire (Appendix E).

Adjustments to the questionnaire were made based on these results prior to questionnaire release which included removing a duplicate question.

3.3.2. Instrument Distribution

Recruitment of participants started with distribution of the questionnaire through the associations, planned to be on the same day but owing to increased waiting time, INSTOPP distribution was delayed by two weeks. The questionnaire was distributed through two Facebook groups, Occupational Therapists (RSA) and Allied Health in South Africa (Professionals only) on the same day as the first distribution through OTASA. Although the plan was to send out reminders on the same dates for all platforms, INSTOPP failed to send out any reminders regardless of multiple follow-ups by the researcher. Because the social media groups were more easily accessible, more follow ups were made through these platforms as outlined in the distribution timeline below.

FIGURE -3-1: A TIMELINE OF QUESTIONNAIRE DISTRIBUTION AND NUMBER OF RESPONSES



3.4 Data analysis

3.4.1. Data management

Data were managed according to the data management plan as seen in the table below. The data analysis program SPSS version 1.0.0.1406 was used to analyse data (86). Open-ended questions were grouped and analysed quantitatively, as categorical data.

TABLE 3-3: THE DATA MANEGEMENT PLAN OF THIS STUDY

Component of Data Management		**Management Plan for this Study**
Types of Data	:	Quantitative Data were used for this study Capturing: Data were captured through REDCap and processed through the SPSS software output, creating frequency tables, bar graphs and pie charts to analyse the data collected For open-ended questions, a simple content analysis was performed
Contextual Details (Metadata)	:	The data were collected through the RedCap program and therefore responses will be stored through this platform. Each response was numbered with no identifiable demographical information of participants gathered to ensure confidentiality of each participant.
Storage Backup and Security	:	Questionnaire responses were stored on the primary researcher's password-protected computer Data will be preserved on Redcap to which the research supervisor will have access. Data will be archived by the Occupational Therapy Department library for two years after the student graduates, or six years should a paper be published.
Provisions for Protection/Privacy	:	Each questionnaire response was given a number and no identifiable demographical information received from the participants to ensure anonymity and confidentiality of all participants. Intellectual property rights will belong to the University of the Witwatersrand. All raw data will be handed over at the end of the project.

Policies for Re-use	:	If someone wishes to access the data in the future, they will need consent from the principal researcher and from the Wits Department of Occupational Therapy's Research Committee in accordance with the University's data access policies. They will also need to obtain ethical clearance from the HREC-M.
Policies for Access and Sharing	:	Anyone wishing to gain access to the data will need to apply through the Department of Occupational Therapy's Research Committee,
Plan for archiving and Preservation of Access	:	Data will be archived in the Department of Occupational Therapy of the University of the Witwatersrand.

3.4.2. Data analysis methods

Data were analysed through various tests as outlined in the table below:

TABLE 3-4: THE TESTS USED TO ANALYSE DATA

Variables	Objective	Type of data	Test
• Age • Home language • Language most commonly practicing in • Number of languages fluent in speaking, reading, and writing		• Nominal	• Percentages • Comparative tables • Graphs • Pie charts
• Frequency of translation tools used • Viewed effectiveness of translation tools • Frequency of experiencing language barriers • Frequency of gathering information • Extent of language barriers affecting therapy	• C • C • A • B • A	• Ordinal	• Tables • Medians, frequencies, and percentages • Graphs • Kruskal Wallis test • Independent-samples T-test
• Open-ended questions	• C	•	• Simple content

			analysis • Percentages

Once the data had been cleaned, participant demographics were first analysed through descriptive analysis, allowing for a picture to be painted of the sample as compared to the population. This included using frequencies and percentages to identify majority groups according to home language, area of practice etc.

Kruskal Wallis h-test and were then used to analyse the relationships between two independent and unrelated variables in order to determine differences in statistical significance between them, such as the relationship between the extent of language barriers affecting therapy and the frequency of various translation tools being used, by comparing medians (87,88). Independent-samples T-tests were used to compare frequencies of two variables by comparing their means (87,88).

As seen in the table above, the ordinal data received and analysed of this data compared both to the nominal and other ordinal data provided the information required to meet the objectives as mentioned in the introduction chapter.

Regarding the open-ended questions, a simple quantitative content analysis was completed to derive categories which were then analysed through percentages of frequency.

3.1 Ethical Considerations

This study used human research participants, and thus implemented human research ethics principles as described below.

Informed consent outlines the participant's decision to participate in research following their reception and full understanding of all the information pertinent to the research topic and their involvement, thus ensuring participant autonomy (89). This decision must be made without any form of influence, both positive or negative, and is mandated for all health research in South Africa (89).

Participants' informed consent was respected by inviting practitioners to participate in the study through a web link. Participants were not observed while completing this questionnaire and therefore there was no coercion to participate – participants freely and voluntarily clicked on a link to open the questionnaire. An information sheet was provided prior to completion of

the questionnaire (Appendix F) which contained all pertinent information regarding the research topic and participation and the researchers' contact details provided in the event that the participants had further questions prior to the start of questionnaire completion. The prologue to the questionnaire link as well as the information sheet outlined that completion of the questionnaire through the link provided would be considered consent to participate. Participants were also informed in the information sheet that they would not be able to withdraw their participation once their questionnaire has been completed and submitted owing to the anonymity of the questionnaire design. Understanding that the option to withdraw at any point during the completion of the questionnaire as part of the respect for persons ethical principle, questionnaires that had not been completed and submitted in full (excluding the non-completion of the open-ended questions) were cleaned from use, identifying an incomplete or unsubmitted questionnaire as the participant's withdrawal (90).

This provision of information regarding participation prior to completion of the questionnaire allowed to adherence to the bioethical principles of autonomy and respect for persons as highlighted in the Council of International Organisations of Medical Sciences (CIOMS) (91).

An important factor in safeguarding participant autonomy, is ensuring that all participants have the ability to self-govern (90). Inclusion criteria ensured that all participants were registered and practicing occupational therapists, with the understanding that the holding of a higher university degree and registration with the HPCSA certifies that each participant is cognitively competent in making informed decisions regarding their participation in research.

A 2019 article outlines four aspects to informed consent, namely full disclosure, understanding and appreciation, voluntariness and capacity. As outlined above, each of these aspects were addressed.

To ensure that voluntariness is adhered to, confidentiality of all participants must be maintained. Confidentiality will allow participants to provide responses that are honest and not skewed by their concern around researcher perception of their answers (89). Confidentiality was therefore ensured by the questionnaire not requiring the participants' names or other personal identifying information for completion, and each participant being allocated a number rather than personal identifiers results. Participants could therefore not be linked to individual participants. Additionally, the information requested in the questionnaire does not fall in the category of information of which processing is prohibited in terms of the POPIA.

This research ensured beneficence as well as non-maleficence as it will add information to the field without any risk of harm to the participants (90), neither from participation nor non-completion of questionnaires. Beneficence considers that the research provides a possible benefit to the participant (89). Although this research does not provide direct benefits to each participant individually, this research will provide insights into the current practice of occupational therapy in South Africa, enabling further research which could reshape this practice and benefit the practice in the future, which would indirectly prove a benefit to not only the participants, but to all practitioners.

Finally, as confirmation that the completion of this research adhered strictly to ethical principles, the questionnaire was only sent to participants once ethical clearance has been obtained from the Human Research Ethics Committee (Medical) and the Graduate Studies Committee of the Faculty of Health Sciences of the University of the Witwatersrand following a full protocol submission (Appendix G).

Conclusion

This chapter outlined the quantitative cross-sectional descriptive design used in this study, as well as describing the participant selection process and target population. The data collection process was then outlined with specific detail made to the CVI results of the pilot survey which identified excellent validity for both relevance and clarity of questions, as well as to the process of questionnaire distribution. The data analysis was then explored, and finally the ethical considerations specified in relation to this research. Next, the results of the study will be described.

4 RESULTS

Introduction

This chapter summarises the research findings of this study.

On closure of the survey, 241 responses were received. The data were cleaned to exclude those that did not meet the inclusion criteria, with a total of 232 questionnaires remaining.

The data is presented in the following order:

Firstly, describing the participants in terms of their age distributions, the province they are working in, their workplace setting, participants' home language and the language they most commonly practice in.

Secondly, the results outline the commonality of language barriers by exploring how often participants experience language barriers in their practice, how often participants are required to provide therapy in a language outside of their home language, and how often patients use a language other than their home language when receiving occupational therapy services. The commonality of language barriers is then compared across both provinces and workplace setting, and participants perception on the effect of language barriers on occupational therapy service provision is then described.

Thirdly, how occupational therapists overcome these barriers is explored considering which platforms are most frequently used to overcome barriers as well as the perceived effectiveness of these platforms.

Lastly, therapist perceptions of the advantages and disadvantages of informal interpretation and Google Translate are analysed by identifying frequency of answers from open-ended questions.

4.1 Demographic data

When analysing the data, the following participant demographics were noted.

TABLE 4-1: PARTICIPANT DEMOGRAPHICS

Characteristic	Category	Frequency	Percentage (%)
Age	20-29	95	**40.95**
	30-39	59	25.4
	40-49	39	16.81
	50-59	29	12.50
	60-69	9	3.88
	Unknown	1	0.43
Province	Gauteng	94	**40.5**
	Western Cape	53	**22.8**
	Kwazulu-Natal	30	12.9
	Eastern Cape	19	8.2
	Free State	13	5.6
	North West	9	3.9
	Mpumalanga	4	1.7
	Limpopo	4	1.7
	Northern Cape	2	.9
	Unknown	4	1.7
Workplace setting	Academia	3	1.3
	Hospital-unspecified	3	1.3
	NGO/NPO	13	5.6
	Private sector	116	**50.0**
	Private sector and academia	2	.9
	Private sector and NGO/NPO	3	1.3

	Private sector and public sector	3	1.3
	Public sector	69	**29.7**
	School-unspecified	9	3.9
	Unknown	11	4.7
Home language	Afrikaans	80	34.5
	Afrikaans and English	11	4.7
	English	126	**54.3**
	English and Portuguese	1	.4
	German	5	2.2
	isiXhosa	3	1.3
	isiZulu	3	1.3
	Sepedi	2	.9
	South Sotho	1	.4

Table 4.1 above outlines the demographic information of the participants. When considering age, majority of the participants are age ranged between the 20-29 and 30-39 age groups. A trend can be noted that frequency of an age group decreases as the age itself increases, with that largest category being the 20-29 year-old age group and the smallest known category being the 60-69 year-old age group. 0.43% of the population, 1 participant, remained of an unknown age.

When regarding the provincial distribution of participants; the most frequent provinces recorded were Gauteng province with the most participants with 40.6%, Western Cape at 22.8% of participants and Kwazulu-Natal at 12.9%. four participants (1.7%) did not provide their province detail and were listed as ‘Unknown’.

The table also illustrates the workplace setting of participants. It can be seen that 50.00% of the participants worked in the private sector, making up a half of the participants, with 29.74% of participants based in the public sector, making up the second largest category.

Accumulatively, participants working in the private sector either full time or part time make up 53.5% of the sample.

When considering the home languages of participants; English was the most frequently spoken home language of participants with 54.3%, Afrikaans second with 34.5%. Bilingual Afrikaans and English speaker made up 4.7% of the sample. Other home languages included in order of frequency were German (2.2%), isiXhosa (1.3%), isiZulu (1.3%), Sepedi (0.9%) and Southern Sotho (0.4%).

4.2 Commonality of language barriers

Figure 4.1 below illustrates which language the participants most commonly practiced in.

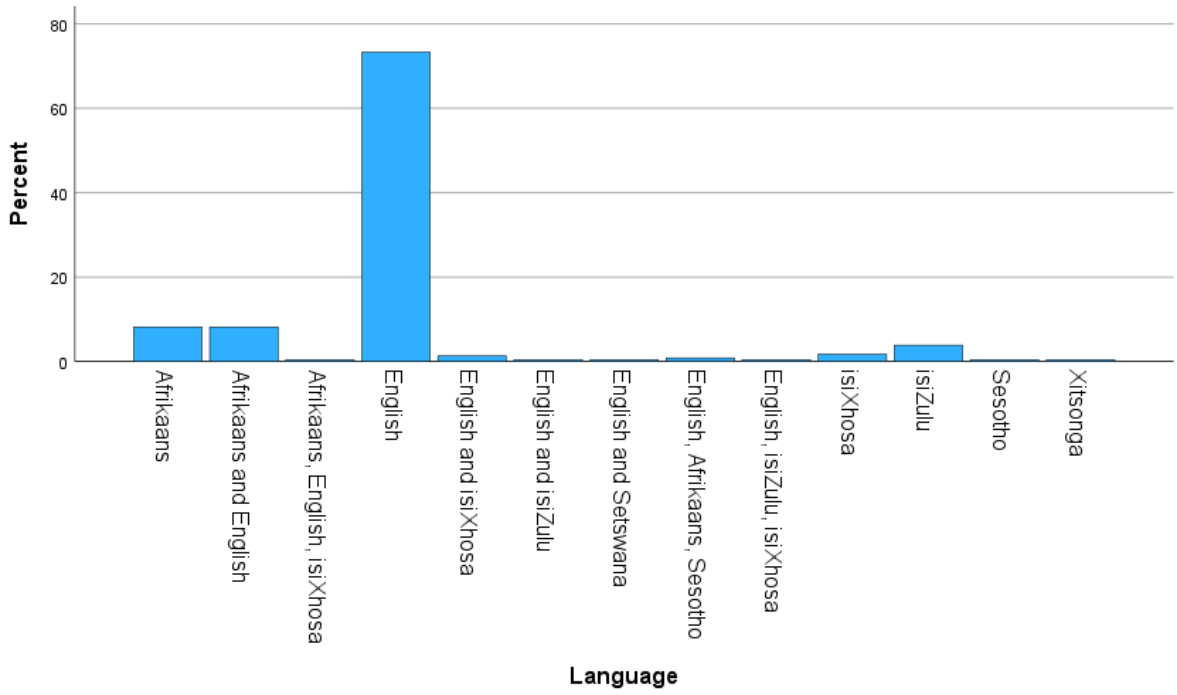


FIGURE 4-1: THE LANGUAGES MOST COMMONLY PRACTICED IN

English was most common with an outright frequency of 73.3% and an accumulative total of 85.3%. Afrikaans was again the second most frequent with a direct frequency of 8.2% and an accumulative total of 17.7%. It can be seen that many therapists (12%) practiced in a bilingual or multilingual environment.

Comparing the home languages of participants to the language they most often practice in, English is the dominant language of both, indicating that participants may not incur language barriers very often.

TABLE 4-2: THE FREQUENCIES OF USING A SECOND LANGUAGE

Characteristic	Categories	Frequency	Percentage
How often participants experienced language barriers when treating patients	Never	7	3
	Occasionally	138	**59.5**
	Half the time	43	18.5
	More often than not	36	15.5
	All of the time	8	3.4
How often participants treat patients in a language that is different from their home language	Never	9	3.9
	Occasionally	76	32.8
	Half of the time	53	22.8
	More often than not	66	28.4
	All the time	28	12.1
How often patients have to use a language other than their home language during therapy	Never	6	2.6
	Occasionally	71	30.6
	Half of the time	51	22.0
	More often than not	85	36.6
	All the time	17	7.3

When considering the perceptions of therapists of language barriers, the frequency of experiencing language barriers and effects that participants felt these barriers affected therapy were explored. The majority of participants perceived to experience language barriers occasionally (59.5%), With exception of the 'Never' category, the frequency of the categories decreased in inverse correlation with how often language barriers were experienced.

Table 4.2 above also illustrates that very few participants never have to treat in a language other than their home language, with the data spread fairly evenly between occasionally, half the time and more often than not. 12.1% of participants, however, were required to practice in a language other than their home language all of the time.

Similar distribution was noted for how often patients were required to use a language other than their home language when engaging in occupational therapy services. This similarity is possibly as a result of the use of a common language second language by both parties.

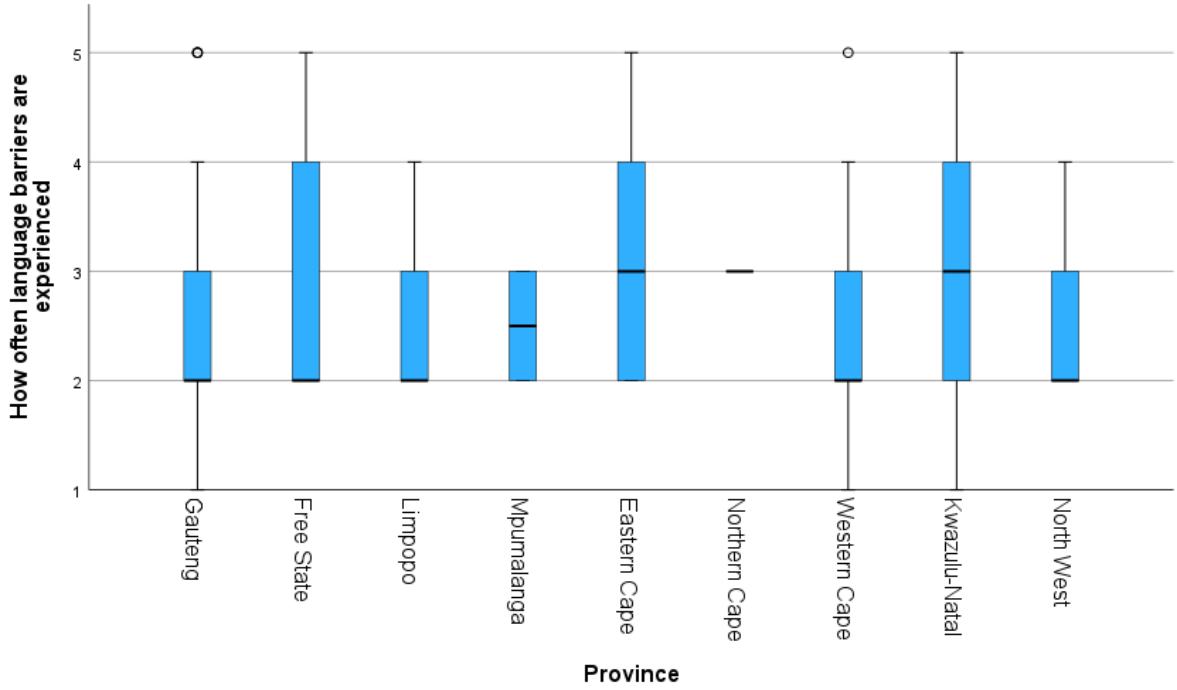


FIGURE 4-2: THE DATA DISTRIBUTION BETWEEN HOW OFTEN THERAPISTS EXPERIENCED LANGUAGE BARRIERS WITH PATIENTS AND IN WHICH PROVINCE THEY PRACTICE

Figure 4.2 above outlines the data distribution between how often participants experienced language barriers with patients and in which province they practice. This box plot identifies that the data was not evenly distributed across provinces.

Interquartile Range: Free State, Eastern Cape and Kwazulu-Natal have the largest interquartile ranges indicating a greater range of distribution, where the other provinces have a smaller interquartile range indicating a lesser spread of the data for these categories.

Median: The medians for the Eastern Cape, Northern Cape and Kwazulu-Natal are the highest at three (half the time), indicating that these provinces experience higher rates of language barriers. Gauteng, Free State, Limpopo, Western Cape and North-West have lower medians of 2 (occasionally), indicating that participants in these provinces experience language barriers less frequently. This correlates to the mean distributions as seen in table 4.4. The Free State

median is positively skewed indicating asymmetrical distribution, with Eastern Cape and Kwazulu-Natal being symmetrically distributed.

Whiskers: Outliers are most noted for the provinces of Gauteng, Western Cape and Kwazulu-Natal.

With a P value of 0.034, the null hypothesis of the data being evenly distributed across provinces is rejected.

When considering the area of work where participants were based, there was a variation of how often language barriers were experienced as seen below.

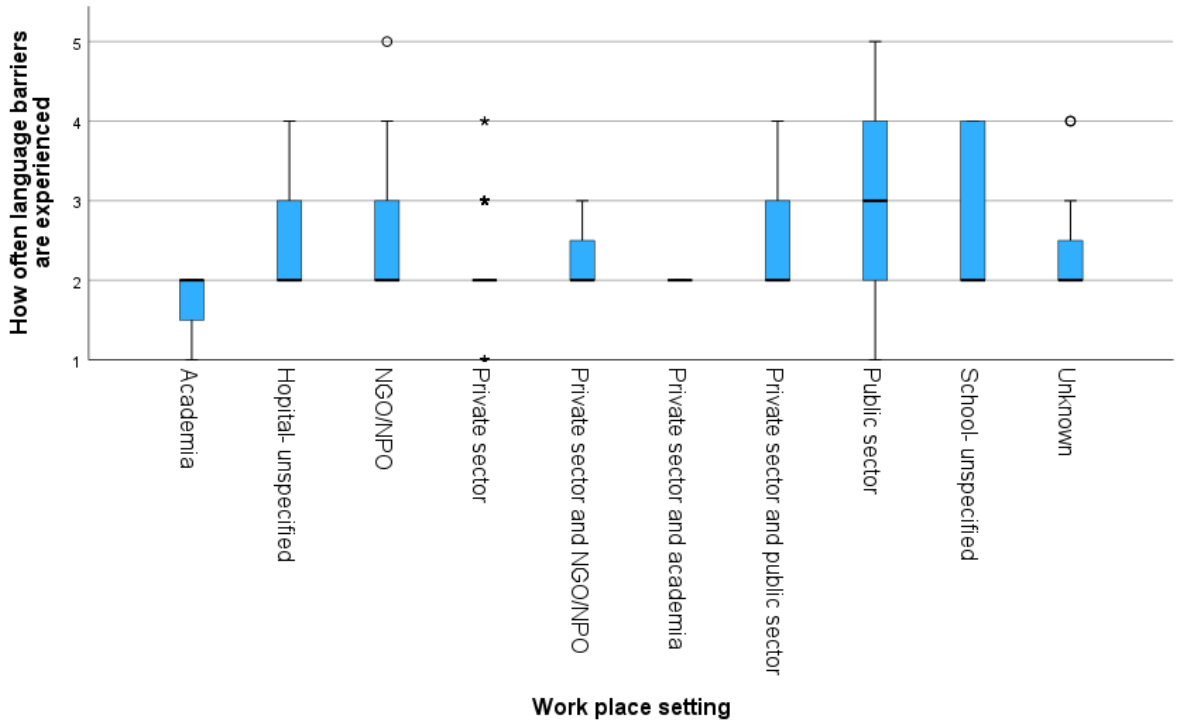


FIGURE 4-3: THE RELATIONSHIP BETWEEN THE WORKPLACE SETTING AND HOW OFTEN THERAPISTS EXPERIENCED LANGUAGE BARRIERS WITH PATIENTS

Figure 4.3 depicts the data presentation between workplace setting and the frequency of language barriers occurring.

Interquartile Range: The public sector and unspecified school setting showed the greatest interquartile ranges with a wider spread of data noted for these categories. In contrast, the

private sector and private-and-academia settings had no interquartile ranges, correlating with a significantly low variability and distribution of data.

Median: The public sector had the highest median, linking to the mean of this sector as seen in table 4.5, and the medians of all other categories at 2. Majority of workplace settings indicate positively skewed data, the academia sector being the only sector where the data was negatively skewed and the public sector showing symmetrical distribution.

Whiskers: The public sector data indicates elongated whiskers, with the data set spreading widely beyond the interquartile ranges, with participants ranging from never experiencing language barriers to experiencing language barriers all of the time. This is in contrast to academia and the private-and-NGO/NPO sector whose data does not extend far beyond the interquartile range.

With The P value of this test <0.001, The null hypothesis of the data being symmetrically distributed across categories is rejected.

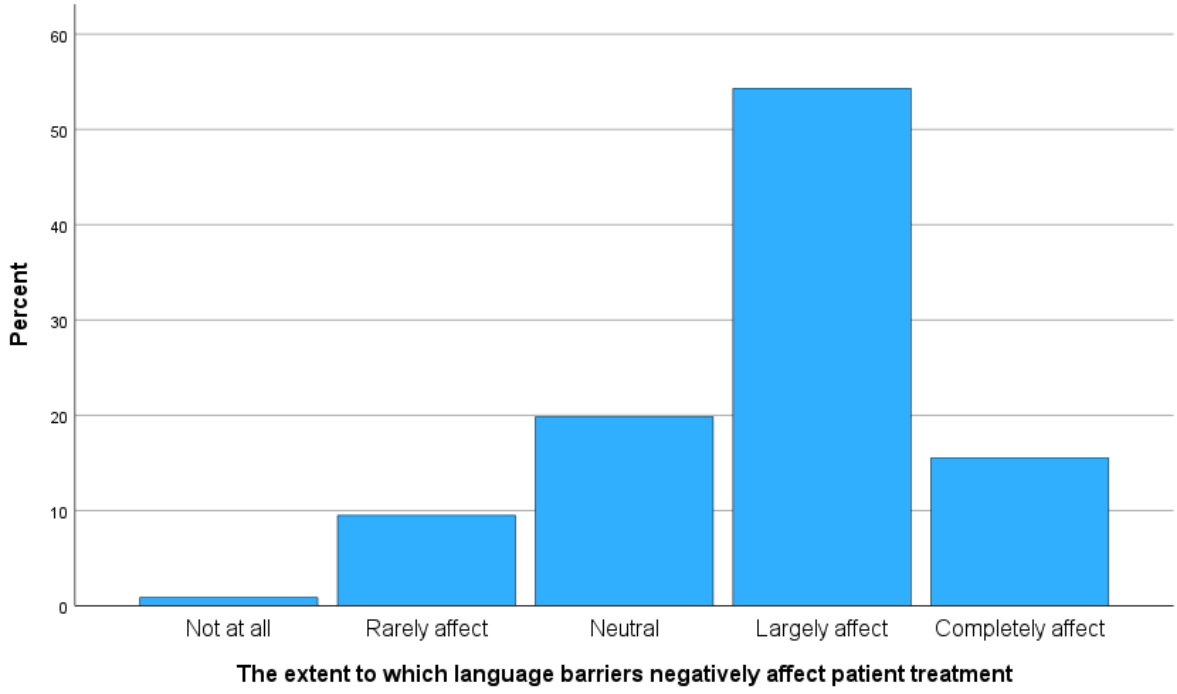


FIGURE 4-4: THE EXTENT TO WHICH LANGUAGE BARRIERS NEGATIVELY AFFECT PATIENT TREATMENT

Figure 4.4 above illustrates the extent to which participants believed that language barriers negatively affect the quality of occupational therapy service provision. Majority of the participants can be seen to believe that language barriers either completely affect (15.52%) patient treatment or largely affect (54.31%) patient treatment, with an accumulative percentage of 69.83% of participants regarding language barriers to have a notably negative effect on patient treatment.

TABLE 4-3: THE MEAN DISTRIBUTION BETWEEN HOW OFTEN PARTICIPANTS EXPERIENCE LANGUAGE BARRIERS AND THE EXTENT TO WHICH THEY PERCEIVE THIS BARRIER TO NEGATIVELY AFFECT PATIENT TREATMENT

How often do you experience language barriers with patients?	Mean	N	Std. Deviation
Never	**3.83**	6	1.169
Occasionally	3.34	138	.970
Half of the time	3.16	43	.924
More often than not	3.03	36	.878
All the time	**2.75**	8	.707
Total	3.25	231	.954

Participants were required to rate the extent to which they perceived language barriers to negatively affect patient treatment on a Likert scale of 1-5 as detailed in Figure 4-5. This table above shows the difference in means of the extent to which participants percieve language barriers to negatively affect patient treatment compaired with how often language barriers are experienced. An inverse trend can be noted, with participants who never experienced language barriers believing that they more greatly negatively affect patient treatment, and participants who experienced language barriers all of the time perceiving a language barrier to have a less negative effect on patient treatment.

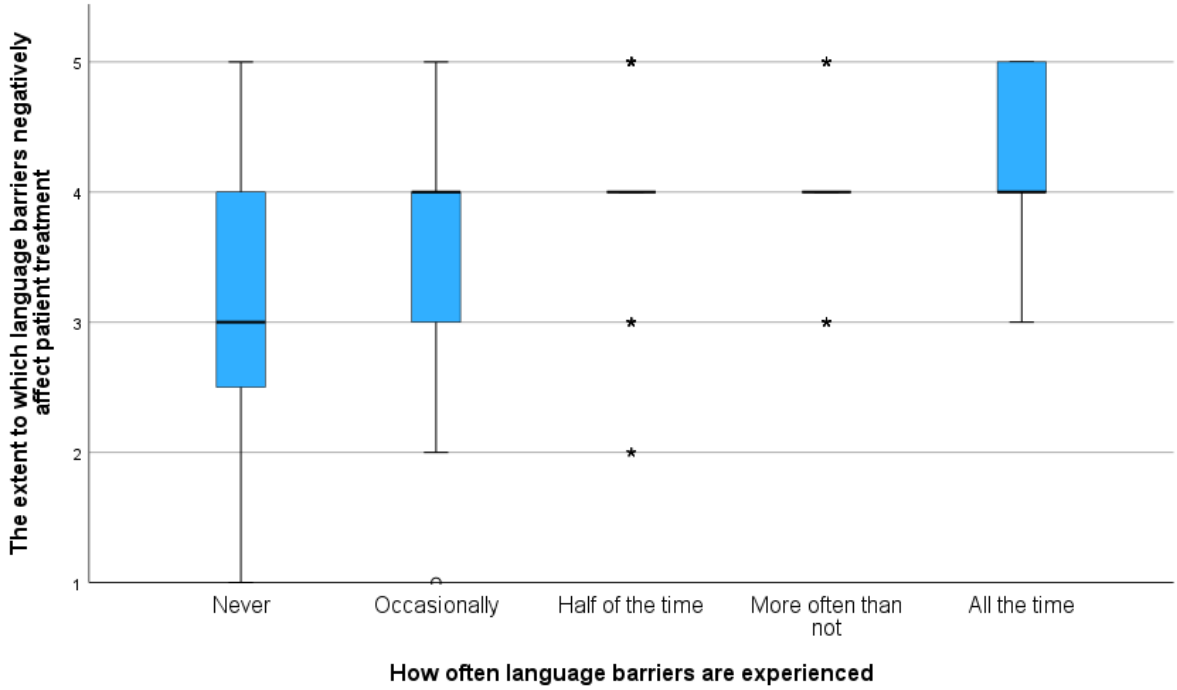


FIGURE 4-5: THE RELATIONSHIP BETWEEN HOW OFTEN THERAPISTS EXPERIENCE LANGUAGE BARRIERS WITH PATIENTS, AND THE EXTENT TO WHICH THEY PERCEIVE THIS BARRIER TO NEGATIVELY AFFECT THERAPY

Figure 4.5 above compares the data distribution between the two variables.

Interquartile Range: A greater interquartile range is present for participants who never experience language barriers, with the categories of half-the-time and more-often-than-not exhibiting no interquartile ranges indicating that the data is distributed at the median.
Median: The means of the categories from the occasionally category and the all-the-time category remained constant at 4, with the median of the Never category at 3.
Whiskers: The Never category indicated elongated whiskers, with the data distributed across all values. As the frequency of experience increased, the data spread decreases, with the all-the-time category exhibiting the shortest whiskers and the narrowest data spread.

With a significant P value of 0.009, the null hypothesis that the data is evenly distributed across categories is rejected, therefore indicating no correlation between the two variables.

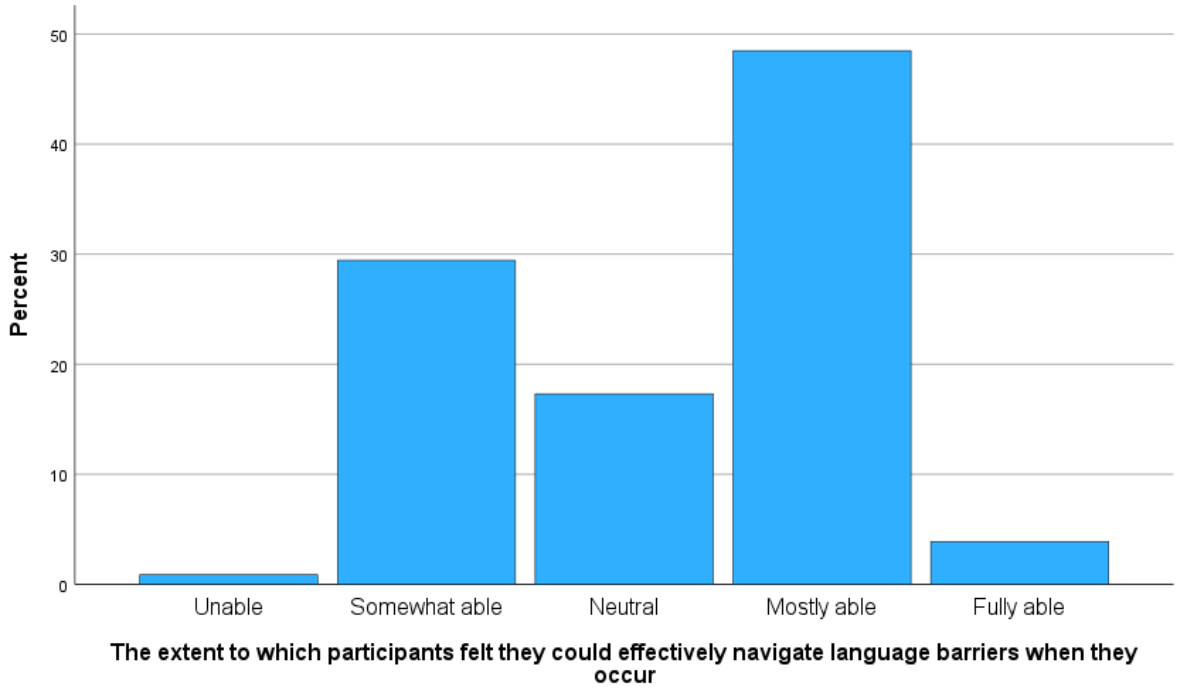


FIGURE 4-6: THE EXTENT TO WHICH PARTICIPANTS FELT THEY COULD EFFECTIVELY NAVIGATE LANGUAGE BARRIERS WHEN THEY OCCUR

Figure 4.6 above indicates the extent to which participants felt that they could effectively overcome language barriers when they occurred. The majority of participants (an accumulative 52.38%) felt they were either fully able or mostly able to overcome language barriers. Only 0.87% of participants felt that they were fully unable to overcome language barriers.

4.3 How occupational therapists gather information around their patients' language preferences

When exploring how therapists attempted to overcome language barriers when they were experienced, the frequency of gathering information about language preferences, the extent to which patient understanding, and various platforms used as well as how efficient these platforms were perceived to be was investigated.

TABLE 4-4: THE FREQUENCY TO WHICH THERAPISTS GATHER INFO ABOUT PATIENT LANGUAGE

Characteristics	Categories	Frequency	Percentage
How often participants gather information about patient language	Never	5	2.6
	Some of the time	36	15.5
	Half of the time	19	8.2
	Most of the time	59	**25.4**
	All of the time	112	**48.3**
How often participants asked patients if they have a preferred alternative language	Never	22	9.5
	Occasionally	47	20.3
	Half of the time	24	10.3
	More often than not	44	19.0
	All of the time	95	40.9

Table 4.5 above indicates how often participants gathered information about their patient's language preferences. When engaging with a new patient, 48.3% of participants routinely gathered information regarding their patients' home language all of the time. 25.4% of participants gathered this information most of the time. On accumulation, 26.3% of participants gathered this information either half the time or less.

When questioned about how they gather information about their patient's home language, majority of therapists stated that it was through either interview or direct questioning of the patient. However, some therapists already recruited the patient's family at this stage, questioning them about the patient's preferred language, with a few making use of translating apps to translate the question into various languages.

The table also illustrates how often participants ask their patients whether they have a preferred alternate language in the event that their first languages differ. When faced with a language barrier, 40.9% of participants attempted to identify a preferred alternative language all of the time, 19% attempted to identify a preferred alternative language more often than not, 10.3% half the time, 20.3% occasionally and 9.5% never attempted to identify a preferred alternate language. This is in keeping with the results discussed in chapter 4.3 regarding both therapist

and patient experiencing having to engage in occupational therapy in a language other than their home language.

TABLE 4-5: THE FREQUENCY WITH WHICH THERAPISTS ENSURE VARIOUS LEVELS OF PATIENT UNDERSTANDING IN THE PRESENCE OF A LANGUAGE BARRIER

	Never (%)	Occasionally (%)	Half of the time (%)	More often than not (%)	All of the time (%)
Understands basic therapeutic concepts	0.9	3.9	6.0	40.9	**47.8**
Understands detailed information that is of therapeutic relevance	2.2	14.7	14.2	**45.3**	23.3
Understands both basic concepts and detailed information that is of therapeutic relevance	6.5	22.0	15.5	**36.8**	19.0

Table 4.6 above outlines how often participants ensure patient understanding of various concepts. In the presence of a language barrier, the majority of participants ensured that patients understood basic therapeutic concepts all of the time, understood detailed information of therapeutic relevance most of the time, and ensured the understanding of both basic and detailed information of therapeutic relevance most of the time. The trend towards ensuring understanding of all concepts is noted.

4.4 How occupational therapists attempt to overcome language barriers

TABLE 4-6: THE PERCENTAGE FREQUENCIES OF HOW OFTEN THERAPISTS USED VARIOUS PLATFORMS TO OVERCOME LANGUAGE BARRIERS

Platform	Never (%)	Occasionally (%)	Half of the time (%)	Most of the time (%)	All of the time (%)
Cleaner	**43.1**	32.3	4.7	6.9	0.9
Receptionist/secretary	**47.4**	23.7	6.5	6.0	0.4
Patient's acquaintance	18.5	**30.2**	14.9	22.4	3.4
Patient's friend	13.4	**37.1**	12.5	21.6	5.6
Patient's family member	6.9	23.7	15.9	**36.2**	12.9
Formal interpreter	**65.1**	8.2	2.6	7.1	1.3
Dictionary	**59.1**	19.4	3.9	1.3	0.9
Google Translate	30.6	**39.2**	11.2	7.8	2.4
Other app or web-based translators	**69.8**	8.2	3.9	1.3	0.4

Table 4.7 above describes the platforms that participants used to overcome language barriers. The data indicates that the most commonly used platform to overcome language barriers is the patient's family member interpreting for them. The patient's acquaintance, patient's friend or Google Translate are also occasionally implemented to overcome these barriers. It should be noted that the formal interpreter is most rarely, if ever used, speaking to the contextual unavailability of this option. When asked about other options of translation, making use of colleagues, other staff members or OT assistants/technicians where the most commonly mentioned.

When asked in an open-ended question about how they currently mitigate for language barriers, the commonly used platforms were using a person to translate, either a colleague, patient's family/friend, or another patient, as well as using demonstration, hand-over-hand facilitation

or visual aids to communicate concepts, as well as implementing the use of google translate and other app-based translators.

TABLE 4-7: THE PERCENTAGE FREQUENCIES OF HOW EFFECTIVE THERAPISTS BELIEVED VARIOUS PLATFORMS WERE IN OVERCOMING LANGUAGE BARRIERS

Platform	Not at all effective	Somewhat effective	Neither effective nor ineffective	Mostly effective	Very effective
Cleaner	18.4	**35.8**	8.0	17.9	2.8
Receptionist/secretary	17.5	**25.5**	6.6	20.8	4.7
Patient's acquaintance	6.1	26.4	13.7	**33.0**	6.1
Patient's friend	4.7	25.9	11.3	**36.3**	7.5
Patient's family member	2.4	17.0	10.8	**48.6**	13.7
Formal interpreter	8.5	0.5	6.1	22.6	**33.5**
Dictionary	20.3	**29.7**	11.3	7.5	0.5
Google Translate	13.2	**34.0**	12.3	19.3	0.9
Other app or web-based translators	**23.1**	17.5	16.0	8.0	0.5

Table 4.8 above illustrates how effective the participants believed various platforms were in overcoming language barriers. Participants regarded formal translation as the most effective form of translation, although 8.5% of the population stated that they did not find it at all effective. The patient's acquaintance, friend or family member were regarded as mostly effective by the majority of participants.

TABLE 4-8: THE RELATIONSHIP BETWEEN THE AGE AND THE VARIOUS PLATFORMS USED TO OVERCOME LANGUAGE BARRIERS

Report										
What is your age?		Cleaner	Receptionist or secretary	Patient's acquaintance	Patient's friend	Patient's family member	Formal (trained) interpreter	Dictionary	Google Translate	Other app or web based translators
20-29	Mean	1.61	1.64	2.55	2.67	**3.27**	1.30	1.48	2.32	1.35
	N	82	83	86	86	89	84	83	90	83
	Std. Deviation	.766	.970	1.185	1.132	1.156	.889	.915	1.130	.818
30-39	Mean	2.02	1.81	2.70	2.83	**3.30**	1.58	1.31	2.16	1.29
	N	54	52	54	54	57	50	52	55	51
	Std. Deviation	1.173	1.011	1.160	1.240	1.180	1.032	.579	1.014	.672
40-49	Mean	1.76	1.55	2.74	2.72	**3.41**	1.52	1.35	1.65	1.13
	N	33	29	34	36	37	31	31	34	31
	Std. Deviation	.867	.783	1.238	1.186	1.142	.962	.486	.812	.341
50-59	Mean	1.72	1.70	2.21	2.17	**3.28**	1.91	1.50	1.50	1.05
	N	25	23	24	23	29	23	22	24	21
	Std. Deviation	.936	.926	1.103	1.072	1.192	1.311	.740	.511	.218
60-69	Mean	1.56	1.43	2.38	**2.33**	2.22	1.43	1.29	1.50	1.14
	N	9	7	8	9	9	7	7	8	7
	Std. Deviation	1.014	.535	1.408	1.323	1.394	1.134	.488	.535	.378

When comparing age with how often therapists use various platforms, it can be seen that on average, the use of patient's family members is the most commonly used across all age groups. While a distinct decline in average use of Google translate is noted as age group increased (shaded blocks).

TABLE 4-9: THE RELATIONSHIP BETWEEN THE AGE AND THE PERCEIVED EFFECTIVENESS OF VARIOUS PLATFORMS USED

Report										
What is your age?		Cleaner	Receptionist or secretary	Patient's acquaintance	Patient's friend	Patient's family member	Formal (trained) interpreter	Dictionary	Google Translate	Other app or web based translators
20-29	Mean	2.41	2.56	3.06	3.35	3.68	**3.87**	2.17	2.60	2.09
	N	79	75	81	84	88	71	72	82	70
	Std. Deviation	1.138	1.244	1.099	1.103	1.012	1.424	1.061	1.110	1.100
30-39	Mean	2.31	2.77	3.02	2.92	3.42	**4.44**	2.10	2.71	2.43
	N	49	47	52	52	55	43	40	48	35
	Std. Deviation	1.103	1.289	1.057	1.152	1.013	.796	.928	.988	1.008
40-49	Mean	2.47	2.31	3.15	3.26	**3.65**	3.59	1.68	2.17	1.88
	N	32	26	34	34	37	27	25	29	25
	Std. Deviation	1.218	1.258	1.158	.994	.978	1.526	.627	1.071	.971
50-59	Mean	2.56	2.84	2.71	2.91	3.46	**4.06**	2.12	2.10	2.00
	N	25	19	21	22	26	17	17	20	15
	Std. Deviation	1.387	1.537	1.189	1.231	1.174	1.249	1.054	.968	1.195
60-69	Mean	2.63	2.67	3.67	**3.86**	3.71	3.80	2.20	2.67	2.40
	N	8	6	6	7	7	5	5	6	5
	Std. Deviation	.916	1.211	1.033	1.069	1.113	1.095	.837	1.366	.894

Table 4.10 above indicates that there is no significant difference in perceived effectiveness of various platforms according to participant age, specifically regarding the use of Google translate (shaded blocks).

TABLE 4-10: THE EXTENT TO WHICH PARTICIPANTS FELT THEY COULD EFFECTIVELY OVERCOME LANGUAGE BARRIERS TO THE PLATFORMS THEY USE TO OVERCOME LANGUAGE BARRIERS

Report										
To what extent do you feel that you are able to effectively navigate language barriers when they occur		Cleaner	Receptionist or secretary	Patients acquaintance	Patients friend	Patients family member	Formal (trained) interpreter	Dictionary	Google Translate	Other app or web based translators
Unable	Mean	1.50	1.00	1.50	1.50	3.00	1.00	1.50	1.50	1.00
	N	2	2	2	2	2	2	2	2	2
	Std. Deviation	.707	.000	.707	.707	1.414	.000	.707	.707	.000
Somew hat able	Mean	1.98	1.71	2.92	2.90	3.42	1.16	1.37	2.00	1.22
	N	61	56	60	62	67	57	57	63	58
	Std. Deviation	1.118	.909	1.154	1.097	1.061	.492	.672	1.063	.622
Neutral	Mean	1.52	1.50	2.42	2.49	3.33	1.67	1.56	2.38	1.09
	N	33	34	36	35	36	33	34	37	33
	Std. Deviation	.712	.992	1.156	1.095	1.069	1.109	.894	1.233	.384
Mostly able	Mean	1.70	1.74	2.52	2.64	3.20	1.67	1.41	2.01	1.36
	N	98	93	99	100	107	94	93	100	91
	Std. Deviation	.899	.931	1.190	1.243	1.255	1.195	.755	.937	.782
Fully able	Mean	1.67	1.44	1.78	2.00	2.56	1.00	1.11	1.56	1.11
	N	9	9	9	9	9	9	9	9	9
	Std. Deviation	.707	1.014	.972	1.000	1.509	.000	.333	.527	.333
Total	Mean	1.75	1.67	2.57	2.65	3.26	1.48	1.41	2.05	1.26
	N	203	194	206	208	221	195	195	211	193
	Std. Deviation	.943	.935	1.186	1.178	1.184	1.012	.743	1.027	.666

When comparing the extent to which participants felt that they were able to effectively navigate language barriers to the platforms the most often use, it can be seen that the distribution of means of each answer do not show any obvious trends. This indicates that no single platform can be attributed to the feelings of success or failure in overcoming language barriers.

4.5 Therapist perceptions of various translation tools

Participant perceptions on the advantages and disadvantages of informal interpretation and Google Translate were analysed through identification of themes from open ended questions as indicated below.

TABLE 4-11: THE PERCEIVED ADVANTAGES AND DISADVANTAGES OF USING INFORMAL INTERPRETERS

%	n	Perceived advantages of using informal interpreters		Perceived disadvantages of using informal interpreters	n	%
35.3	82	Familiarity		Misinformation	74	**31.9**
25.4	59	Availability/accessibility		Loss of detail and therapeutic value	61	**26.3**
12.1	28	Use of layman's terms		Translator bias	24	10.3
8.2	19	N/A (no response recorded)		Lack of confidentiality	14	6.0
6.0	14	Availability/accessibility and familiarity		Misinformation and translator bias	13	5.6
4.3	10	Improved communication		Misinformation and lack of confidentiality	11	4.7
3.4	8	Simultaneous caregiver training		N/A (no response recorded)	9	3.9
.9	2	Availability/accessibility and use of layman's terms		Loss of detail and therapeutic value and translator bias	7	3.0
1.7	4	Familiarity and use of layman's terms		Loss of detail and therapeutic value and lack of confidentiality	7	3.0

.4	1	Simultaneous caregiver training and improved communication		None	2	.9
.4	1	Improved compliance		Lack of confidentiality and translator bias	2	.9
.4	1	Improves test validity		Loss of detail and therapeutic value and misinformation	2	.9
.4	1	Confidentiality		Loss of detail and therapeutic value and lack of confidentiality and translator bias	2	.9
.4	1	Unbiased		Increased time required	1	.4
.4	1	Availability/accessibility and simultaneous caregiver training		Misinformation, lack of confidentiality and increased time required	1	.4
100	232	Total		Misinformation and increased time required	1	.4
				Poor patient participation	1	.4
				Total	232	100

Table 4.12 above indicates that the main advantage of informal interpreters perceived by therapists is familiarity with an accumulative total of 43% of therapists mentioning this as an advantage. The second most common being the availability/accessibility of these interpreters with an accumulative total of 32.7%. The third most common being the use of layman terms with an accumulative total of 14.7%.

When considering the perceived disadvantages of using informal interpreters, an accumulative total of 43% of therapists perceived the most problematic being misinformation. 34.1% of therapists perceived the loss of detail and therapeutic value to be a disadvantage of informal interpretation.

TABLE 4-12: THE PERCEIVED ADVANTAGES AND DISADVANTAGES OF USING GOOGLE TRANSLATE

%	n	Perceived advantages		Perceived disadvantages	n	%
42.7	99	Availability/accessibility		Inaccurate translation	104	**44.8**
25.0	58	N/A (no response recorded)		N/A (no response recorded)	48	**20.7**
11.2	26	Accurate for simple communication		Loss of context	16	6.9
4.3	10	Confidentiality		Difficult to use	11	4.7
3.9	9	Improved communication		Inaccurate translation and time consuming	10	4.3
3.4	8	Unbiased		Inaccurate translation and limits therapeutic relationship	7	3.0
1.7	4	Availability/accessibility and accurate for simple communication		Inaccurate translation and difficult to use	7	3.0
1.7	4	Facilitates therapist learning		Inaccurate translation and inaccessible	6	2.6
1.3	3	Availability/accessibility and confidentiality		Limits therapeutic relationship	5	2.2
1.3	3	Variety of languages		Required language not available	4	1.7
.4	1	Availability/accessibility and improved communication		Inaccurate translation and loss of context	3	1.3
.4	1	Availability/accessibility and visual inputs		Time consuming	3	1.3

.9	2	Building therapeutic relationship		Inaccessible	3	1.3
.4	1	Availability/accessibility and facilitates therapist learning		Inaccurate translation and time consuming and limits therapeutic relationship	2	.9
.4	1	Readily available		Inaccurate translation and required language not available	1	.4
.4	1	Improved communication and confidentiality		Required language not available and loss of context	1	.4
.4	1	Availability/accessibility and auditory outputs		Time consuming and limits therapeutic relationship	1	.4
100	232	Total		Total	232	100.0

It can therefore be noted that an accumulative total of 47.3% of therapists stated availability/accessibility of informal translators as an advantage. With the second most common advantage being that of the accuracy when used for translating simple communication at 12.9% of all responses. It should be noted here that 25% of responses were unrecorded, although it cannot be determined if this was because the participants believed there were no perceived advantages, or if the participants intentionally or unintentionally did not answer.

The most common disadvantage perceived is that of inaccurate translation with a total 60.3% of participants noting this concern. However, 20.7% of participants were unrecorded, while this may mean that they did not identify any disadvantages, they may also have intentionally or unintentionally have left his question uncompleted for other reasons.

Conclusion

This chapter presented the results of the study, identifying commonalities and exploring the relationships between various variables in order to reach the research aims. The use of graphs and tables were used to depict the data and draw attention to frequencies.

Regarding the demographics of the participants, majority of participants were aged 20-29, working in the province of Gauteng within the private sector and speaking English as their home-language. When exploring their views on the effects of language barriers, majority of participants only occasionally experienced language barriers, although there was even distribution of how often either themselves or their patients communicated in a language other than their home language. Additionally, participants largely felt that they were able to effectively navigate language barriers to ensure patient understanding of both basic and therapeutic concepts.

When exploring how therapists attempted to overcome language barriers, it is noted that although a formal interpreter was regarded as the most effective option, a patient's family member was used most often. A common trend was seen that participants most frequently used a combination of various methods to ensure understanding such as Google Translate. Although GT was used more by the younger age groups, there was no significant difference in perceived effectiveness across age groups.

Lastly, when exploring perceptions of various translation methods, participants identified familiarity and availability/accessibility as the greatest advantage of informal translation, with the disadvantages being that of misinformation and lost of therapeutic value. When considering GT, the opinions mirrored those of informal translation, with the greatest advantage being availability/accessibility and the greatest disadvantage being incorrect translation.

5 DISCUSSION

Introduction

This chapter shows a discussion of the results. The results from the questionnaire are discussed below in the same order that they appeared in the results section, first investigating participant demographics, progressing to the commonality of language barriers, how the participants gather information around patient language preferences, how the participants attempt to overcome language barriers when they occur, and participant perceptions on various translation tools.

This study aimed to answer the following research question:

Do South African occupational therapists experience language barriers and how do they attempt to overcome language barriers with patients, or patient caregivers, when they perceive such a barrier to exist?

The objectives of the study were to:

d) Describe how often South African occupational therapy practitioners experience language barriers

e) Describe the extent to which occupational therapists gather information regarding their patients', or patient caregivers', home language and other languages they speak/understand

f) Describe the measures, if any, that Occupational Therapists employ to overcome language barriers

5.1 Discussion of findings

5.1.1 Participant demographics

A large proportion of participants in this study falls into the 20-29 and 30-39 age groups, with the number of participants in each age group decreasing as age groups increase, thus this set of data is skewed towards a younger population. Comparing this to a demographic profile of occupational therapists in South Africa published in 2020, this is in keeping with the age distribution of occupational therapists in general, indicating that the sample size is an adequate

reflection of the total population in this regard (36). The reason for this steady decline is unknown and should prompt further investigation.

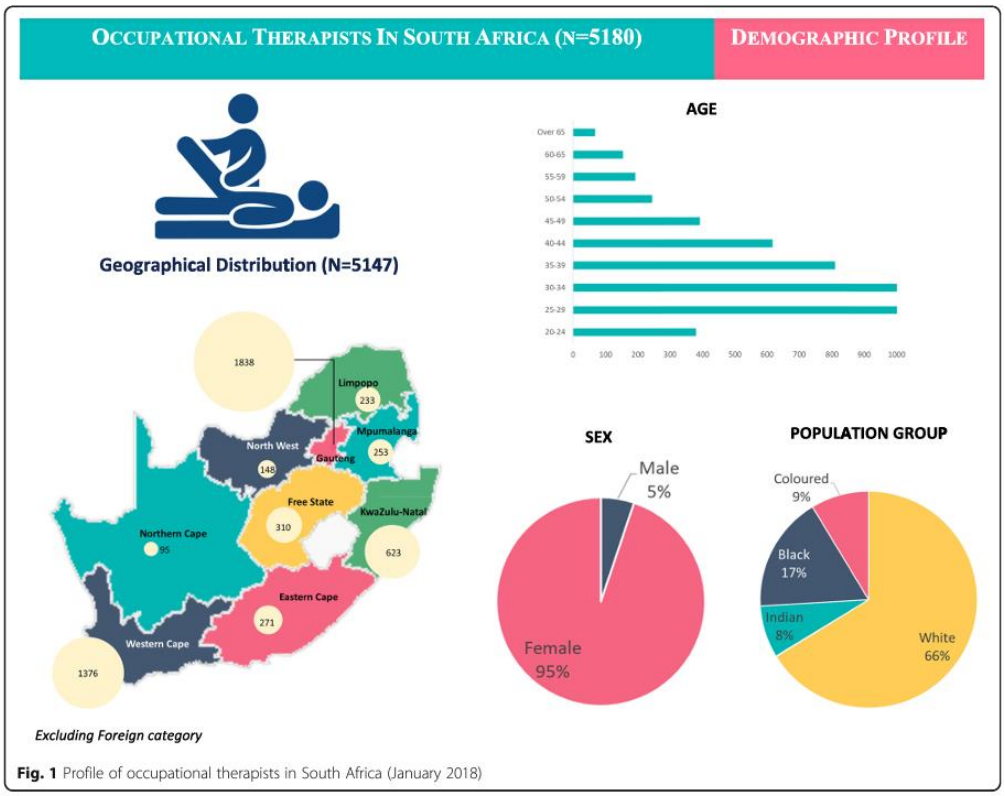


FIGURE 5-1: DEMOGRAPHIC PROFILE OF OCCUPATIONAL THERAPISTS IN SOUTH AFRICA BY NED ET AL.

Considering the province distribution of participants, the following comparison was made regarding the sample size to current population (36).

TABLE 5-1: THE PROVINCIAL DISTRIBUTION OF OCCUPATIONAL THERAPISTS BETWEEN THE SAMPLE AND THE POPULATION

Province	**Sample distribution (%)**	**Population distribution (%)** (36)
Gauteng	40.5	35.5
Western Cape	22.8	26.6
Kwazulu-Natal	12.9	12.0
Eastern Cape	8.2	5.2
Free State	5.6	6.0
North-West	3.9	2.9
Limpopo	1.7	4.5
Mpumalanga	1.7	4.9
Northern Cape	0.9	1.8
Unknown	1.7	0
Total	100	100

The table above indicates that the sample is a good reflection on the population for province distribution, with the overall trend of the sample remaining fairly in line with the population.

When investigating workplace settings, majority of the participants work in the private sector, with the second largest category being the public sector. This study did not merge academia, NGO/NPOs or the department of education with the private sector as other studies have, making it difficult to compare these factors (36). Of importance, is that private sector continues to largely out-weigh public sector both in terms of sample size as well as population distribution across South Africa, with only 25% of occupational therapists in South Africa working for the government department of health, in stark contrast to the number of people in the country (16%) accessing private healthcare services as opposed to the 84% accessing public health care services (36,92). These figures speak to the larger conversation around adequate service provision in the public healthcare sector. This is in contrast to the USA where no universal healthcare exists (93). The government does, however, provide medical insurance to vulnerable populations, such as pregnant women, children, and the disabled populations, making up 21.2% of the population. 8% of the population in the USA remain without any medical insurance, with

70.8% of the population able to afford medical insurance and therefore falling under the private healthcare sector (93). Healthcare statistics in the United Kingdom, also making up part of the Global North, have opposing figures, with 85% of the population accessing public healthcare services and only 15% making use of private healthcare (94). This discrepancy in demographics therefore makes it difficult to compare studies from these countries to the South African healthcare sector.

When considering the frequency of home languages, English was a prominent majority, with Afrikaans making up the second most frequently spoken home language, and bilingual English/Afrikaans speakers the third most frequent home languages. English was also found to be the language most commonly practiced in, with 85.3% identifying this as their main language of practice. This is in keeping with a 2023 study of the strategies implemented by occupational therapists to overcome language barriers within the province of Kwazulu-Natal in South Africa, which identified that English was the most common language of practice (41). With the general South African population frequency of home languages placing isiZulu as the most frequently spoken home language (25.3%), and isiXhosa the second most frequently spoken (14.8%) (95), it can be surmised that study participants are likely to experience language barriers in practice. In contrast to this data set, English makes up only 8.1% of home languages spoken across the country, with Afrikaans at 12.2% (95).

The opposing numbers suggest the likely prevalence of language barriers occurring, however this is not necessarily the case when exploring therapist perception of language barriers.

5.1.2 Commonality of language barriers

Although the demographics of the participants suggest the existence of potential language barriers, participants largely reported only occasionally experiencing language barriers when interacting with patients (59.48%). This contrasts the idea that 80% of discussions between HCWs and patients occur in the presence of a language barrier as previously stated in research (18). In total, 37.5% of participants reported experiencing language barriers half of the time or more.

When evaluating how often participants had to treat in a language other than their home language, compared to how often their patients had to use a language other than their home

language, it appears likely that a common language is used for treatment, which can prevent language from being a limiting factor. This theory is supported through a longitudinal study of the South African Census which identifies that the proficiency in English is growing at a rapid rate, but most likely from exposure outside of the household rather than owing to it being carried down as a home language, identifying its important role as a second language (96). Furthermore, this study overall points to the prevalence of bilingualism in South Africa, increasing the chance of using a common language being possible (96).

Looking back at demographics and the higher number of participants working in private practice as well as the correlation with having English or Afrikaans as the most commonly spoken first language of participants, this could be an indication that the patients accessing private healthcare services are proficient in English and/or Afrikaans, however no research has yet been completed on this topic. With more than one of the participants identifying that their private rehabilitation workplace setting only admits patient who are English proficient, this may account for some of the reason as to the lack of language barriers occurring.

Furthermore, the results indicate that participants working the public sector experience language barriers more frequently than any other category (a mean of 3.23 on a Likert scale of one to five where 1 indicates never experiencing a language barrier and five indicates experiencing language barriers all of the time, as opposed to a mean of 2.19 noted in the private sector). This could point to South Africans who access public health care services not being proficient in English, possibly speaking again to the cultural-class divide between those who can afford private healthcare and those who rely on the state health care provision, however there is no current literature to confirm this theory, and this needs to be investigated further to allow for a drawing of an accurate conclusion. Importantly, all 3.8% of the participants in this study who reported experiencing language barriers all the time, work in the public sector, supporting the research of community service occupational therapists in South Africa, with 73.9% of the study's participants noting communication difficulties owing to the presence of a language barrier (32). Furthermore, majority of the current literature around the topic of language barriers in healthcare in South Africa takes place within the public sector, with little to no research found on the frequency of language barriers within the private healthcare system. Majority of participants (69.62%) stated that the presence of language barriers have a large, or complete, negative effect on patient treatment, with those who experience language barriers more often perceiving this negative effect to be greater than those who less frequently

experience language barriers- although the means for all categories remained the same: that language barriers negatively affect patient treatment to a large extent. This finding correlates with studies of occupational therapists in the USA (2015), Canada (2018) and in South Africa (2019), which identified that language barriers have a significant negative effects on patient treatment, including impeding client-centredness and the formation of a therapeutic relationship, two elements vital to adequate service provision (7,31,32).

In contrast to this, 48.48% of participants stated that they were mostly able to effectively navigate these language barriers when they did occur, with an additional 3.90% of participants believing they were fully able to navigate these barriers. A very limited portion (0.87%) of participants stated that they felt unable to navigate language barriers. This data is in direct contrast to a report from HCWs in the Western Cape Province of South Africa who identified significant levels of frustration in attempting to communicate across a language barrier, however supports the feeling of pharmacists practicing in South Africa who identified that although they were frustrated by the language barrier, they felt competent in overcoming it (4,27).

With this level of confidence in overcoming language barriers, it is important to consider how this is being achieved. This opens the question regarding why therapists situated in the Global South feel more capable of overcoming language barriers in the Global North. It is possible that the experience of practicing in under-resourced settings with many more therapeutic challenges has enhanced the therapists' adaptability and ability to analyse and problem solve more effectively regarding quality of service provision, but this would require further research to confirm. Another reason could be that the difference in methods used to overcome language barriers, which are discussed below.

5.1.3 How occupational therapists gather information around their patients' language preferences

When attempting to overcome language barriers, participants most frequently gathered information about their patients' home language, with 72.7% of participants gathering information either most of the time or all of the time. Furthermore, attempting to identify a preferred alternative language to find commonality was performed all of the time by 40.9% of participants, and more often than not by 19% of participants. This crucial part of the assessment

process could be the start of setting up therapists for success in navigating this barrier, however there is no previous research completed on this topic to confirm this theory, indicating a gap in current literature. Considering that majority of participants identified being proficient in more than one language, the large number of official languages, while originally thought to cause a great divide, may actually allow for a greater chance of finding a commonly spoken language, although further research on this should be completed (40). 9.4% of participants, however, reported that they never asked their patients if they have a preferred alternative language when faced with a language barrier.

During patient treatment, majority of participants reported that they ensured patient understanding of both basic concepts as well as detailed information of therapeutic relevance more often than not. This coincides well with participants' higher confidence levels in overcoming language barriers. This opposes the South African study on novice occupational therapists, where the participants stated that therapeutic content was lost in the presence of a language barrier (32). The question then arises as to how participants in this study are achieving this perceived high level of success.

5.1.4 How occupational therapists attempt to overcome language barriers

Formal Interpreters

Regarding other forms of translation, majority of participants (65.1%) reported that they never used formal interpreters in their practice. This confirms previous research and speaks to the contextual unavailability of this option (24).

When exploring the participants' view of the effectiveness of using formal interpreters, 56.1% of participants believed that this method was either mostly or completely effective in overcoming language barriers. It is therefore noted that fewer participants believed in the effectiveness of formal interpretation as compared to informal interpretation as seen in the previous section This finding contradicts the literature as outlined in Chapter 2.6.1, where formal interpretation is considered the gold standard, with the fewest errors made and outlined by the HPCSA as best practice (1,31,97).

Informal/*ad hoc* interpreters

When attempting to overcome a language barrier, 49.1% of participants implemented the use of a patient's family member either most of the time or all of the time. Using a patient's acquaintance or patient's friend were also occasionally implemented by majority of

participants, with all of the above methods falling into the category of "informal interpreters". This is in keeping with the literature which identifies that informal translators are the most commonly used form of translator implemented by South African HCWs in general as well as South African occupational therapists specifically (1,18,41). When exploring the effectiveness of using family members, 62.3% of participants believed that this option was either mostly or completely effective in overcoming language barriers, with similarly high numbers reported for a patient's acquaintance or friend, in keeping with literature (61). This could be owing to the advantages of informal interpreters noted by participants, the most common (43%) being that of increased familiarity between the interpreter and the patient allowing for improved communication. This opinion is mirrored in literature where it is noted that informal interpreters adjusted their translations in order to accommodate cultural meaning rather than simply the spoken word, as well as family members in particular being more skilled in translating cross-culturally owing to their greater understanding of the patient's culture (55,60). Secondly, 32.7% participants noted that the availability/accessibility of informal interpreters were the greatest advantage, mirroring the benefits noted in the study of communication in health services in Cape Town, South Africa (5). With the large financial pressures placed on both the public and private health-care systems, a cost-effective approach is likely to be prioritised.

Furthermore, participants in this study noted that an advantage of using family members/friends was that of simultaneous caregiver training, where time was then saved and the family/friend was able to improve their understanding of the patient's condition. This was also a finding of the study completed on occupational therapists in Kwazulu-Natal which identified that therapists perceived it to be advantageous to use family members as interpreters and it improved collaboration between the various stakeholders (41).

Some perceived disadvantages of informal interpretation were also identified, with 43% of participants noting misinformation as a disadvantage, as well as 34.1% of participants noting the loss of detail and therapeutic value as a disadvantage. Although a breach in confidentiality was the most significantly noted disadvantage noted in literature, only 15.9% of participants identified this as a disadvantage, showing a contradiction of this study with the literature (24,31). These disadvantages seem inevitable when working with untrained laymen, and poses the ethical question of 'is some misinformation better or worse than no information at all'? This poses potential for further research into this area.

Thirdly, participants believed that the use of laymen's terms by the translator facilitating improved understanding by the patient. In addition to this, participants were largely of the impression that this use of layman terms also increased patient comfort and relatability of the therapist, assisting in building rapport and improving quality of therapy service provision. This mirrors the finding of a study on patient perceptions on doctor communication styles, where the patients themselves reported increased levels of comfort when their doctor adapted their form of speech to implement layman's terms to better ensure understanding (98). This impression should be further studied from the occupational therapy patients' perspective in order to compare if this improved sense of rapport is reflected across disciplines and countries. Lastly, it should be noted that many therapists attempted to learn the language most commonly occurring among their patient population, with one of the participants stating that "I make attempts to use the other's language at least for greetings, even when interpreter is available - there's nothing like making an idiot of yourself trying to communicate, for establishing rapport and good will." This ties in with participants' reporting the use of demonstration, visual aids and hand-over-hand facilitation, as these direct, non-verbal forms of communication could assist in building/maintaining rapport and strengthening the overall therapeutic relationship. This finding is an important one, supporting a South African study that found that when health-care workers underwent a Xhosa training program over ten weeks, patient perception of their health-care workers significantly increased, greatly improving HCW- patient relationships (27).

Google Translate

In keeping with the literature, participants made use of Google Translate (GT) to overcome language barriers, however 39.2% of participants only used it occasionally, with 30.6% never using this platform (62,63). A total of 21.4% of the participants made use of this platform half the time or more. However, majority of participants felt that GT was only somewhat effective or not effective at all, aligned with previous research that identified GT to make incorrect translations 66% of the time, with only 45% accuracy in translating African languages (65,66). When considering the age groups of participants who made use of this platform, the lowest age group of 20-29 used GT the most often, with frequency of use decreasing as age groups increased. This is in contrast to the effectiveness rating of GT between age groups, with degree of effectiveness rated similarly between all age groups. The question is then raised as to why

older age groups are not making as much use of this platform when they view it to be as effective as the younger age groups believe it to be.

When questioned further regarding the possible advantages of using a platform such as Google Translate, accessibility/availability of the tool was the most frequently mentioned, an advantage also noted in a study on the medical machine translation risk on patient health and confidentiality (63). This correlates with the highest perceived advantage of using informal interpreters, highlighting the need for interpretation in the South African health care system to be accessible and timeous in order to be regarded as effective. 12.9% of participants also regarded Google Translate as accurate for simple communication, although as noted in the previous paragraph, this directly contradicts the previous research around this topic (65,66).
Other advantages included that Google Translate maintained confidentiality as well as being unbiased, facilitated therapist learning and improved building of the therapeutic relationship. This once again contradicts previous research surrounding the possible breach in patient confidentiality owing to the fact that all information shared through GT become the property of the platform, and GT's lack of security features around information storage (14). This could have the potential to violate the Protection of Personal Information Act (POPIA), and therapists should be made aware to not translate potentially identifiable information through this platform, while making their patients aware of this potential risk prior to translation.
It should, however, be noted that 25% of the participants did not answer this question, either being unable to identify an advantage of using the platform or for other unknown reasons. This could be owing to the fact that they are either not familiar with this tool, or otherwise choose not to use it owing to perceived ineffectiveness.
When considering the disadvantages of Google Translate, 60.3% of the participants identified inaccurate translation as the greatest disadvantage, once again correlating with the current literature as noted above (65,66). It was also noted by 7.3% of the participants as being difficult to use, and 8% of the participates identified the loss of context as being a disadvantage. 17.9% of participants did not identify a disadvantage, either owing to having not used this tool, or because no disadvantage was perceived following use.

Combination approach

A significant finding of this research is that participants never implemented a single strategy to mitigate for language barriers, but rather made use of multiple forms of interpretation within

a single session in order to communicate as effectively as possible. This could very well be the reason behind participants' feeling of success in navigating language barriers, an idea supported in the recent 2023 qualitative study on the experiences of occupational therapists in Kwazulu-Natal, South Africa in managing language discordance which identified the 'concurrent use of strategies' as the main theme, a demonstration of the effort of therapists to ensure effective patient treatment when faced with a language barrier (41).

5.2 Limitations of the study

5.2.1 Sample size

Although this study followed a rigorous recruitment strategy, the sample size did not quite meet the target of 358 – only 232 participants' surveys could be used, not meeting the 95% confidence rating that was aimed for; however, the sample demographics do relatively reflective of the population, allowing for improved generalizability.

5.2.2 Measurement instrument

The data were collected through a self-report questionnaire. While this questionnaire achieved a high CVI score, it did provide subjective responses. The use of a Likert scale to rate views and ideas allows for differences in participant perceptions of the levels and varying degrees of sensitivity.

5.2.3 Biases

Considering that the measurement instrument was sent through various platforms through which a participant could 'opt-in' with no incentive to participate, volunteer bias is likely to have occurred. A response bias is possible whereby participants responded with an answer they deemed most acceptable, however the researcher attempted to mitigate for this by ensuring full blindness to participant identity with no identifying information gathered.

Conclusion

As discussed above, the demographics of the participants of this study is reflective of the larger population of occupational therapists in South Africa (20), but results cannot be generalised beyond a 60% level of confidence.

While occupational therapists in South Africa identify the high prevalence of language barriers during patient treatment, they generally feel competent in overcoming these barriers through the use of multiple strategies, the most common of which is through the use of informal interpreters. Participants identified the greatest advantage of any tool used to overcome language barriers being those of accessibility and timeliness, which is in keeping with the high patient-therapist ratio.

6 CONCLUSION

Introduction

In a country as diverse as South Africa, language barriers are likely to occur between HCWs and patients. This study aimed to identify how often occupational therapists in South Africa perceived language barriers to occur when interacting with patients, and to explore the methods, if any, that therapists implement in attempting to overcome this barrier.

6.1 Overview of research and findings

This study used a quantitative cross-sectional design and made use of a self-formulated questionnaire. The content validity of this questionnaire was established through a pilot study and the questionnaire was then distributed through the platforms of OTASA, INSTOPP, as well as through social media groups, with a total of 232 participants recorded following cleaning of data.

This study's results indicate that in South Africa, 37.5% of occupational therapists perceive language barriers to exist between themselves either half the time or more often, with therapists working in the government sector experiencing language barriers more frequently than those working in the private sector. This is unsurprising considering the heterogeneity of public healthcare clients.

Occupational therapists are skilled assessors who extensively gather information about their patients' language preferences during assessment. This allows them to adequately prepare for treatment sessions, boosting their confidence in overcoming these language barriers.

When attempting to overcome language barriers, occupational therapists in South Africa make use of a variety of modalities including informal translation, non-verbal forms of communication, translation applications such as GT, or attempting to learn their patients' language themselves. It appears that this combination approach allows therapists to feel confident in overcoming language barriers when they occur. It seems that, although language barriers are common-place when practicing as an occupational therapist in South Africa, the skills that an occupational therapist gains through their professional training and subsequent practice well prepares them for navigating these language barriers.

It should be noted that therapists prioritised translation strategies that were low-cost and easily accessible, and that the use of formal interpreters fell into neither of these categories. Therefore, while the use of formal interpreters continues to be regarded as the gold standard, government policy and best practice should be adapted to ensure improved guidelines regarding more commonly used practices such as informal interpretation and the use of translation apps.

6.2 Suggestions for further research

This research report focused on therapist perceptions around how they overcome language barriers. It stands to reason that the next step of this research would be into patient/client perceptions of how therapists attempt to overcome language barriers in South Africa. Healthcare in South Africa is centred around "patient first", and therefore the perspective of the patient is vital. These results should then be compared to one another, allowing researched to form a greater understanding of true effectiveness of the platforms used, as well as the true success of occupational therapists in overcoming these barriers.

The results of this study seem to suggest that practitioners in South Africa are more comfortable with overcoming language barriers than their counterparts in the Global North. Research into the training of occupational therapists could shed light on whether being trained in contexts where students routinely encounter clients from multiple cultures and practice in low-resource settings affect their confidence to make themselves understood and to attempt to understand clients' needs, and to creatively overcome a variety of obstacles, including language barriers.

With the use of translation tools such as Google Translate becoming more frequently used in lower age groups that higher ones, and formal interpreters more commonly used in higher age groups than in lower ones, further research is recommended into this area with a focus on the shift in use of platforms over time as generations pass. If this trend continued, the incorporation of effective use of translation applications to mitigate for language barriers into the university curriculum could be explored to better prepare future occupational therapists to navigate this tool effectively. Consideration should be given to the ethical considerations of artificial intelligence, and human rights in digital lifeworlds in such research and in implementing these in practice (47).

Some of the participants in this study attempted to learn a language used by patients, which is supported by two studies cited in this research report which suggest that practitioners value attempting to learn the language used by patients (13,41). Further research is recommended

into whether requiring students to learn another local language at university level plays a role, as well as the extent to which practitioners actually take steps to learn another local language (i.e. moving beyond merely acknowledging its worth to taking active steps to learn a language). Identifying barriers and facilitators to learning another language is also important.

6.3 Recommendations for practice

This research highlights the importance of being able to find a common language between occupational therapists and patients in order to ensure the best possible service provision through a language barrier. Consideration should be given to incorporating an additional language into occupational therapy curricula, aiming to bridge the language barrier gap. Furthermore, occupational therapists in their practice are encouraged to identify the most commonly spoken language in their area and to attempt to learn this language, as this is shown to build report and foster an improved therapeutic relationship.

This research, as well as the research that follows as a result, should be aimed at creating a standardised protocol to be implemented by occupational therapists in South Africa when faced with a language barrier that is cost effective, easily accessible and adheres to POPIA guidelines while promoting the highest quality of care, ensuring that no person seeking occupational therapy services is disadvantaged.

6.4 Study limitations

This study incurred multiple limitations. Firstly, while the sample size is considering high at 232 participants, the sample size aimed for was 358 participants at a 95% confidence rating. This was, however, calculated based on the number of occupational therapists registered with the HPCSA in 2018 (36). With the last census completed five years prior to the date of closure of the questionnaire, this confidence level may be inaccurate.

Additionally, the HPCSA's record of the number of practitioners on the register does not provide a true reflection of the population size. Despite legislative provisions requiring practitioners to update their addresses, The HPCSA does not gather information about practitioners' employment status, retired practitioners may remain active on the register without working (and thus being ineligible for participation in this study), and it is unclear whether suspended practitioners are included in the size of the register.

An additional limitation may be the structuring of the questionnaire used. While this questionnaire was efficient in targeting and achieving the study aims for a quantitative study, the use of closed-ended questions limited engagement in conversation around therapist perceptions which may have allowed for improved insight of the researcher, and deeper and richer descriptions of participants' lived experiences.

Conclusion

In conclusion, this study identified that South African occupational therapists frequently perceived language barriers to occur when interacting with patients. Although these barriers do impact intervention, South African occupational therapists frequently use a multitude of low-cost translation strategies in combination. The participants in this study expressed a sense of confidence in their ability to understand patients and to be understood in the presence of language barriers.

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APPENDICES

Appendix A: Sample size calculation

According to Smith (79), the formula for determining a sample size for a population of unknown size is:

Necessary sample size = $(\text{Z-score})^2$ * (Standard deviation) * ((1-Standard deviation)/ (margin of error))^2

For a 95% confidence level, standard deviation of 0.5 and a margin of error of +/-5%:

Necessary sample size = $(1.96^2 * 0.5(0.5))/ (0.05)^2$

$=3.8416*0.25/0.0025$

$=384.16$

=385 participants.

Appendix B: Questionnaire

Before completing the questionnaire below, please keep in mind that the term "language barrier" is defined as an absence of effective communication occurring when participants in conversation have a difference in mother tongue languages, or when participants lack a shared language of dual proficiency.

In the case of children under the age of 12 or regarding patients with neurocognitive impairment or speech impairments, communication with the patients' caregiver should be regarded in addition to communicating with the patient themselves.

<table>
<tr><th>No.</th><th>Question</th></tr>
<tr><td>1.</td><td>What is your age?

[ ]</td></tr>
<tr><td>2.</td><td>Are you currently living in South Africa?
o Yes
o No [End survey]</td></tr>
<tr><td>3.</td><td>Are you currently working in South Africa?
o Yes
o No [End survey]</td></tr>
<tr><td>4.</td><td>What province are you currently working in?

[ ]</td></tr>
<tr><td>5.</td><td>Please describe your work environment e.g. part time or full time, public/private; hospital, clinic, NGO/NPO, private practice, school; urban/rural/peri-urban)

[ ]</td></tr>
<tr><td></td><td>Please indicate the frequency with which you communicate with the following populations in your everyday practice
<table>
<tr><th></th><th>Seldom (Less than 20% of my time)</th><th>Occasionally (11%-35% of my time)</th><th>Often (36%-55% of my time)</th><th>Regularly (56%-70% of my time)</th><th>Frequently (up to 100% of my time)</th></tr>
<tr><td>Children under 12 years</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Persons with neurocognitive impairment or communication disorders</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Children between 12 and 18 years without neurocognitive impairment or communication disorders</td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
</table>

	Adult patients without neurocognitive impairment or communication disorders					
	Caregivers					

6. What is your home language?

7. What language do you most commonly practice in?

8. Please list the languages in which you are proficient. Please rate your reading, writing and speaking ability using the words good, fair or poor.

Language	**Read**	**Write**	**Speak**

9. How often do you treat patients in a language that is different from your own home language?
   - Never
   - Occasionally
   - Half of the time
   - More often than not
   - All of the time

10. How often do your patients have to use a language other than their home language during therapy?
   - Never
   - Occasionally
   - Half of the time
   - More often than not
   - All of the time

11. How often do you experience language barriers with patients?
   - Never
   - Occasionally
   - Half of the time
   - More often than not
   - All of the time

12. To what extent do you believe language barriers negatively affect patient treatment?
   - Never
   - Occasionally
   - Half of the time
   - More often than not
   - All of the time

13. Do you routinely gather information about your patient's home language?
   - Never
   - Occasionally
   - Half of the time
   - More often than not

	o All of the time
14.	When your patient's home language is different from yours, how often do you ask them what their preferred language is for communication with you? o Never o Occasionally o Half of the time o More often than not o All of the time
15.	Through what means do you gain information about your patient's language preference?
16.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts o Never o Occasionally o Half of the time o More often than not o All of the time
17.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance o Never o Occasionally o Half of the time o More often than not o All of the time
18.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information o Never o Occasionally o Half of the time o More often than not o All of the time
19.	To what extent do you feel that you are able to effectively navigate language barriers if the occur? o Unable o Somewhat able o Neutral o Mostly able o Fully able
20.	When in the presence of a language barrier, what methods do you implement to overcome these barriers?
21.	

22. If you use interpretation, which of the following means of interpretation do you use?

Means of interpretation	**Never**	**Occasionally**	**Half of the time**	**Most of the time**	**All of the time**
Cleaner					
Receptionist or secretary					
Patient's acquaintance					
Patient's friend					
Patient's family member					
Formal (trained) interpreter					
Dictionary					
Google translate					
Other web-based translators (please specify)					
Any other translator (please specify)					

23. How effective are these means of interpretation in your view?

Means of translation	**Not effective at all**	**Somewhat effective**	**Neither effective nor ineffective**	**Somewhat effective**	**Very Effective**
Cleaner					
Receptionist or secretary					
Patient's acquaintance					
Patient's friend					
Patient's family member					
Formal (trained) interpreter					
Dictionary					
Google Translate					
Other web-based translators (please specify)					
Any other translator (please specify)					

24. What are the advantages of using unqualified interpreters, e.g. family members, or a receptionist

25.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?
26.	What are the advantages of using online translation tools such as Google Translate?
27.	What pitfalls do you perceive with online translation tools such as Google Translate?

Appendix C: Completed content validity indexes

1. PP1 – MSc OT

Content Validity Index

Please score each question in terms of relevance of the question to the title of research topic, as well as the clarity of each question

Relevance rating scale:	**Clarity rating scale**
1- Not relevant 2- Item needs some revision 3- Relevant but needs minor revision 4- Very relevant	1- Not clear 2- Item needs some revision 3- Clear but needs minor revision 4- Very clear

Item No.	Item	Relevance rating	Comment	Clarity rating	Comment
1.	What is your age?	1	I am not sure what your objectives are but I cant see why age will impact your study, unless you are going to try link that age in fact helps or hinders adaptations made?	4	
2.	Are you currently living in South Africa?	1	Surely this will only go to South African occupational therapists working in South Africa? Again, maybe I just don't understand why it is relevant	4	
3.	Are you currently working in South Africa?	1	Same as the two above but I am not sure what you may get from this so use it as you see fit	4	
4.	What province are you currently working in?	4		4	
5.	Please describe your work environment	4		4	I don't think that part time or full time really links to work environment
6.	Please indicate the frequency with which you communicate with the	4		4	

	following populations in your everyday practice				
7.	What is your home language?	4		4	
8.	What language do you most commonly practice in?	4		4	
9.	Please list the languages in which you are proficient.	4		4	
10.	How often do you treat patients in a language that is different from your home language?	4		4	
11.	How often do your patients have to use a language other than their home language during therapy?	4		4	
12.	How often do you experience language barriers with patients?	4		4	I wonder if you would not want to expand on this further to ask what these are?
13.	To what extent do you believe language barriers negatively affect patient treatment?	4		4	
14.	Do you routinely gather information about your patients' home language?	4		3	On RedCap it reads "my patients' home language" change this to your
15.	When your patient's home language is different from yours, how often do you ask them what their preferred language is for communication with you?	4		4	
16.	Through what means do you gain information about your patient's language preference?	4		4	
17.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts	4		4	
18.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance	4		4	
19.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information	4		4	
20.	To what extent do you feel that you are able to effectively navigate language barriers if the occur?	4		4	

21.	When in the presence of a language barrier, what methods do you implement to overcome these barriers?	4		4	
22.	Which of the following means of interpretation do you use?	4		4	
23.	How effective are these interpreters in your view?	4		3	I wonder if there is a way to remove the options that were not selected above or if they were never selected to maybe have an option for N/A. Unless you want to find out why someone doesn't use the specific type but then I think that should be included somewhere
	What are the advantages of unqualified	4		4	**this is in your questionnaire on redcap
24.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?	4		4	
	What are the advantages of online tools	4		4	**this is in your questionnaire on redcap
25.	What pitfalls do you perceive with online translation tools such as Google Translate?	4		4	

2. PP2- PhD OT

Content Validity Index

Please score each question in terms of relevance of the question to the title of research topic, as well as the clarity of each question

Relevance rating scale:	**Clarity rating scale**
1- Not relevant 2- Item needs some revision 3- Relevant but needs minor revision 4- Very relevant	1- Not clear 2- Item needs some revision 3- Clear but needs minor revision 4- Very clear

Item No.	Item	Relevance rating	Comment	Clarity rating	Comment
1.	What is your age?	4		4	
2.	Are you currently living in South Africa?	1	If working in SA surely living is SA	1	If working in SA surely living is SA
3.	Are you currently working in South Africa?	1	? relevance – surely mailing to OTs in SA	4	
4.	What province are you currently working in?	4		4	
5.	Please describe your work environment	4		2	Needs guidelines List in terms of what?- type and number of clients of clients, setting„ services offered
6.	Please indicate the frequency with which you communicate with the following populations in your everyday practice	2	What about clients who have different home language	3	Caregivers/family members
7.	What is your home language?	4		4	
8.	What language do you most commonly practice in?	4		4	
9.	Please list the languages in which you are proficient.	4		4	
10.	How often do you treat patients in a language that is different from your home language?	4		4	
11.	How often do your patients have to use a language other than their home language during therapy?	4		4	
12.	How often do you experience language barriers with patients?	4		4	
13.	To what extent do you believe language barriers negatively affect patient treatment?	3	Add question of detailed comment of effect of language barrier to	4	

			occupational therapy		
14.	Do you routinely gather information about your patients' home language?	4		4	
15.	When your patient's home language is different from yours, how often do you ask them what their preferred language is for communication with you?	4		4	
16.	Through what means do you gain information about your patient's language preference?	4		4	
17.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts	3	Detail -how	4	
18.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance	3	Detail -how	4	
19.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information	3	Detail -how	4	
20.	To what extent do you feel that you are able to effectively navigate language barriers if the occur?	3	Detail -how	4	
21.	When in the presence of a language barrier, what methods do you implement to overcome these barriers?	4		4	
22.	Which of the following means of interpretation do you use?	2	Not only Google translate – other apps as well What about Aweza etc	3	Interpretation or translation- are they the same Is the app verbal to verbal or verbal to text
23.	How effective are these interpreters in your view?	4		3	Interpreters or translators
24.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?	2	only ask advantages for very limited options s	3	Interpreters or translators-
25.	What pitfalls do you perceive with online translation tools such as Google Translate?	2	Not only Google translate – other apps as well	4	

No questions about solutions - whether therapists have attempted to learn other languages,

What they recommend could be done to improve the situation - comment box at the end for any other comments they want to make about the topic

3. PP3- MSc OT

Content Validity Index

Please score each question in terms of relevance of the question to the title of research topic, as well as the clarity of each question

Relevance rating scale:	**Clarity rating scale**
1- Not relevant 2- Item needs some revision 3- Relevant but needs minor revision 4- Very relevant	1- Not clear 2- Item needs some revision 3- Clear but needs minor revision 4- Very clear

Item No.	Item	Relevance rating	Comment	Clarity rating	Comment
1.	What is your age?	4		4	
2.	Are you currently living in South Africa?	4		4	
3.	Are you currently working in South Africa?	4		4	
4.	What province are you currently working in?	4		4	
5.	Please describe your work environment	4		3	Maybe in brackets "(e.g.. physical, private vs public, # and type of patients, MDT vs Single profession..)
6.	Please indicate the frequency with which you communicate with the following populations in your everyday practice	4		4	
7.	What is your home language?	4		4	
8.	What language do you most commonly practice in?	4		4	
9.	Please list the languages in which you are proficient.	4		3	Maybe specify proficient reading/writing, vs understanding and talking e.g. I can understand better than I speak
10.	How often do you treat patients in a language that is different from your home language?	4		4	

11.	How often do your patients have to use a language other than their home language during therapy?	4		4	
12.	How often do you experience language barriers with patients?	4		4	
13.	To what extent do you believe language barriers negatively affect patient treatment?	4		4	
14.	Do you routinely gather information about your patients' home language?	4		4	
15.	When your patient's home language is different from yours, how often do you ask them what their preferred language is for communication with you?	4		4	
16.	Through what means do you gain information about your patient's language preference?	4		4	
17.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts	4		4	
18.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance	4		4	
19.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information	4		4	
20.	To what extent do you feel that you are able to effectively navigate language barriers if the occur?	4		4	
21.	When in the presence of a language barrier, what methods do you implement to overcome these barriers?	4		4	
22.	Which of the following means of interpretation do you use?	4		4	
23.	How effective are these interpreters in your view?	4		4	
24.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?	4		4	
25.	What pitfalls do you perceive with online translation tools such as Google Translate?	4		4	This about question, but be interesting to ask if ppl have noticed a difference in Tx outcome achievement for

4. PP4- MSc OT

Content Validity Index

Please score each question in terms of relevance of the question to the title of research topic, as well as the clarity of each question

Relevance rating scale:	**Clarity rating scale**
1- Not relevant	1- Not clear
2- Item needs some revision	2- Item needs some revision
3- Relevant but needs minor revision	3- Clear but needs minor revision
4- Very relevant	4- Very clear

Item No.	Item	Relevance rating	Comment	Clarity rating	Comment
1.	What is your age?	4		4	
2.	Are you currently living in South Africa?	4		4	
3.	Are you currently working in South Africa?	4		4	
4.	What province are you currently working in?	4		4	
5.	Please describe your work environment	4		4	
6.	Please indicate the frequency with which you communicate with the following populations in your everyday practice	4		4	
7.	What is your home language?	4		4	
8.	What language do you most commonly practice in?	4		4	
9.	Please list the languages in which you are proficient.	4		4	
10.	How often do you treat patients in a language that is different from your home language?	4		4	
11.	How often do your patients have to use a language other than their home language during therapy?	4		4	
12.	How often do you experience language barriers with patients?	4		4	
13.	To what extent do you believe language barriers negatively affect patient treatment?	4		2/3	Are there options for this question
14.	Do you routinely gather information about your patients' home language?	4		4	
15.	When your patient's home language is different from yours, how often do you ask them what their preferred language is for communication with you?	4		4	
16.	Through what means do you gain information about your patient's language preference?	4		4/3	Are there options or examples of an answer?

17.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts	4		2	wording / explaining before
18.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance	4		4	
19.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information	4		4.	
20.	To what extent do you feel that you are able to effectively navigate language barriers if they occur?	4		3	Are there options?
21.	When in the presence of a language barrier, what methods do you implement to overcome these barriers?	4		3	options?
22.	Which of the following means of interpretation do you use?	4		4	
23.	How effective are these interpreters in your view?	4		4	
24.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?	4		4	
25.	What pitfalls do you perceive with online translation tools such as Google Translate?	4		4	

5. PP5- MSc OT

Content Validity Index

Please score each question in terms of relevance of the question to the title of research topic, as well as the clarity of each question

Relevance rating scale:	**Clarity rating scale**
1- Not relevant	1- Not clear
2- Item needs some revision	2- Item needs some revision
3- Relevant but needs minor revision	3- Clear but needs minor revision
4- Very relevant	4- Very clear

Item No.	Item	Relevance rating	Comment	Clarity rating	Comment
1.	What is your age?	4		4	
2.	Are you currently living in South Africa?	4		4	
3.	Are you currently working in South Africa?	4		4	
4.	What province are you currently working in?	4		4	
5.	Please describe your work ~~environment~~	~~3~~ 4	"setting e.g. private rehab"	3	
6.	Please indicate the frequency with which you communicate with the following populations in your everyday practice	4		4	
7.	What is your home language?	4		4	
8.	What language do you most commonly practice in?	4		4	
9.	Please list the languages in which you are proficient.	4		4	
10.	How often do you treat patients in a language that is different from your home language?	4		4	
11.	How often do your patients have to use a language other than their home language during therapy?	4		4	
12.	How often do you experience language barriers with patients?	4		4	
13.	To what extent do you believe language barriers negatively affect patient treatment?	4		4	
14.	~~Do you routinely~~ gather information about your patients' home language?	4		3	"How do you..."
15.	When your patient's home language is different from yours, how often do you ask them what their preferred language is for communication with you?	4		4	
16.	~~Through what means~~ do you gain information about your patient's language preference?	4		3	"How do you..."

17.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts	2	may experience response bias. could this be an open-ended question?	4	
18.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance	2		4	
19.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information	2		4	
20.	To what extent do you feel that you are able to effectively navigate language barriers if the occur?	4		4	
21.	When in the presence of a language barrier, what methods do you implement to overcome these barriers?	4		4	
22.	Which of the following means of interpretation do you use?	4		3	"If you use an interpreter..."
23.	How effective are these interpreters in your view? Needs a 'not applicable' option	4		3	"How effective are these means
24.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?	4		4	
25.	What pitfalls do you perceive with online translation tools such as Google Translate?	4		4	
✓ Advantages		4		4	

Appendix D- The CVI results for question relevance of the questionnaire

Question number	PP1	PP2	PP3	PP4	PP5	CVR
1	4	4	4	1	4	0.6
2	4	4	4	1	1	0.2
3	4	4	4	1	1	0.2
4	4	4	4	4	4	1
5	4	4	4	4	4	1
6	4	4	4	4	2	0.6
7	4	4	4	4	4	1
8	4	4	4	4	4	1
9	4	4	4	4	4	1
10	4	4	4	4	4	1
11	4	4	4	4	4	1
12	4	4	4	4	4	1
13	4	4	4	4	3	1
14	4	4	4	4	4	1
15	4	4	4	4	4	1
16	4	4	4	4	4	1
17	4	2	4	4	3	0.6
18	4	2	4	4	3	0.6
19	4	2	4	4	3	0.6
20	4	4	4	4	3	1
21	4	4	4	4	4	1
22	4	4	4	4	2	0.6
23	4	4	4	4	4	1
24	4	4	4	4	2	0.6
25	4	4	4	4	2	0.6
					Sum total:	20.2

APPENDIX E: THE CVI RESULTS FOR QUESTION CLARITY OF THE QUESTIONNAIRE

Question number	PP1	PP2	PP3	PP4	PP5	CVR
1	4	4	4	4	4	1
2	4	4	4	4	1	0.6
3	4	4	4	4	4	1
4	4	4	4	4	4	1
5	4	3	3	4	2	0.6
6	4	4	4	4	3	1
7	4	4	4	4	4	1
8	4	4	4	4	4	1
9	4	4	3	4	4	1
10	4	4	4	4	4	1
11	4	4	4	4	4	1
12	4	4	4	4	4	1
13	2.5	4	4	4	4	0.6
14	4	3	4	3	4	1
15	4	4	4	4	4	1
16	3.5	3	4	4	4	1
17	2	4	4	4	4	1
18	4	4	4	4	4	1
19	4	4	4	4	4	1
20	3	4	4	4	4	1
21	3	4	4	4	4	1
22	4	3	4	4	3	1
23	4	3	4	3	3	1
24	4	4	4	4	3	1
25	4	4	4	4	4	1
					Total:	23.8

Appendix F: Information Sheet

How Occupational Therapists attempt to overcome language barriers in South Africa

Participant information sheet

Introduction

Good day

My name is Nica Pietersen. I am a MScOT student in the School of Therapeutic Sciences at the University of the Witwatersrand. I am conducting this research as part of my postgraduate studies.

Rehabilitation services, including occupational therapy, rely on effective communication between patient and therapist to ensure active patient participation, efficacy, and compliance to therapy. The aim of this study is to determine whether occupational therapists in South Africa perceive a language barrier to be present in their interaction with patients, and to describe the methods (if any) they use to overcome such perceived barriers.

For the purpose of this study, to be considered when completing the questionnaire, the term "language barrier" will be defined as an absence of effective communication occurring when participants in conversation have a difference in mother tongue languages, or when participants lack a shared language of dual proficiency.

In the case of children under the age of 12 or regarding patients with neurological fallout or speech impairments, communication with the patients' caregiver should be regarded instead of the patient themselves.

The information gathered through this study will help occupational therapists better understand how to bridge language gaps in our multi-lingual society.

You have been requested to participate in this questionnaire as you are an occupational therapist currently working in South Africa. Your participation in the questionnaire is voluntary and your completion on the questionnaire will serve as consent to participate. You are welcome to stop completing the questionnaire at any point, without any consequence.

The questionnaire consists of 18 questions and will require approximately 20 minutes to complete. There are no right or wrong answers. Rather, we are interested in your perceptions about language barriers. Please answer all the questions in the survey.

Confidentiality

Your questionnaire will be submitted without your name and will therefore remain anonymous even to the researcher. The information that you provide will remain confidential and your answers will only be used for the purpose of this study and will not be shared to any third parties. Only you will know that you participated in the study.

The information gathered will be analysed through the use of graphs and tables with no identifiable demographic information included.

Consent

Your completion of the questionnaire will be through your own voluntary measures and therefore will serve as consent to participate. Participants that complete the online survey will be informed that once their questionnaire is submitted online it will no longer be possible to withdraw from the study.

Permission

Ethical clearance was received by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand and permission received to carry out the study.

Clearance certificate number M211049.

Whom 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 could contact Professor Clement Penny (chairperson) at clement.penny@wits.ac.za or (011) 717 2301, or the administrative officers: Ms Z Ndlovu/ Mr Rhulani Mkansi/ Mr Lebo Moeng, Tel: 011 717 2700/2656/1234/1252 or email Zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za; Lebo.meng@wits.ac.za..

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

Principal Researcher	**Supervisor**
Nica Pietersen	Mrs Matty van Niekerk
Department of Occupational Therapy	Department of Occupational Therapy
School of Therapeutic Sciences	School of Therapeutic Sciences
University of the Witwatersrand	University of the Witwatersrand
011 717 3701	011 717 3704
nicapietersen@yahoo.com	matty.vanniekerk@wits.ac.za

Appendix G: Ethical clearance certificate

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

Office of the Deputy Vice-Chancellor (Research and Innovation)

TO: Ms N Pietersen
School of Therapeutic Sciences
Department of Occupational Therapy
Medical School
University

E-mail: nicapietersen@yahoo.com

CC: Supervisor: Ms M Van Niekerk
<Matty.vanNiekerk@wits.ac.za>
and <HREC-Medical Research Office@wits.ac.za>

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

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

DATE: 2022/03/07

REF: R14/49

PROTOCOL NO: **M211049** (This is your ethics application reference number. Please quote it in all enquiries, oral or written, relating to this study.)

PROJECT TITLE: *How occupational therapists attempt to overcome language barriers in South Africa*

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

MSWorks2000/Iain0007/Clearscan.wps

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R49 Ms N Pietersen

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M211049

NAME: (Principal Investigator)	Ms N Pietersen
DEPARTMENT:	School of Therapeutic Sciences Department of Occupational Therapy Medical School University
PROJECT TITLE:	*How occupational therapists attempt to overcome language barriers 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 Van Niekerk
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2022/03/07

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

Appendix H: Data Link

MastersSurvey_DATA_2023-04-01_1554.xlsx

Appendix I: Content Validity Index

Please score each question in terms of relevance of the question to the title of research topic, as well as the clarity of each question

Relevance rating scale:	**Clarity rating scale**
1- Not relevant 2- Item needs some revision 3- Relevant but needs minor revision 4- Very relevant	1- Not clear 2- Item needs some revision 3- Clear but needs minor revision 4- Very clear

Item No.	**Item**	**Relevance rating**	**Comment**	**Clarity rating**	**Comment**
1.	What is your age?				
2.	Are you currently living in South Africa?				
3.	Are you currently working in South Africa?				
4.	Do you work in the private or public health care sector?				
5.	What is your home language?				
6.	What language do you most commonly practice in?				
7.	Please describe the languages in which you are proficient				
8.	How often do you treat patients in a language that is different from your home language?				
9.	How often do your patients have to use a language other than their home language during therapy?				
10.	How often do you experience language barriers?				
11.	To what extent do you believe language barriers negatively affect patient treatment?				
12.	Do you routinely gather information about your patients' home language?				
13.	In the presence of a language barrier, I ensure my patient understands basic therapeutic concepts				
14.	In the presence of a language barrier, I ensure my patient understands detailed information that is of therapeutic relevance				
15.	In the presence of a language barrier, I ensure that my patient understands detailed therapeutic information as well as any other general or non-therapeutic information				
16.	To what extent do you feel that you are able to effectively navigate language barriers if the occur?				

17.	Which of the following means of interpretation do you use?				
18.	How effective are these interpreters in your view?				
19.	What pitfalls do you perceive with using unqualified interpreters, e.g., family members, or a receptionist?				
20.	What pitfalls do you perceive with online translation tools such as Google Translate?				