



THE POSTGRADUATE EDUCATION NEEDS OF RURAL-BASED OCCUPATIONAL THERAPISTS IN SOUTH AFRICA

Suné Scholtz (née Coetzee)

2009656

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

Johannesburg, 2022

Declaration

I, Suné Scholtz, declare that this Research Report is my own, unaided work. It is being submitted for the Master of Science in Occupational Therapy degree at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

Suné Scholtz

Name of candidate



Signature of candidate

15th day of March 20 22 in Alberton

Abstract

Introduction

Rural healthcare is a global concern, and one of the suggested ways of addressing the challenges faced is through the appropriate training of healthcare workers. The aim of the study is to develop consensus on the postgraduate education needs of occupational therapists in rural areas in South Africa.

Methods

Participants (n=16) rated and commented on statements in two consensus generating surveys. Survey 1 was developed from a rigorous review of the literature. Survey 2 was developed from Survey 1 non-consensus statements, and from participants' comments.

Results

All but one statement from Survey 1, and three statements from Survey 2 achieved consensus. Results show that competencies required by occupational therapists in rural areas in South Africa are mostly universal, reflecting the needs and competencies reported in local and international literature, except for telehealth.

Conclusion

Results show a definite need for an appropriate postgraduate programme for rural-based occupational therapists in South Africa.

Acknowledgements

Firstly, I would like to thank my supervisor, Kirsty van Stormbroek, for her endless support, assistance, encouragement, and kindness from day one. You have been an immense blessing to me, and I am unable to accurately express my gratitude to you.

Thank you to everyone at the University of the Witwatersrand Occupational Therapy Department who has supported and encouraged me over the last two years. Your willingness to share your knowledge, experience, and expertise in research and occupational therapy has been both helpful and encouraging!

To every single research participant: thank you! Your invaluable input has been fundamental to this project, and I am thankful to you for your willingness to share your unique experiences and expertise with me.

My MSc friends – thank you for journeying with me! It has not been easy but having understanding friends is sometimes all the encouragement one needs to push through. You are all amazing!

To my work friends and colleagues, thank you for supporting me in this journey and tolerating my complaints without complaint!

My family and friends – you have been encouraging, understanding, and patient throughout this process, and I am thankful to each of you.

To David, who has been my greatest supporter from the start. You are my biggest blessing, and I am reminded daily that I am just the luckiest to have you.

Finally, I must acknowledge that it is only through God's grace that this project has been completed.

Table of Contents

Declaration.....	ii
Abstract.....	iii
Acknowledgements.....	iv
List of Tables	ix
List of Figures	ix
List of Appendices	ix
List of Abbreviations	x
Operational Definitions	xi
Chapter 1 Introduction, Literature Review, and Methods	1
1.1 Introduction.....	1
1.1.1 Introduction to the study	1
1.1.2 Statement of the problem	2
1.1.3 Purpose of the study.....	3
1.1.4 Research question.....	3
1.1.5 Aim of the study.....	3
1.1.6 Objectives of the study	3
1.1.7 Justification of the study	3
1.1.8 Outline of this research report	4
1.2 Literature Review.....	4
1.2.1 Introduction to the literature review.....	4
1.2.2 Rural healthcare in South Africa	5
1.2.3 Defining rural	5
1.2.4 Rural healthcare	5
1.2.5 Rural Occupational Therapy	6
1.2.6 Challenges and barriers to rural healthcare in South Africa.....	7
1.2.7 Poverty in rural areas.....	8
1.2.8 Human resources in rural areas.....	8

1.2.9	Other resources in rural areas	9
1.2.10	Access to healthcare services	9
1.2.11	Training of rural healthcare workers	11
1.2.12	Addressing the inequitable access in rural healthcare	11
1.2.13	Poverty and other resources in rural areas.....	12
1.2.14	Attraction and retention of rural healthcare workers	12
1.2.15	Organisations that support rural-based therapists.....	14
1.2.16	Rural practice competencies for occupational therapists.....	14
1.2.17	The postgraduate education needs of rural-based healthcare workers	15
1.2.18	Education needs based on knowledge, skills, attitudes, and professional behaviours	16
1.2.19	Postgraduate educational needs	17
1.2.20	Conclusion.....	22
1.3	Methods.....	23
1.3.1	Study design	23
1.3.2	Study setting	23
1.3.3	Participants	24
1.3.4	Procedure	25
1.3.5	Instrumentation	28
1.3.6	Ethical considerations for research with human participants	33
1.3.7	Data analyses	34
1.3.8	Rigor	34
Chapter 2	Submissable Manuscript.....	37
2.1	Manuscript Details	37
2.2	Details of Author Contribution	37
2.3	Abstract	37
2.3.1	Introduction	37
2.3.2	Methods.....	37

2.3.3	Results.....	38
2.3.4	Conclusion.....	38
2.4	Introduction.....	39
2.5	Methods.....	40
2.5.1	Study design	40
2.5.2	Population and sampling	41
2.5.3	Inclusion criteria and composition of the sample	41
2.5.4	Procedure	41
2.5.5	Ethical considerations for research with human participants	43
2.5.6	Data analysis	44
2.5.7	Rigor	44
2.6	Results.....	45
2.6.1	Demographics of the panel.....	47
2.6.2	Statements that did not achieve consensus	50
2.6.3	Mean and standard deviation	53
2.6.4	Full statement list of all statements that achieved consensus	61
2.6.5	Survey 2 participant comments.....	69
2.6.6	Additional comments added by participants	72
2.7	Discussion	74
2.8	Limitations	80
2.9	Conclusion.....	81
2.10	Acknowledgements.....	81
Chapter 3	Synthesis	82
3.1	Strengths and limitations	82
3.1.1	Strengths	82
3.1.2	Limitations	82
3.2	Recommendations.....	83
3.2.1	Collaboratively applying the research findings to actions for education.....	83

3.2.2	Exploring a transdisciplinary approach	83
3.2.3	Joint-postgraduate programmes: harnessing international resources for global benefit.....	83
3.2.4	Policy making.....	84
3.2.5	Employment of occupational therapists across government departments	84
3.2.6	Distribution of findings to participants and relevant stakeholders	84
3.3	Conclusion.....	84
	References	86
	Appendices.....	102

List of Tables

Table 1-1 Search terms	26
Table 1-2 Survey 1 with supporting references	30
Table 1-3 Survey 2	33
Table 1-4 Strategies for rigor applied to this study	36
Table 2-1 Details of author contribution.....	37
Table 2-2 Colour code for tables 2-4, 2-5, and 2-6.....	46
Table 2-3 Demographics of panel	49
Table 2-4: Survey 1 non-consensus statement	50
Table 2-5 Survey 2 non-consensus statements	53
Table 2-6 Survey 1 results	57
Table 2-7 Survey 2 results	61
Table 2-8 Final statement list with statements from Survey 1 and 2 that achieved consensus, categorised with study objectives.....	68
Table 2-9 Survey 2 comments.....	72
Table 2-10 Statement themes for general and occupational therapy specific content for a possible postgraduate programme.....	80

List of Figures

Figure 1-1 Outline of the research report	4
Figure 2-1 Literature review process	42

List of Appendices

Appendix A Ethical clearance certificate	102
Appendix B Information letter for experts	104
Appendix C Information letter for recent CS occupational therapists	107
Appendix D Detail on methods	110
Appendix E Survey 2 Statements.....	119
Appendix F Infographic of results	130
Appendix G Turnitin report	131
Appendix H Plagiarism declaration.....	144

List of Abbreviations

CBR	Community Based Rehabilitation
CEU	Continued Education Unit
CPD	Continued Professional Development
CRedit	Contributor Roles Taxonomy
CS	Community Service
HIV	Human Immunodeficiency Virus
HPCSA	Health Professions Council of South Africa
HR	Human Resource
HREC	Human Research Ethics Committee
NQF	National Qualifications Framework
OT	Occupational Therapy/Therapist
REDCap	Research Electronic Data Capture
RHAP	Rural Health Advocacy Project
RuReSA	Rural Rehab South Africa
SASSA	South African Social Security Agency
SD	Standard Deviation
SMU	Sefako Makgatho Health Sciences University
TB	Tuberculosis
UCT	University of Cape Town
UFS	University of the Free State
UKZN	University of Kwa-Zulu Natal
UP	University of Pretoria
UWC	University of the Western Cape
WFOT	World Federation of Occupational Therapy
WHO	World Health Organisation
Wits	University of the Witwatersrand, Johannesburg

Operational Definitions

Attitudes and professional behaviours	“a professional attitude could be defined as a predisposition, feeling, emotion, or thought that upholds the ideals of a profession and serves as the basis for professional behavior” (p. 456) (1)
Community service	All newly qualified healthcare professionals in South Africa are required to complete a compulsory community service year (2) in a public health facility, including those in rural areas.
Consensus	The agreement on a subject or topic by the majority of voters. For this study, consensus was considered to be obtained when 80% of participants strongly agreed/agreed OR strongly disagreed/disagreed with a statement (3).
Expert	Someone with extensive and varied experience in a specific field, who may have published on a topic within that field, and may have been identified by relevant organisations as a expert in that field.
Modified Delphi technique	The development of statements based on a rigorous literature review, followed by the addition to, and refinement of those statements through rounds of surveys with research participants in order achieve consensus (3) on a specific topic.
Knowledge	“the sum of what is known: the body of truth, information, and principles acquired” (4)
Postgraduate education	Education in the form of diplomas or master’s degrees, obtained after the successful completion of an undergraduate qualification.
Rural healthcare	The provision of healthcare services in non-urbanised areas
Skills	“the ability to use one's knowledge effectively and readily in execution or performance” (5)

Chapter 1 Introduction, Literature Review, and Methods

1.1 Introduction

1.1.1 Introduction to the study

Health is a human right and equitable access to healthcare is central to the Constitution of the Republic of South Africa as well as the impending National Health Insurance (6,7). Although a standard definition of the term 'rural' is yet to be determined (8,9), rural healthcare can be understood to be the provision of healthcare services in non-urbanised areas. Despite ongoing urbanisation (10), a third of South Africa's population remain living in rural areas (11).

Data from the 2011 South African Health Review show that rural healthcare has not been able to meet the same standards of care as generally expected and provided in areas commonly classified as urban (8). This is also noted by rural health expert, Reid, in his 2019 article on the rural determinants of health, in which he describes "a theoretical framework that is inclusive of subjective, objective and abstract realities" (p. 1) as a manner of understanding the persistent rural/urban health inequalities (12). The noteworthy health status indicators are disability (13), prevalence of infectious diseases (14), maternal health (15), and child health (16)(8). When comparing these indicators among the nine provinces of South Africa, those provinces that have the highest percentage of people residing in rural areas show a higher prevalence of disability (13), a higher mortality rate due to Tuberculosis (TB) (14), the highest death rates among mothers (15), and that a greater amount of children live far from their nearest health facility compared to the provinces with a lower percentage of rural citizens (16). Some of the factors that contribute to the discrepancy between rural and urban healthcare include, but are not limited to, available resources (human and other) in rural areas, current policies and systems that are in use, and working conditions and training of healthcare workers (17,18).

Therapists in rural healthcare are often newly qualified, and often lack the necessary supervision, guidance and support from healthcare workers of their own discipline that would allow them to provide better services, as well as maintain their sense of duty and mental wellbeing (17). Rural healthcare workers also need to be able to accept that "team work, innovation, voluntary unpaid overtime and the use of their own vehicles to treat patients" (p. 200) may be standard practice for them in rural settings (17). These factors influence the retention of healthcare workers as

therapists may not be inclined to accept available posts due to the lack of supervision, training, resources, and general support that they may experience in rural settings (19).

The lack of appropriate training is a significant issue, and one that would address both the retention of healthcare workers, and the quality of the services they provide. Training would involve the acquisition of rural-specific skills, knowledge, attitudes and professional behaviours through appropriate methods of delivery. Aspects such as task-shifting, innovated use of available resources for assistive device fabrication, and creative home adaptations may be applicable. Rural healthcare is unique, and the healthcare workers that staff these areas should be able to provide quality services through appropriate, accessible training, which includes undergraduate training, continued professional development (CPD) activities, and postgraduate training, the latter being the focus of this study.

1.1.2 Statement of the problem

It is clear from literature that rural populations have the greatest health needs and experience worse health outcomes when compared to populations in urban areas (20). It has been noted that the majority of the occupational therapy healthcare workers in rural areas globally are newly qualified occupational therapists (17,21) – novice therapists that have experience, knowledge, and skills limited to undergraduate training. This means that the least experienced healthcare professionals are often serving the populations with the most significant health needs. In acknowledging this, it must also be noted that even limited rehabilitation services, when accessible and appropriate, can greatly improve the rural population's quality of life and ability to achieve personal goals (20).

The problem therefore lies in appropriately equipping the therapists serving the rural populations. This may include appropriate undergraduate training, CPD activities, and/or postgraduate training. The lack of appropriate postgraduate opportunities has also been linked to poor retention of healthcare workers in rural areas (19), which is a significant problem in the provision of health services in rural areas. It is therefore crucial to determine whether appropriate postgraduate programmes for rural-based occupational therapists exist, need to be adapted, or whether postgraduate opportunities need to be established. The appropriateness of programmes can only be determined based on a robust understanding of need, and therefore investigating the need is essential.

1.1.3 Purpose of the study

The purpose of this study was to address an important need in public health and primary healthcare – the quality of care that is provided to, and thus received, by our geographically most vulnerable population. In recognising that there is a need for our healthcare professionals, and specifically occupational therapists in this context, to be appropriately trained, we needed to determine how this can be achieved. In determining the educational needs of occupational therapists in rural areas, it is possible to evaluate the extent to which our tertiary institutions cater for these needs, and where a need exists to develop new programmes or adapt existing ones.

1.1.4 Research question

What are the postgraduate education¹ needs of rural-based occupational therapists in South Africa?

1.1.5 Aim of the study

To develop consensus on the postgraduate education needs of occupational therapists in rural areas in South Africa.

1.1.6 Objectives of the study

- a) To develop consensus on the postgraduate knowledge required by occupational therapists in rural areas.
- b) To develop consensus on the postgraduate skills required by occupational therapists in rural areas.
- c) To develop consensus on the attitudes and professional behaviours required by occupational therapists in rural areas that should be developed in postgraduate training.
- d) To develop consensus on the method of delivery of postgraduate education required by occupational therapists in rural areas.

1.1.7 Justification of the study

Understanding the needs of rural-based occupational therapists to inform postgraduate education offerings may go beyond benefiting rural therapists. Postgraduate training is essential to the goal of strengthening services offered to rural populations and retaining therapists with expertise in rural settings. Rural practice has been described as generalist practice (22), which can also be found in

¹ National Qualifications Framework level eight and nine: postgraduate diploma and master's degree (132).

non-rural areas where some occupational therapists are not specialised as they may be required to treat within any and all fields of practice due to their setting or preference. Adapting an existing postgraduate programme or developing a new one may then also allow for the appropriate postgraduate education of therapists working in a generalist capacity in non-rural settings. Such a programme may also accommodate other disciplines besides occupational therapy, as some generalist skills and knowledge are not limiting in terms of scope of practice or discipline.

South Africa has a diverse population, and the results of this study can also be applied to countries with similar demographics, or to those that face similar challenges, as it addresses a need that is not necessarily limited to our context. Many countries have rural areas and similar economic climates to that of South Africa, and in that way the results of this study can be used to inform programmes internationally. This study may further inform rural research in terms of retention and attraction of rural staff, standards of healthcare, and policy development.

1.1.8 Outline of this research report

A 'submissible manuscript' format² has been used for this research report. The contents of each chapter, as per the mentioned format, is depicted in Figure 1.1.

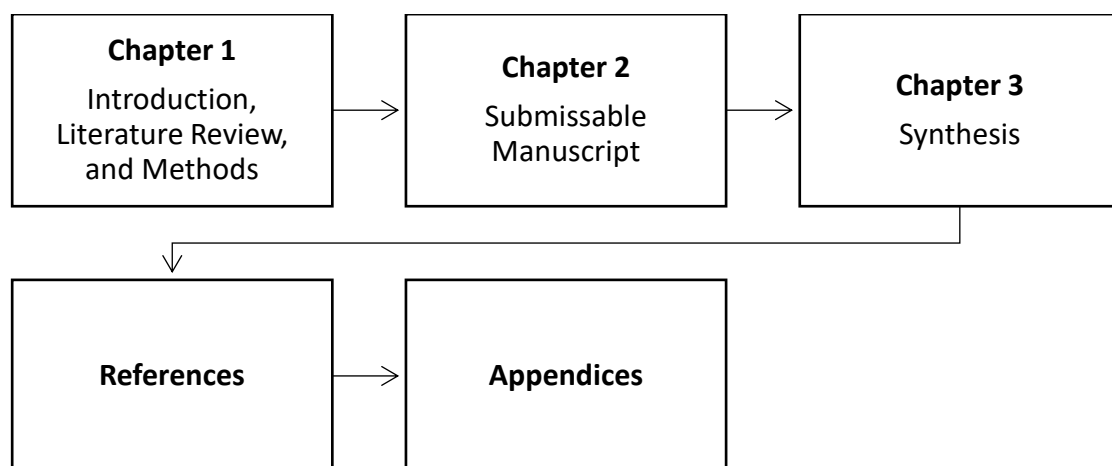


Figure 1-1 Outline of the research report

1.2 Literature Review

1.2.1 Introduction to the literature review

This study aims to determine the postgraduate education needs of rural-based occupational therapists in South Africa. This chapter provides a critical review of the

² This format is outlined in the [Faculty of Health Sciences Style Guide for Theses, Dissertations, and Research Reports](#). Appendix I on p. 52 of the linked document may be referenced for further information. The protocol for this study is also available for review [here](#).

available literature relevant to this study and consists of six sections: rural healthcare in South Africa; the challenges and barriers to rural healthcare in South Africa; addressing the inequitable access in rural healthcare; education needs based on knowledge, skills, attitudes, and professional behaviours; and postgraduate educational needs, followed by a conclusion.

Articles were identified for review through searches of the following databases: EBSCOhost, Academic Search Ultimate, Africa-Wide Information, CINAHL Complete, Global Health, Health Source Nursing/Academic Edition, and Medline, from study inception, 6 February 2021, to 9 April 2021.

1.2.2 Rural healthcare in South Africa

The following section will address rural healthcare in South Africa. Possible definitions for rural will be discussed, and an overview of rural healthcare in general, as well as occupational therapy in rural areas will be provided.

1.2.3 Defining rural

Although exact definitions of urban or rural in relation to geographical areas are difficult to formulate, attempts have been made to do so on the basis of specific factors (10). These factors include economic climate, demographic information, and structural characteristics of the area being classified (10). In South Africa, the “deficit model” describes rural as “everything that is not urban” (p. 2), but it has been suggested that definitions of rural areas are dependent on the goal of the definition, and would therefore differ in terms of focus (18). Statistics South Africa defines rural as “farms and traditional areas characterised by low population densities, low levels of economic activity and basic, low levels of infrastructure” (p. xi) (23).

1.2.4 Rural healthcare

Rural healthcare is a global concern, and although different countries may have different definitions of rural, or experience different specific rural issues, a number of the challenges associated with practice in rural areas appear to be universal.

Extending the definition of rural to focus on healthcare specifically requires the consideration of other important aspects. In South Africa, these aspects include access to services, as rural residents often have limited access to various important services including healthcare, water, and sanitation (18). Also included are conditions that are specifically relevant to an area being considered, possibly relating to aspects such as natural disasters or prevalent dangerous fauna (18). Lastly, “measures of

health need” (p. 3) should be considered, which relates to the use and usefulness of health services available in an area, as well as the health need based on demographic information (18).

In terms of global rural healthcare, more than half of the rural population do not have health insurance, compared to less than a quarter of the urban population (24). It is also noteworthy that maternal mortality rates are 2.5 times higher in rural areas globally as compared to urban areas (24). Additionally, evidence shows that one’s geographical location may very well determine whether one has access to quality healthcare, or any healthcare at all, and by extension, “whether people live or die” (p. xiii) (24).

Considering South Africa specifically, five of our nine provinces have more than half of their population living in rural areas (20). Two of those provinces have the highest infant and children (<5 years) mortality rates in the country, and three of those provinces claim the highest maternal mortality rate for in-facility live births (20). Two of these provinces also have districts that have the highest Human Immunodeficiency Virus (HIV) prevalence (20). Due to the prevalence of economic and social challenges, rural populations are also more prone to mental health issues such as depression (20). Limited access to rehabilitation services and healthcare in general means that children and adults with disabilities are often deprived of their human right to equal access and opportunity (20).

1.2.5 Rural Occupational Therapy

Rural occupational therapy is not exempt from the challenges and barriers mentioned above as part of general rural healthcare. As previously mentioned, the majority of occupational therapy healthcare workers in rural areas globally are newly qualified occupational therapists (17,21). A recent South African study (25) on the complex practice settings new occupational therapy graduates work within, reports that “many resource issues make OT challenging in rural areas” (p.473). Specific resource issues included difficulties with transport, and available equipment and physical space to work (25). More than half of the participants in this study also mentioned experiencing difficulties in terms of accessing quality supervision (65.9%) and communication with patients (73.9%) (25).

New graduates in rural settings often find the transition from student to therapist difficult, and lack confidence in terms of their skills and knowledge (26). This is

understandable as the differences between student and qualified therapist can be great, and the increase in responsibility may be overwhelming (27). There is also the added pressure of needing to be a well-developed 'all-rounder' in terms of condition-specific knowledge, practical skills, and the treatment of all age groups (22). This means newly qualified therapists are required to work in very complex situations with little guidance or supervision (25) on how to provide quality service.

Occupational therapists in rural areas also report that they are often required to extend their scope of practice beyond what is considered their traditional role (22). This may occur when there is limited access to other disciplines and/or resources, and mainly involves assisting where they are able to without working outside of their scope (22). An example of this may be when the occupational therapist corrects a patient's use of a tripod walking stick to ensure safety while on a home visit, having previously observed correct use demonstrated by a physiotherapist. Therapists may experience difficulty in balancing between offering services patients need and deserve, stretching their scope within the boundaries of their own competence and professional scope (22), and remaining relevant in, and loyal to, their own discipline.

It has also been noted that the policies that are made in urban areas to suit urban needs, do not allow for service provision that is efficient or supportive of staff in rural areas (17). This means that rural healthcare workers, and specifically occupational therapists, are unable to advocate for necessary change based on legislation, leaving them with limited options for positively influencing their patients' – and their own – circumstances.

1.2.6 Challenges and barriers to rural healthcare in South Africa

A 2013 South African study defined rural healthcare as the "provision of health services to areas outside of metropolitan centres where there is not ready access to specialists, intensive and/or high technology care, and where resources, both human and material, are lacking" (p.120) (28). As indicated by the definition above, there are various challenges and barriers to rural healthcare in South Africa that impact further on service delivery and limit our most vulnerable population from receiving the care they require and are owed as part of their human rights. The barriers that will be discussed in this section are poverty, accessibility of healthcare services, human and other resources, and the training of healthcare professionals working in rural areas.

1.2.7 Poverty in rural areas

Data from Statistics South Africa in 2011 (29) show that 68.8% of rural residents experience poverty, as opposed to 30.9% of urban residents, while a 2020 report from Statistics South Africa indicates that 88.4% of children in rural areas are living in poverty, more than double the rates reported for urban areas (41.3%) (23).

Addressing poverty in rural areas is also much slower than urban areas, with rural areas showing a reduction in poverty over a five-year period of 15%, versus 24% in urban areas (29). Poverty has an understandably significant impact on quality of life, accessibility of services, and freedom of choice. Poverty also directly impacts healthcare for the provider as well as the receiver of the service. The service provider may have limited resources for therapy and may experience patient non-adherence, while the service receiver may have limited opportunity to attend the available therapy due to costs involved in attendance.

1.2.8 Human resources in rural areas

In addition to the prevalence of poverty in rural areas, rural healthcare is further challenged by human resource limitations. Human resources are limited globally. A shortage of over seven million healthcare workers exists in rural areas, compared to an estimated three million shortage in urban areas (24). This is related to the fact that, while half of the global population are living in rural areas, it is estimated by the International Labour Office that only 23% of healthcare workers globally are employed to serve rural populations (24).

Data, published by the Rural Health Advocacy Project in the 2015 Rural Health Fact Sheet for South Africa, show that the number of available rehabilitation healthcare workers, as well as enrolled nurses and medical practitioners, is greater in urban areas as opposed to rural areas (18). Considering Occupational Therapy and Physiotherapy, the province with the highest number of therapists per 100 000 population in both cases is a non-rural province, and the lowest number of therapists are employed in rural provinces (30). Notably, in comparison to the rural provinces, this number in the non-rural province is more than double for Physiotherapy, and more than triple for Occupational Therapy (30). A 2020 South African study reports that of all registered occupational therapists, the National Department of Health employs only 25%, while 86% of our population make use of public health services (31).

The availability of human resources has a substantial impact on service delivery, but even more so in areas that already suffer from a lack of various other vital resources such as water, sanitation, and basic infrastructure (18).

1.2.9 Other resources in rural areas

The 2015 Rural Health Fact Sheet (18) made use of a variety of sources to report on other rural resources, and the 2013/2014 South African Health Review (30) also provided information on socio-economic factors. Some relevant factors and resources included food security and nutrition, water, refuse removal, access to toilets, and electricity, among others (18,30).

In terms of food security and nutrition, 26% of our population experience hunger, and the four provinces with the highest percentage of food insecurity are rural provinces (18). Considering water, the Blue Drop rating provides a score to measure the quality of the water infrastructure within a municipality (32). The 2013/2014 South African Health Review (30) reported the Blue Drop ratings for all provinces, placing a rural province last with the lowest rating of 60.9 while a non-rural province scored the highest at 98.1. Another rural province also had the lowest percentage in terms of access to piped water (30).

Two rural provinces also have the lowest percentages of people who have access to electricity for food preparation, the lowest being less than half at 49.8% (30). All five rural provinces have the lowest percentages of homes with access to rubbish removal, the lowest being only 21.8% of homes (30). The highest percentage of homes with no access to either a toilet or a bucket toilet were also found among the rural provinces (30).

According to the World Health Organization (WHO), these aspects are considered to be social determinants of health (33). This means that these resource limitations not only have a significant impact on the rural population but do in fact largely determine whether they are at all able to be healthy.

1.2.10 Access to healthcare services

The ACCESS framework considers five different aspects related to healthcare access: the availability, accessibility and affordability of healthcare services; the adequacy of those services in terms of their organisation; and the acceptability of those services relevant to the specific community and their social values (34). The WHO additionally measures healthcare accessibility in terms of service availability

and variety, population coverage, and financial and/or social impact for the user (35). Various factors may contribute to each of these aspects, and within rural healthcare, inaccessibility may not be clearly defined or easily addressed.

As mentioned above, poverty contributes to the inaccessibility of healthcare, and although some healthcare services are now free of charge in public facilities (8), patients will still inevitably have other expenses related to accessing healthcare. Considering the accessibility and affordability aspects of the ACCESS framework (34), one such an expense is transport to a health facility, which may be very costly in a rural area where there are limited options for healthcare, and where patients may need to travel great distances regardless of where they choose to go (8). Physical accessibility of the available transport options is also an issue, since patients may make use of assistive devices or have physical disabilities that limit their ability to use any available vehicle (8). This means that the reason why a patient might need to attend a health facility – their disability or chronic condition – might also be the reason why they cannot access it.

In terms of service delivery, a 2011 case study at a rural hospital in the Eastern Cape found that language barriers had a significant impact on the accessibility of healthcare (36). The ability to speak and understand the same language as one's patient appeared to facilitate empathy, allow for patients to be partners in their care, and for healthcare professionals to be more efficient at their jobs (36). These are extremely important aspects in the provision of healthcare to all patients; patients need to be able to make decisions about the care they receive, they need to feel that they are heard and understood, and they have the right to receive healthcare that is of a high quality.

When considering specialised services in rural areas, in public healthcare, facilities form part of a network that may include specialists and specialised services, but these services may be far away and difficult to access (8), especially if a patient needs to travel from a remote, underdeveloped area with poor infrastructure. Since there may be a limited number of healthcare facilities in rural areas, in terms of population coverage this impacts on waiting times for services (37) and means that there is limited availability of necessary services (34). Staff shortages impact further on service delivery, and in a 2011 South African report on health reform, community representatives from across the country also reported a lack of professional work ethic (37), which may impact further on the accessibility of healthcare.

1.2.11 Training of rural healthcare workers

Although all healthcare workers are trained in a similar manner (within the same profession), rural healthcare workers face different challenges and circumstances than their urban counterparts, and therefore require training that caters specifically to their needs. As previously mentioned, rural healthcare is unique, and there are many factors that contribute to the discrepancy between rural and urban areas in terms of healthcare, and many of these are difficult to address.

In a 2011 South African report on health reform (37), community representatives from across the country reported a lack of relevant knowledge and skills among healthcare professionals in public service. In a 2010 study on rural occupational therapy and its implications for education (38), some participants reported that they struggled to maintain their work competence in terms of education. They reported specific issues, including the financial burden of continued education, the lack of generalist focus in available courses, and the difficulty of choosing what to focus on when they lack a broad range of knowledge and skills required in rural occupational therapy (38).

Training of rural healthcare workers should start at an undergraduate level and continue into postgraduate education, equipping students with appropriate skills and knowledge to allow them to be effective healthcare workers in a rural setting (39). This means education should specifically focus on the contextual features of rural healthcare, and CPD activities should be aimed at providing what is most relevant and necessary for the rural healthcare worker in the most accessible manner (39).

It is also suggested that if all healthcare professionals engage in rural service delivery for even a short period of their professional careers, there would be two important changes in healthcare (39). Firstly, there would be improved availability of services for the rural population, and secondly, this would produce healthcare professionals “with a more patient and community-centred focus” (p. 96) (39) – invaluable skills in any healthcare setting (39).

1.2.12 Addressing the inequitable access in rural healthcare

The abovementioned challenges and barriers contribute to the inequitable access in rural healthcare and should therefore be addressed to assist in the goal of healthcare equality in South Africa. The following section will propose methods for addressing this discrepancy based on the challenges and barriers mentioned.

1.2.13 Poverty and other resources in rural areas

South African occupational therapy scholar, Watson (40) suggests that it is necessary to view rural poverty in a broader context than only a lack of resources. She describes structural poverty – which “refers to poverty that is derivative of the way that we have structured our economy” (p. 1) (41) – as a possible method of understanding rural poverty, but states that “understanding structural poverty requires an engagement with the complexities of culture, and with how people construct their identity, interpret their agency and think and feel about being poor” (p.35) (40).

Poor people have limited options for how, when, and where they spend the little money they may have, and also have little to no power to change their circumstances, further exacerbating the inequalities they experience (40). It is therefore very difficult to overcome poverty experienced over many generations, when little changes in one’s situation, and the cycle of poverty and powerlessness almost inevitably repeats itself (40,42).

Some problems experienced in rural areas are difficult to address at grassroots level. The availability of clean, piped water, and waste and rubbish removal systems are infrastructural concerns that require municipal input. As healthcare workers, one of the most important roles is that of advocate. Through advocacy and sound knowledge of health systems, policies, levels of care, and general governmental protocols, healthcare workers may be able to assist in acquiring the services owed to rural populations.

Equipping patients and community members to advocate for themselves and their community will also assist in addressing the discrepancy. Some other suggestions for addressing rural health issues include increasing the number of available healthcare facilities, as well as their operating hours, and mobile outreach clinics are also considered to be useful in rural or remote areas (37). Other suggestions include the appropriate training of staff in terms of job skills and knowledge as well as work ethic, with proper evaluations to determine whether public servants are indeed equipped to perform their duties (37).

1.2.14 Attraction and retention of rural healthcare workers

One of the suggested ways to improve rural healthcare is to attract and retain staff, and one study identified several contributing factors in this matter (19). These factors

include, but are not limited to, remuneration, quality of working and living conditions, availability and quality of supervision, stimulation of the work environment, job satisfaction, prevalence of disease, availability of resources, and infrastructure (19). A South African study (43) explored the reasons why healthcare workers remain in rural positions, and the results yielded five themes. These themes are having a “shared purpose” (p. 2), teamwork, a “culture of support” (p. 3), “work-life balance” (p. 3), and the availability of “opportunities for growth” (p. 3) and CPD activities, which also involved having a stimulating work environment (43).

Since rural practice can be demanding and requires specific competencies, newly employed rural occupational therapists have also experienced feelings of inadequacy and found it difficult to adapt to the setting (44). This impacts poorly on the retention of these therapists, and results in frequent staff changes (44) and therefore poor carryover and long-term growth. Therapists that do want to be retained are also inhibited by the lack of available posts, which may be due to the freezing of posts (45) or budgeting issues.

The 2018 report on reconceptualising health professions education in South Africa provides specific suggestions that may assist in recruiting, attracting, and retaining rural healthcare workers (39). These suggestions include aspects related to education, such as including specific rural healthcare difficulties in education programmes for healthcare workers, and the provision of CPD activities aimed at healthcare workers in rural areas (39). Another notable suggestion is the provision of programmes in rural areas aimed at professional growth for rural healthcare workers (39).

Possible suggestions for the retention and attraction of staff in rural areas therefore include addressing the abovementioned factors – such as providing adequate supervision, resources, and support, improving work conditions, and notably, providing opportunity for career development in the form of “further professional training”(p. 6) (19). Opportunity for professional development is clearly an important factor in the attraction and retention of rural healthcare workers, and this study aims to provide clarity on the exact postgraduate education needs of occupational therapists in rural areas.

1.2.15 Organisations that support rural-based therapists

As one of the issues in the attraction and retention of rural healthcare workers is limited support for therapists, it is important to look at organisations that are indeed available to therapists, and what they offer. Rural Rehab South Africa (RuReSA) is a South African organisation comprising of members that offer and support rehabilitation in rural areas (46). This organisation's mission is to "disseminate information and research on the health needs of rural people with disabilities, rural rehabilitation services and Primary Health Care policy development", and they aim to specifically provide support for rural therapists through information, research, and networking opportunities, among others (46).

The Rural Health Advocacy Project (RHAP) is an organisation guided by the South African Constitution that seeks equal access to quality healthcare, specifically for rural citizens (47). They aim to assist rural healthcare workers and citizens through advocacy, assisting in empowerment, and "giving voice to health care workers' and communities' lived experiences" (47).

While these organisations provide support to rural-based occupational therapists in a variety of ways, they are unable to assist with relevant training and direct, immediate support in day-to-day rural practice – which may be one of the biggest challenges these therapists face. This study aimed to determine what the postgraduate education needs are for these therapists, and whether there is an appropriate programme available for them in terms of both content and accessibility. Such a programme may prepare therapists in a manner that would reduce the need for immediate, direct support by equipping them fully for the challenges of rural practice.

1.2.16 Rural practice competencies for occupational therapists

The World Federation of Occupational Therapy (WFOT) provides standards for the education of occupational therapists, and all universities must comply with these minimum standards, as applied to their context and environment (48). However, South African occupational therapists are trained at an undergraduate level according to standards set out by the Health Professions Council of South Africa (HPCSA). While all South African universities need to comply with these standards, it is to be expected that they may differ in their interpretation of these standards and subsequently in their specific programmes.

Although there may be some experienced therapists, the majority of occupational therapists working in rural areas are recent graduates (17,21). Generally speaking, the skill and knowledge obtained at an undergraduate level should cover the core competencies of a profession (49), but rural healthcare requires a specific set of skills. In fact, it has been suggested that rural practice should be considered an area of speciality, which may mean that many of the competencies required by these therapists may in effect not be adequately covered at an undergraduate level (50).

One international study (22) exploring the perspectives of rural therapists found that there were several factors that could be considered crucial for rural practice. An important factor mentioned was being an expert in general practice, including assessment and treatment of any condition in any patient (22). It also requires the possession of good clinical reasoning and problem solving skills, as well as the ability to recognise undiagnosed pathology (22). Other aspects were having the ability to prioritise and manage large caseloads (22). Therapists should also be able to recognise when they do not possess the required knowledge for a specific situation – that might even be outside of their normal work duties but may be required in a rural setting – and then knowing how to attain that knowledge (22). Therapists working in rural need to be resourceful, self-driven, and passionate in order to meet the demands of their setting (22).

There may be a wide variety of other competencies required for rural occupational therapy practice, and these required competencies may not necessarily be taught at an undergraduate level but are crucial for efficient service delivery that meets the expected standards in a rural setting.

1.2.17 The postgraduate education needs of rural-based healthcare workers

Rural healthcare professionals require clinical support in order for them to be retained and attracted to these remote settings (19). Clinical support may be in terms of supervision from superiors (19), support from colleagues – senior and other – and “networking” (21). It may also include having the opportunity for growth within their profession in the form of CPD activities (21,39,43,50), having “rural mentors” (50), and the opportunity for “further professional training” (p. 6) (19), the latter aspect highlighting the importance of appropriate and accessible postgraduate education. A 2014 systematic review of the literature found that there were six main reasons for the limitations in human resources in rural healthcare, and one of these was also the

“lack of continuous medical education and professional development opportunities” (p. 207) (51).

Although some studies mention the need for appropriate training and postgraduate opportunities, literature does not provide information on the exact educational needs of rural-based therapists, either locally or internationally. A descriptive study of the CPD needs of rural-based occupational therapists has recently been conducted but results of this study have not yet been published (52). Without this information, it is impossible to know whether appropriate programmes exist, whether they need to be adapted, or whether new programmes need to be developed.

1.2.18 Education needs based on knowledge, skills, attitudes, and professional behaviours

The objectives of this study provide the distinct categories of knowledge, skills, attitudes, and professional behaviours. This guides the classification of the literature according to these categories, although some overlap across domains may be present. It is therefore important to understand what is meant by each of these domains, and how they may contribute to a postgraduate programme.

Knowledge has many definitions, and some are more appropriate than others when considering postgraduate education. For the purposes of this study, the most encompassing definition is one provided by Merriam-Webster, that is, “the sum of what is known: the body of truth, information, and principles acquired” (4), by the postgraduate student in this case.

According to Seymour-Walsh et al., there are two theories of knowledge acquisition, one being “that it is transmitted unidirectionally from expert to learner” (p. 3) (53). Another theory is that knowledge is rather “built individually by a learner, either for themselves or within the context of their social identity” (p. 3) (53). The latter theory provides grounds for the role of the student as a contributing partner in learning, bringing their own knowledge and experience and making the knowledge their own (53). This theory would appear to be the most useful for a postgraduate programme, as it may be assumed that postgraduate students are endeavouring to expand on their undergraduate training while incorporating what they know and have experienced as clinicians in the case of occupational therapy.

The second objective focuses on skills. Skills may be defined as “the ability to use one’s knowledge effectively and readily in execution or performance” (5), suggesting

that knowledge is crucial for skill to develop. Some rural skills may include task-shifting, innovated use of available resources for assistive device fabrication, and creative home adaptations with limited resources.

The third objective includes two closely related aspects – attitudes and professional behaviours. For this objective, “a professional attitude could be defined as a predisposition, feeling, emotion, or thought that upholds the ideals of a profession and serves as the basis for professional behavior” (p. 456) (1).

Local and international literature identify professional dispositions, skills, and knowledge that are particular to or have heightened relevance for rural practice. Based on the definitions above, each of these components should contribute meaningfully to a postgraduate programme, albeit not necessary equally. Section 1.2.19.3 will expand further on the knowledge, skills, attitudes, and professional behaviours required by rural-based occupational therapists

1.2.19 Postgraduate educational needs

The following two sections will present a comparison of undergraduate and postgraduate education, and the difference between postgraduate education and CPD activities. Thereafter the knowledge, skills, attitudes, and professional behaviours required by rural-based occupational therapists will be discussed. This will be followed by a discussion on whether undergraduate education adequately prepares students for rural practice, possible methods of delivery for postgraduate education, and the available postgraduate degrees offered by South African Universities.

1.2.19.1 *Postgraduate versus undergraduate education*

The South African Department of Education provides the National Qualifications Framework (NQF) to describe the different levels of education, to ensure universal standards of education across the nation, and to provide guidelines for programme design specific to each level (54). Undergraduate or Bachelor's degrees have NQF exit levels seven or eight, and are aimed at establishing a sound baseline in terms of knowledge and skill, and at equipping students to enter into employment or to continue with postgraduate education (54). Master's degrees have an NQF exit level of nine, and aim to equip students to perform at a specialised level (54). For the purposes of this study, coursework Master's Degrees are considered, and these programmes require students to interact with more complicated material, address

problems and tasks independently, and work at actively building on their existing knowledge base (54). They must also be able to effectively present their knowledge and deductions using subject specific or layperson's language (54).

The differences between undergraduate and postgraduate degrees are therefore related to the level of knowledge and skill the graduate possesses, their ability to work independently and problem solve efficiently, and their own literacy in their chosen field. While local evidence that has appraised undergraduate content for rural practice exists, no studies have aimed to determine the specific postgraduate education needs, nor the availability of appropriate postgraduate programmes, for rural-based occupational therapists in South Africa.

1.2.19.2 *Postgraduate education versus Continued Professional Development*

In South Africa, CPD activities are classified as either level one or level two, depending on the outcomes of the activities and whether they form part of a recognised training or educational programme (55). Postgraduate degrees are classified as level two CPD activities, and qualify for a maximum of 30 Continuing Education Units (CEUs) per completed year of study, and another 30 CEUs once all degree requirements have been met (55).

CPD activities may also be in the form of shorter programmes with practical components and final evaluations, interest groups, or subject specific lectures/training, among others (55).

A postgraduate degree for rural-based occupational therapists offered by a tertiary institution would therefore be a level two CPD activity, allowing for the acquisition of CEUs and maintaining compliance with the HPCSA. The content of and balance between theory and practical aspects for such a programme would be determined based on the results of this study and would likely not be replicable through a combination of other CPD activities.

As mentioned previously, a local study (52) has been done on the CPD needs of rural-based occupational therapists, however, the postgraduate education needs – the focus of this study are, as yet, unknown.

1.2.19.3 *Knowledge, skills, attitudes, and professional behaviours required by rural-based occupational therapists*

The literature yielded a wide variety of information that may be considered as relevant for a postgraduate programme for rural-based occupational therapists. An updated search conducted in July 2022 indicated that the information included is the most recent information available. This information was not always clearly limited in terms of skills versus knowledge, or professional behaviours versus skills, for instance, and some information was not necessarily limited to occupational therapy but was still considered relevant for rural practice. Information was also sourced from both South African and international articles, yielding a wide variety of topics related to rural-based health professional education globally.

Many sources indicated the need for good health literacy (22,38,56–65), generalist skills and knowledge (21,22,26,38,44,59,62,63,66–71), flexibility, adaptability, and resourcefulness (22,25,38,59,62,63,65,66,69,72–74), cultural competence and humility (21,22,25,60,62,65,66,70,72,73,75,76), prioritisation, planning, and case load management (22,38,59,62,64,65,74), administration skills and knowledge regarding health systems (22,38,59,62,64,65,72,74,75,77,78), collaborative practice and scope extension (22,38,63,65,69,70,72,79–85), resilience (22,25,26,62,72,74,86–89), and communication skills (22,38,62,65,72,77,78,82,84). Therapists also need to be able to problem solve (22,63,69,74), and must understand the community (22,63,69,74).

Sources also mentioned the need for training in community based rehabilitation (CBR) (40,90,91), assistive devices (38,64,92), and splinting (38,64). Competence across scope (22,93), good management (22,38,62,64,65,78), assessment (22,25,38,65), and home adaptation (94) skills, and knowledge regarding functional anatomy (64), pathology (22,38), and vocational rehabilitation (95) were identified as being important. Therapists should be skilled in the use of telehealth (96), and should be able to address the social determinants of health and occupational justice issues (84,85,11). Occupational therapists should also be able to promote occupational therapy to all stakeholders (22,38,59,62,65), and should be competent in in disability prevention and health promotion (22,57,58,60,61,63,64). Lastly, some sources emphasised the need for therapists to be able to speak and understand a language that is commonly used in the rural area they service (25,70,100).

It should be noted that many of these competencies can be considered important for any occupational therapist in any area. One difference in rural occupational therapy therefore lies in the limitations inherent to rural practice – limited resources, support, access to and availability of services. Considering these limitations and challenges, rural healthcare may require occupational therapists to be competent in all of these aspects to a much greater extent.

While all of the abovementioned topics on knowledge, skills, attitudes, and professional behaviours required for rural healthcare do have support, this support ranges from one source for some topics to as many as 14 sources for others. Some sources are also international and therefore their usefulness and appropriateness in the South African setting has not been established. There may also be important topics on the knowledge, skills, attitudes, and professional behaviours required for rural-based occupational therapy that have not yet been documented. It is therefore necessary to evaluate all of the abovementioned topics in terms of the South African setting, as well as to ensure that all topics have been included by offering opportunity for expert input.

1.2.19.4 *Does undergraduate education prepare students adequately for rural practice?*

A study (101) on the needs of newly qualified occupational therapists provides insight from the perspective of the new graduate. Although this study (101) was aimed at all newly qualified therapists and not only those working in a rural setting, the issues may be assumed to be universal. Some of the suggestions provided by the new graduates were centred around their preparedness for practice, and they indicated that the education and training provided by tertiary institutions should be such that they are adequately equipped to meet the demands of practice (101).

Although all undergraduate occupational therapy education programmes in South Africa should include the same basic components, not all programmes include practical rural experience (25). Students that are then placed in a rural setting for their Community Service (CS) year may not have had any exposure to rural practice, and therefore may find the transition from student to therapist even more difficult.

A South African study (25) on how new graduate occupational therapists experience rural practice settings offered suggestions for how to best prepare undergraduates, including “the development of critical skills required to practice in rural and

underserved contexts, as well as resilience and adaptive coping strategies to assist graduates with the transition to practice” (p.479).

In the previous section, the specific knowledge, skills, attitudes, and professional behaviours required by rural-based occupational therapists as described by literature have been discussed. While undergraduate education may prepare students for some aspects of rural practice (such as functional anatomy and assessment), it does not prepare students for all aspects. For new graduates to be competent rural-based occupational therapists, most of these aspects would need to be specifically addressed through continued postgraduate education, and some may require cultivation through experience in practice.

1.2.19.5 *Methods of delivery for postgraduate education*

When focussing on the educational aspects of support, it is necessary to recognise that rural areas inherently limit access to opportunities in terms of the infrastructure, proximity to available opportunities, and commonness of opportunities that are available and accessible. One suggestion for a method of delivery for educational content is distance modes, but this has been criticised due to the lack of “full interaction” between the provider and receiver of the content (50). It has in fact been suggested that postgraduate education for occupational therapists in rural areas should be provided in “innovative ways” (p. 186), although no suggestions regarding what this may include were made (50). It is clear that it is not enough to just provide the opportunity for postgraduate education that caters specifically to the need, it is necessary to also accommodate those therapists in terms of accessibility – a factor that is not within their control, but which should not limit their opportunities to ultimately provide better care to those most in need.

Suggestions for methods of delivery include either face-to-face teaching and learning, or electronic, distance modes. Support for face-to face modes are related to personal preference (102,103), and the ability to ensure adequate interpretation of the material through discussion or clarification with the teacher and other learners (104).

For distance modes, various suggestions were made, including but not limited to videoconferencing (103,105–107), teleconferencing (103), internet-based methods (53,103,104,106,108,109), and virtual conferencing (103,110). The flexibility (103,108) of modes and timing were also emphasised, as healthcare professionals in

rural areas may not be able to attend classes or access materials during regular working hours.

Although these suggestions for methods of delivery may all be valuable for different reasons, the question remains: which of these methods is most appropriate for the South African context? This study aims to answer that question and ultimately determine if an appropriate postgraduate programme exists, if one needs to be adapted, or if there is need for one to be created in order to cater to the postgraduate education needs of rural-based occupational therapists in South Africa.

1.2.19.6 *Postgraduate Occupational Therapy degrees available at South African universities*

Postgraduate degrees in occupational therapy are offered at eight South African universities: the University of the Witwatersrand, Johannesburg (Wits), the University of Pretoria (UP), Sefako Makgatho Health Sciences University (SMU), the University of Cape Town (UCT), the University of the Western Cape (UWC), Stellenbosch University, the University of Kwa-Zulu Natal (UKZN), and the University of the Free State (UFS) (111–118). These universities offer coursework degrees (UP also offers postgraduate diplomas in hand therapy and vocational rehabilitation (113)) in various specialised fields such as neurology, psychiatry, paediatrics, and occupational therapy/science, and/or postgraduate degrees by dissertation (111–118). By understanding the educational needs of occupational therapists in rural areas in South Africa, it will be clear whether any of these programmes would be suitable, need to be adapted, or if a new programme needs to be developed.

1.2.20 Conclusion

It is clear from the literature review that rural life and rural healthcare is unique, and that occupational therapists in rural areas in South Africa require specific knowledge, skills, attitudes, and professional behaviours for effective practice. These rural practice competencies are largely unaddressed in undergraduate education, creating a significant gap in the training of occupational therapists in South Africa. Training to fill this gap may be in the form of CPD activities, which has been evaluated through a South African study (52), which is in the process of publication, or postgraduate education, which is the focus of this study.

While various topics for knowledge, skills, attitudes, and professional behaviours for postgraduate education have been suggested, whether these are suitable for the

South African rural-based occupational therapist has not been established. This study aims to provide clarity on this matter, and subsequently make recommendations regarding an appropriate postgraduate programme for rural-based occupational therapists in South Africa.

As rural areas are generally limited in terms of accessibility, this study also focussed on the methods of delivery for postgraduate education. Literature suggests different options for methods of delivery of the postgraduate education occupational therapists require for effective rural practice, including in-person or online delivery (in various forms), or a combination of the two. However, it is necessary to evaluate the appropriateness of these options through expert input from rural-based occupational therapists with relevant experience in order to determine what would be the most suitable method of delivery for rural-based occupational therapists in South Africa.

1.3 Methods

1.3.1 Study design

A modified Delphi Technique was used as a consensus generating (3) mixed method design. The Delphi was modified as initial statements were generated from a review of the literature rather than including a statement generating round with participants (119). This technique was appropriate for this study as it allowed the researcher to develop statements based on a rigorous literature review, and thereafter refine and add to those statements through rounds of surveys with research participants in order achieve consensus (3) on the exact educational needs of rural-based occupational therapists in South Africa. Including South African based rural experts as participants in the study ensured that all evidence was evaluated for, and applied to, the South African context. The method allowed the participants to have an active role in the data collection while remaining anonymous, and allowed them to provide their expert opinions on the topic at hand, ensuring a richer study (120).

1.3.2 Study setting

The study setting was online. This study was conducted electronically through e-mail and an online self-administered survey tool. The survey tool used was Research Electronic Data Capture (REDCap), which allowed the researcher to create a unique survey with unique statements for each round of the Delphi.

1.3.3 Participants

1.3.3.1 Population

The population for this study was occupational therapists with South African rural healthcare expertise and occupational therapists with recent CS experience in a rural area in South Africa.

1.3.3.2 Sample

A sample of 15-30 participants were suggested as the size of the panel needs to be manageable for the researcher (120). Too few participants initially results in too small a number at the completion of the study, and a panel of more than 30 participants has rarely yielded better results (120). One of the most important characteristics of the Delphi technique is the use of a panel of experts (3,120,121), and for this reason purposive sampling was used to ensure participants met the inclusion criteria and were be able to provide valuable information (121).

1.3.3.3 Source of participants

Participants were recruited through RuReSA. RuReSA was contacted via their website, and suggestions for appropriate candidates based on the inclusion criteria were requested. Some participants volunteered (n=11), and those participants were also contacted for further nominations of possible participants (n=5). The initial recruitment of participants would have been conducted at the South African annual rural health conference in 2020 or 2021, which unfortunately had to be postponed indefinitely due to the COVID-19 pandemic. This meant that very few participants could be recruited through the means mentioned above, resulting in a small, albeit valuable, sample.

1.3.3.4 Sample size

The sample initially included 16 participants that met the inclusion criteria, however, during the second round of the Delphi, two participants withdrew from the study, resulting in a final sample size of 14. Participants took part in the study in their individual capacity.

1.3.3.5 Sample selection

1.3.3.5.1 Inclusion criteria

Occupational therapists considered to be experts in the field of rural health in South Africa. Expert participants included occupational therapists that:

- had been identified as experts in the field of rural healthcare by Rural Rehab South Africa (RuReSA) and/or,
- had published works in rural healthcare and/or,
- have a wide range of experience in various fields of rural healthcare and/or,
- have served as occupational therapy managers in rural healthcare settings in South Africa.

Occupational therapists who had:

- completed their CS in the last two years in a rural area,
- and had been identified as advocates or spokespersons for rural health by professional organisations and/or rural health experts and/or occupational therapists who had completed their CS with the identified occupational therapist,
- and/or had published about their experience delivering services during CS.

These occupational therapists were included as CS occupational therapists constitute a large number of the workforce in rural areas (17).

1.3.3.5.2 Composition of the sample

In terms of the ratio of experts to recent CS occupational therapists, as experts were more easily accessible, the sample for the first round included 15 experts and one recent CS occupational therapist, and 13 experts and one recent CS occupational therapist, for the second round. Although several other recent CS occupational therapists and experts were nominated and subsequently invited by the researcher to participate, these individuals had not responded to the invitation in time to start the first round and therefore could not be included in the study.

1.3.4 Procedure

The procedure for data collection included two steps which are described below: the development of statements through a rigorous literature review; and the consensus generation process.

1.3.4.1 *Development of statements for consensus process*

The instrument in this study was a list of statements that addressed the research objectives. These statements were developed from a rigorous literature review. A search of the following databases was conducted: EBSCOhost, Academic Search Ultimate, Africa-Wide Information, CINAHL Complete, Global Health, Health Source Nursing/Academic Edition, and Medline. Journal-specific searches of appropriate journals (Journal of Rural Health, Rural and Remote Health, the Australian Journal of

Rural Health, and the African Journal of Health Professions Education) were also conducted to ensure all relevant articles were found. Search terms are presented in Table 1-1.

1	"occupational therapist" OR "occupational therapy" OR "occupational therapists" OR "healthcare worker" OR "healthcare workers" OR "health care worker" OR "health care workers" OR "health-care worker" OR "health-care workers"
2	"rural" OR "rural based" OR "rural area" OR "rural areas" OR "non urban" OR "non urban area" OR "non urban areas" OR "non urban based"
3	"skill" OR "skills" OR "ability" OR "abilities" OR "aptitude" OR "aptitudes" OR "expertise"
4	"postgraduate education" OR "postgraduate education course" OR "postgraduate education courses" OR "postgraduate degree" OR "postgraduate degree course" OR "postgraduate degree courses" OR "postgraduate degrees" OR "postgraduate teaching" OR "postgraduate teaching courses" OR "postgraduate teaching programme" OR "postgraduate teaching programmes" OR "postgraduate teaching programs" OR "postgraduate training" OR "postgraduate training course" OR "postgraduate training courses" OR "postgraduate training curricula" OR "postgraduate training curriculum"
5	"knowledge" OR "knowledges" OR "knowledge base" OR "understanding"
6	"competence" OR "competency" OR "competencies" OR "competences"
7	"professional behaviour" OR "professional behaviours" OR "professional behavior" OR "professional behaviors" OR "professional conduct" OR "professional performance"
8	"attitude" OR "attitude and behavior" OR "attitude and behaviour" OR "attitudes" OR "professional attitudes" OR "professional attitude" OR "approach"
9	"method of delivery" OR "methods of delivery" OR "delivery method" OR "delivery methods" OR "delivery method preferences" OR "delivery method preference"

Table 1-1 Search terms

Search terms were combined for searches in the following ways (indicated by the number as allocated above):

- 1 AND 2 AND 3
- 1 AND 2 AND 5
- 1 AND 2 AND 6
- 1 AND 2 AND 7

- 1 AND 2 AND 8
- 1 AND 2 AND 4 AND 9

This literature search yielded a total of 7171 articles. Once duplicates were removed, 4186 articles remained, and the abstracts for these articles were reviewed for relevance. Articles that did not specifically address the objectives of this study were excluded (n=4074). All articles that had been included based on the abstract review (n=112) were further reviewed for relevance. Reference lists of the included articles were also examined for possible relevant articles, but no new articles relevant to the study were found. The full article review resulted in a total of 60 articles contributing to the statement development process. The researcher also reviewed nine additional articles on recommendation from her supervisor, based on possible relevance to the study objectives, of which four were included. Therefore, the total number of articles included in the statement development process was 64.

Statements were developed from these articles by extracting content that specifically addressed the objectives of this study. The themes for content extraction were occupational therapy postgraduate knowledge, skills, attitudes, and professional behaviours, in rural settings, and methods of delivery for educational content in rural settings. Statements were entered into an Excel spreadsheet, and support for each statement presented on the same sheet through referenced extracts from the literature. In order to assess for clarity and ease of completion, the final statement list was piloted by two qualified occupational therapists. Some comments from the pilot were related to the content of the statements, which could not be adjusted as the statements were based on the literature review. However, one of the occupational therapists commented “Unsure what task-shifting indicates.”, and a definition of task-shifting was added to the relevant statement.

1.3.4.2 *Consensus generation*

A modified Delphi technique was used, and data were collected electronically through self-administered questionnaires using a survey tool – REDCap (3,120). Although it had been anticipated that data collection would take place over three rounds, only two rounds were completed.

In the first round, the survey was electronically distributed, and participants were required to review and rate their level of agreement or disagreement using a four-point Likert scale (strongly agree, agree, disagree, and strongly disagree).

Participants were also given the opportunity to comment on each statement in the survey and to provide a final general comment relevant to the objectives of the study. This allowed participants to provide clarity on their reasons for agreement or disagreement with a statement, to provide valuable information based on personal experience, and to contribute new themes for consideration in addressing the aim of the study.

Consensus was considered to be obtained when 80% of participants strongly agreed/agreed OR strongly disagreed/disagreed with a statement (3). Statements that had achieved consensus in the first round were then excluded from the second round.

The second survey consisted of statements that had not achieved consensus during the first round, and additional (new) statements generated from comments made by participants during the first round. These additional statements had been compiled using comments with similar themes provided by different participants.

1.3.5 Instrumentation

The instruments for this study were two surveys built in and distributed through REDCap.

1.3.5.1 Survey 1

Survey 1 was compiled using a rigorous literature review as described previously. Survey 1 with supporting references is presented in table 1-2.

No	Statements
1	Rural-based occupational therapists need to be able to practice as skilled and knowledgeable generalist occupational therapists (21,22,26,38,44,59,62,63,66–71).
2	Rural-based occupational therapists need to be competent across their scope, and be capable of determining and addressing gaps in their knowledge (22,93).
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community (22,38,70,72).
4	Case load management, prioritisation and planning are crucial skills in rural occupational therapy (22,38,59,62,64,65,74).
5	Rural-based occupational therapists need good assessment skills, and need to be able to assess quickly and with limited use of resources, in varied settings (22,25,38,65).

6	Rural-based occupational therapists need to be skilled in addressing the social determinants of health and occupational justice issues (84,85, 11).
7	Rural-based occupational therapists should have advanced knowledge of assistive devices, including ordering, appropriate prescription and issuing, and maintenance of devices (38,64,92).
8	Rural-based occupational therapists must be able to assist with appropriate, cost effective, and limited resource home adaptations (94).
9	Rural-based occupational therapists should be trained in community based rehabilitation (CBR) (40,90,91).
10	Splinting is an important and valuable skill in rural occupational therapy practice, and should be developed further as a practical component of a postgraduate course (38,64).
11	Rural-based occupational therapists need to be able to provide vocational rehabilitation (95).
12	Telehealth is a crucial skill for rural-based occupational therapists (96).
13	Rural-based occupational therapists need theoretical and practical knowledge on functional anatomy (64).
14	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology (22,38).
15	Good administration skills are crucial for efficient rural-based occupational therapy practice (62,65,72,74).
16	Rural-based occupational therapists need sound management skills (22,38,62,64,65,78).
17	Rural-based occupational therapists must be able to clearly and succinctly promote occupational therapy to all stakeholders (22,38,59,62,65).
18	Rural-based occupational therapists should have a focus on disability prevention (primary, secondary, tertiary) through campaigns, education of others, and direct treatment (22,57,58,60,61,63,64).
19	Rural-based occupational therapists should be equipped to organise and host health promotion campaigns (22,57,58,60,61,63,64).
20	Rural-based occupational therapists require knowledge regarding South African health policies (38,59,64,74,75,77,78).
21	Rural-based occupational therapists require knowledge regarding South African health systems (38,59,64,74,75,77,78).
22	Rural-based occupational therapists require knowledge regarding communication at different levels of South African healthcare and management (38,59,64,74,75,77,78).

23	Communication skills and competency in interpersonal relationships are crucial skills for rural-based occupational therapists (22,38,62,65,72,77,78,82,84).
24	Rural-based occupational therapists must be fluent in health literacy in order to be able to communicate effectively with clients who may have low health literacy (56).
25	Rural-based occupational therapists need to be resilient (22,25,26,62,72,74,86–89).
26	Rural-based occupational therapists need to be flexible, adaptable, and resourceful (22,25,38,59,62,65,66,72–74).
27	Rural-based occupational therapists must be able to problem solve and be quick thinking (22,63,69,74).
28	Rural-based occupational therapists must exhibit cultural humility (25,60,62,65,66,70,72,73).
29	Rural-based occupational therapists must be able to understand the community (21,22,66,75,76).
30	Rural-based occupational therapists need to be skilled at interprofessional and collaborative practice as these form an important part of rural health (22,63,65,69,79–85).
31	Rural-based occupational therapists need to be able to speak and understand an African language (with some degree of fluency) that is common in a rural area in order to be able to effectively communicate with all stakeholders in the community. Languages may include Sesotho sa Leboa, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, isiNdebele, isiXhosa, isiZulu, English, or Afrikaans (25,70,100).
32	Methods for delivery of postgraduate educational content may be electronic or internet based (53,103,104,106,108,109).
33	Methods for delivery of postgraduate educational content may be face-to-face, in-person (102–104).
34	Methods for delivery of postgraduate educational content may be a combination of face-to-face and electronic/internet based.
35	Methods for delivery of postgraduate educational content may make use of teleconferencing (103).
36	Methods for delivery of postgraduate educational content may make use of videoconferencing (103,105–107).

Table 1-2 Survey 1 with supporting references

1.3.5.2 Survey 2

Survey 2 was compiled using comments made by participants on the statements from the first round, and from the one statement that had not achieved consensus. Survey 2 is presented in table 1-3.

No	Statements
1	Rural-based occupational therapists need to be able to practice as rural-generalists. This requires a rural-specific knowledge base and approach to practice. This includes being equipped with low-cost techniques and resources that are adaptable for different cultures and specific needs.
2	To become a "specialist generalist", rural-based occupational therapists require substantial time working in rural areas to build up the necessary expertise to become a "specialist generalist", however, this does not preclude the rural-based occupational therapist from developing areas of specialist interest.
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community. This should occur within healthy collaborative team relationships and should be done within safe boundaries, built on the necessary expertise.
4	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology, however, the rural-based occupational therapist needs to retain a core focus on function and participation.
5	In responding to extensive needs within the community and inevitable staff shortages, the rural-based occupational therapist needs to be able to prioritise interventions that will have the greatest impact and be effective. This includes being adept at implementing group-based therapy and programme-based intervention.
6	Rural-based occupational therapists should be adept with networking, accessing and effectively utilising resources available through private individuals and organisations.
7	In providing safe and appropriate assistive devices rural-based occupational therapists should be able to employ innovative and resourceful techniques to make assistive devices. Good partnerships with organisations that manufacture assistive devices and orthotics and prosthetics managers may also streamline the process of ordering, prescribing, and issuing appropriate devices.
8	Rural-based occupational therapists should be adept at using low-cost splinting materials and alternative modalities when commercial splinting material is not available.
9	Rural-based occupational therapists should be able to advocate for and be competent in the appropriate use of interpreters (spoken communication) and translators (written communication e.g., home programmes) in clinical and community settings.

10	Rural-based occupational therapists should be able to speak at least one Nguni based language (with some degree of fluency) if the therapist speaks English/Afrikaans as their main language.
11	Rural-based occupational therapists should have knowledge of and be responsive to local health beliefs, and health communication should take these into account.
12	It is important for rural-based occupational therapists to be skilled in the use of telehealth as a treatment platform for reaching remote clients and performing virtual home visits/assessments (where there is access to the necessary resources).
13	Rural-based occupational therapists should be skilled at telehealth aimed at consulting with other occupational therapists and field specialists (where there is access to the necessary resources).
14	Although additional clinical input is helpful, applying knowledge in context and robust clinical reasoning (including ethical reasoning) is essential to advanced rural-based occupational therapy practice.
15	Rural-based occupational therapists should be competent in information management in order to manage complex caseloads of hard-to-reach clients.
16	The rural-based occupational therapist should consider vocational rehabilitation as a multi-departmental task (Department of Health, Social Development, Education etc.) and therefore they need to be equipped to liaise with other governmental departments in order to facilitate the establishment of new vocational and prevocational skills training and community centres, appropriate for people with or without disabilities.
17	Rural-based occupational therapists should be competent in pre-vocational skills training, basic work adaptation, facilitating phased return to work, and facilitating self-employment or income generation groups. This should occur within the contextual realities of rural settings and rural-based occupational therapists should be able to respond according to available resources.
18	Rural-based occupational therapists should be competent in supporting people with disabilities in "using their grant money to make more money" where opportunities for formal employment are rare/non-existent.
19	Rural-based occupational therapists should be competent in performing disability grant assessments.
20	Rural-based occupational therapists should be competent in facilitating disability inclusive development within communities.
21	Rural-based occupational therapists need to be able to establish and contribute to sustainable services.

22	Rural-based occupational therapists should assist in limiting interruptions in service delivery caused by annual staff turnover by pursuing strategies for permanent post creation and recruitment and retention of staff.
23	Rural-based occupational therapists should be aware of and adept at accessing resources that enable them to remain "up-to-date" with evidence-based practice and current trends in therapy in a time and cost efficient manner.
24	A strong base in teamwork is needed for rural-based occupational therapists.
25	Necessary for rural-based occupational therapy is a support system (within or outside the health facility) aimed at supporting rural-based occupational therapists' resilience and longevity within advanced rural practice and to allow therapists to authentically share their experiences and the realities that they are exposed to.

Table 1-3 Survey 2

1.3.6 Ethical considerations for research with human participants

Ethical clearance was obtained from the Human Research Ethics Committee (HREC) at the University of the Witwatersrand, Johannesburg prior to the initiation of contact with potential participants and to data collection (*clearance certificate number M200944*) (Appendix A). All potential participants were fully informed of the nature of the study, their potential involvement, and the potential risks and benefits to the participants, through the provision of an information letter (Appendices B and C). In order to obtain informed consent, potential participants that had been nominated by those that had volunteered were also requested to respond to the initial contact email with their decision regarding participation in the study as set out in the information letter. There were no potential risks to participating in the study, but it was requested that participants complete all rounds of the study once they had consented to participate. However, this was not enforced, and withdrawal was assumed when two participants did not respond to the second survey and failed to respond to email, telephonic or text-message follow-up. There were no direct benefits to the study for participants, but they did have the secondary benefit of being able to broaden the research related to the needs of occupational therapists in rural areas and how these can be met. Participants remained anonymous to one another throughout the research process, and all personal information was kept in a password protected folder on the researcher's personal computer. All data collected were processed on the researcher's personal password protected computer using an Excel spreadsheet, and was only accessible to the researcher, and research supervisor. Statistical

support was also obtained from an experienced researcher, and relevant statistical data were made available to her when applicable.

Regarding the publishing of results, as some mention of each participant's expertise needs to be made in order to provide credibility and validity to the study (120), participants were able to completed a demographics section at the start of Survey 1, in which they identified the aspects of the inclusion criteria that were applicable to them. They were also provided with an "other" option, where they were able to elaborate on their experience, and/or qualifications, and/or what qualified them to be considered as an expert in rural-based occupational therapy. This information is presented in chapter 2 in Table 2-3.

1.3.7 Data analyses

All collected data were captured on an Excel spreadsheet and analysed to determine the mean and standard deviation as recommended by Hsu and Sandford (3), and de Villiers, de Villiers and Kent (120). This data was used to measure the level of support for every statement (mean) and the level of dispersion (standard deviation), where the degree of certainty regarding consensus was based on the measure of standard deviation (120). Statements that had a mean that fell exactly between two points were rounded up. Lowest (≤ 0.500000) and highest (≥ 0.500001) SD scores were also calculated and presented. In terms of consensus, 80% of participants needed to have strongly agreed/agreed OR strongly disagreed/disagreed with a statement for that statement to have achieved consensus (3).

1.3.8 Rigor

It was necessary for the researcher to demonstrate rigor when developing statements from the literature for the Delphi process, and the trustworthiness of findings was also affected by this process. To address this, several strategies have been suggested to ensure quality and validity of data (122). In terms of *credibility* and *confirmability*, the researcher employed strategies for reflexivity by being aware of and journaling her own preconceived ideas regarding what was expected and found in the literature, as well as during the Delphi process (122) [\(available as a supplementary \(hyperlinked\) document\)](#). In terms of *transferability*, the use of nominated experts (n=15 for Survey 1, n=13 for Survey 2) as participants in the study ensured that the research question was answered by the most appropriate members of the occupational therapy community, and therefore ensured the contextual appropriateness of data collected (122). Dense description of the research procedure

promoted *dependability* and *transferability* (122). In order to allow for this study to be repeatable, the researcher made use of an Excel spreadsheet to document each step of the literature review and statement development processes ([available as a supplementary \(hyperlinked\) document](#)), which also related to *dependability* and *transferability* (122). Peer examination was used to review the search strategy for statement development, and by piloting the first survey, and this added to the *credibility* and *dependability* of the study (122).

Pertaining to the development of the statements for review by the participants, Bandara et al. suggest using a four-phased approach to ensure rigor in the review of literature (123). These phases involve the identification, sourcing, and organisation of appropriate literature, the subsequent analysis of identified literature, and the presentation of the findings (123). The most relevant phase in ensuring rigor in this study was identifying and sourcing appropriate literature. Within this phase of the literature review, the important steps were the selection of the correct sources, and using an appropriate search strategy, with the authors stressing the importance of carefully keeping track of every step of the process as this reflected the rigor of the process, and allowed for a precise description of the method (123). Table 1-4 illustrates the strategies suggested by Bandara et al., and the application of those to this study.

Strategy (123)	Application to this study
Having clarity on the relevant topics of the study	The topics of this study had been set out in the objectives, and isolated as search terms for the literature review. These had been developed over time and chosen as they directly addressed the aim of the research.
“identify relevant databases, and justify the range of sources” selected (p.162)	Relevant sources have been mentioned under the <i>development of statements for consensus process</i> section.
	These sources had been chosen as they allowed for a wide search using specific search terms.
	They were chosen as they have previously yielded relevant results related to the topics for this study.
Using an appropriate search strategy – selecting search terms that address the research topic and goals	The initial search terms have also been mentioned under the <i>development of statements for consensus process</i> section.
	Keyword searches were used along with synonyms that yielded other relevant keywords and more specific keywords.
	Exclusive use of primary texts was made.

Table 1-4 Strategies for rigor applied to this study

Chapter 2 Submissible Manuscript

2.1 Manuscript Details

This chapter is in the form of a manuscript. The manuscript will be submitted for review by and publication in the journal *Rural and Remote Health* and is presented according to this journal's format. This journal is a Clarivate Analytics Web of Science accredited journal (124). It was chosen as it is open access and caters to an international audience. These aspects are both important considerations given the topic and results of the study. The manuscript is titled "Informing a postgraduate programme for rural occupational therapists in South Africa: a consensus study".

2.2 Details of Author Contribution

Relevant aspects of the Contributor Role Taxonomy (CRediT) (125) and each author's contribution to the manuscript are depicted in Table 2-1.

CRediT Terms (125)	Scholtz	van Stormbroek
Conceptualisation	X	X
Methodology	X	X
Manuscript draft	X	
Manuscript review/editing	X	X
Supervision		X

Table 2-1 Details of author contribution

2.3 Abstract

2.3.1 Introduction

Rural healthcare is a global concern, and one of the suggested ways of addressing the challenges faced is through the appropriate training of healthcare workers. No research has been done on the postgraduate education needs of rural-based occupational therapists in South Africa, and without understanding the need, tertiary institutions are unable to be fully responsive to this need. The study aimed to develop consensus from a group of rural occupational therapy experts on the postgraduate education needs of occupational therapists in rural areas in South Africa.

2.3.2 Methods

A modified Delphi technique was used in two consensus generating self-administered surveys using a four-point Likert scale for ratings. Participants were also given the opportunity to comment on each statement. Statements for Survey 1 were developed from a rigorous review of the literature and were framed around the

knowledge, skill and professional behaviours required for rural practice, and the methods of delivery of postgraduate education that would be appropriate for rural therapists. Statements for Survey 2 were developed from Survey 1 non-consensus statements, and from participants' comments. Participants included South African occupational therapists considered to be rural healthcare experts, and one occupational therapist that had recently completed her compulsory community service (CS) year in a rural setting.

2.3.3 Results

Survey 1 included 36 statements conceptualised around the knowledge, skills, attitudes, and professional behaviours required for rural occupational therapy practice, and the possible methods of delivery for educational content. Consensus was achieved with 97% of statements (n=35). Survey 2 included 25 statements developed from comments made by participants during Survey 1, and the one Survey 1 non-consensus statement. For Survey 2, 88% of statements (n=22) achieved consensus, and all further comments made during this round are presented. Results show that competencies required by occupational therapists in rural areas in South Africa are mostly universal, reflecting the needs and competencies reported in local and international literature. A noteworthy exception is the inability to use telehealth as a treatment platform, due to the many challenges this poses in South African rural areas. Rural-based occupational therapists in South Africa require a vast range of discipline specific skills and knowledge, as well as many general practice skills and knowledge, which are also shared by other disciplines.

2.3.4 Conclusion

Results show that a definite need exists for an appropriate postgraduate programme for rural-based occupational therapists in South Africa. Such a programme should include a variety of discipline specific skills and knowledge, as well as various general non-discipline specific skills and knowledge. This programme may be developed to accommodate healthcare workers from different disciplines by presenting the coursework over two years, with all students being equipped with general skills and knowledge in the first year, and discipline specific competencies in the second. Such a programme will assist in addressing an important need in public health and primary healthcare – the quality of care that is provided to, and thus received, by our geographically most vulnerable population.

2.4 Introduction

Rural healthcare is a global concern, with many different challenges faced by the rural population. Although exact definitions of urban or rural in relation to geographical areas are difficult to formulate, Statistics South Africa defines rural as “farms and traditional areas characterised by low population densities, low levels of economic activity and basic, low levels of infrastructure” (p. xi) (23). Evidence suggests that one’s geographical location may in fact determine whether one has access to quality healthcare, or any healthcare at all, and by extension, “whether people live or die” (p. xiii) (24).

In South Africa, concern around rural healthcare is justified as many rural provinces present with poorer health statistics than their urban counterparts, including the highest mortality rates for infants and children (<5 years), and for mothers for in-facility live births (20). Rural populations are also more prone to mental health issues such as depression, and limited access to rehabilitation services and healthcare in general means that children and adults with disabilities are often deprived of their human right to equal access and opportunity (20).

One of the most important healthcare concerns is the training of healthcare workers. Rural healthcare workers face different challenges and circumstances than their urban colleagues, and therefore require training that caters specifically to their needs and allows them to meet and overcome the challenges they face.

In terms of occupational therapy, the majority of occupational therapy healthcare workers in rural areas globally are newly qualified occupational therapists (17,21). In South Africa, newly qualified occupational therapists are required to complete a compulsory community service year (2) in a public health facility, including those in rural areas. New graduates in rural settings often find the transition from student to therapist difficult, and lack confidence in terms of their skills and knowledge (26). This is understandable as the difference between being a student and qualified therapist can be great, and the increase in responsibility may be overwhelming (27). There is also the added pressure of needing to be a well-developed ‘all-rounder’ in terms of condition-specific knowledge, practical skills, and the treatment of all age groups (22). This means newly qualified therapists are required to work in very complex situations with little guidance or supervision (25) on how to provide quality service.

Occupational therapists in rural areas also report that they are often required to extend their scope of practice beyond what is considered to be their traditional role (22). They may experience difficulty in balancing between offering services patients need and deserve, stretching their scope within the boundaries of their own competence and professional limits (22), and remaining relevant in and loyal to their own discipline.

In a 2010 study on rural occupational therapy and its implications for education (38), some participants reported that they struggled to maintain their work competence in terms of education. They reported specific issues, including the financial burden of continued education, the lack of generalist focus in available courses, and the difficulty of choosing what to focus on when they lack a broad range of knowledge and skills required for their rural occupational therapy practice (38).

Literature provides examples of the skills, knowledge, and general competencies that might be needed by the rural healthcare worker – and at times, specifically the occupational therapist. It does not, however, provide a comprehensive picture of the exact postgraduate education needs of rural-based occupational therapists.

This study aimed to determine the specific postgraduate education needs of the rural-based occupational therapist in South Africa, and to consider these for application in countries with similar rural challenges. The objectives of the study were to develop consensus on the postgraduate knowledge, skills, attitudes, and professional behaviours required by occupational therapists in rural areas, and the most appropriate method(s) of delivery of postgraduate education. These objectives were chosen as they encompass the full range of competencies required for rural practice, and the necessary domains of an appropriate postgraduate programme for rural-based occupational therapists.

2.5 Methods

2.5.1 Study design

A modified Delphi Technique was used as a consensus generating (3) mixed method design. The Delphi was modified as initial statements were generated from a review of the literature rather than including a statement generating round with participants (119). This technique allowed the researcher to develop statements based on a rigorous literature review, and statements could be further refined and added to through rounds of surveys with research participants. This allowed for consensus to

be achieved (3) on the exact education needs of rural-based occupational therapists in South Africa. Including South African based rural experts as participants in the study ensured that all evidence was evaluated for and applied to the South African context. This method allowed the participants to have an active role in the data collection while remaining anonymous, and allowed them to provide their expert opinions on the research topic, ensuring a richer study (120).

2.5.2 Population and sampling

One of the most important characteristics of the Delphi technique is the use of a panel of experts (3,120,121), and for this reason purposive sampling was used to ensure participants met the inclusion criteria and were able to provide valuable information (121). Participants were recruited through Rural Rehab South Africa (RuReSA). RuReSA was contacted via their website, and suggestions for appropriate candidates based on the inclusion criteria were requested. Some participants volunteered (n=11), and those participants were also contacted for further nominations of possible participants (n=5). The sample initially included 16 participants who met the criteria, however, during the second round of the Delphi, two participants withdrew from the study, resulting in a final sample size of 14. Participants took part in the study in their individual capacity.

2.5.3 Inclusion criteria and composition of the sample

The study included both rural health occupational therapy experts, and occupational therapists who have recently completed their compulsory CS year. South Africa initiated a compulsory one-year community service for medical doctors, dentists, and pharmacists in 1998 (2). In 2003 many other professional healthcare groups were included in the programme, with occupational therapists among these (2). During this compulsory year, newly qualified healthcare workers are allocated to a public health facility in South Africa and serve the population within that facility's catchment area (2). Completion of this compulsory year of services is a pre-requisite for registration as an independent practitioner in South Africa. For this study, occupational therapists who have recently completed their compulsory CS year have been included as these therapists constitute a large number of the workforce in rural areas (17). Detailed inclusion criteria and the composition of the sample are attached as Appendix D.

2.5.4 Procedure

The procedure for data collection included two steps: the development of statements through a rigorous literature review; and the consensus generation process.

2.5.4.1 Development of statements for consensus process

The instruments in this study were lists of statements derived from the literature that addressed the research objectives. The initial statements (Survey 1) were developed from a rigorous literature review. Included databases and journals are attached as Appendix D. Search terms and search term combinations are attached as Appendix D.

A summary of the literature review process is presented in Figure 2-1. The detailed literature search description is attached as Appendix D.

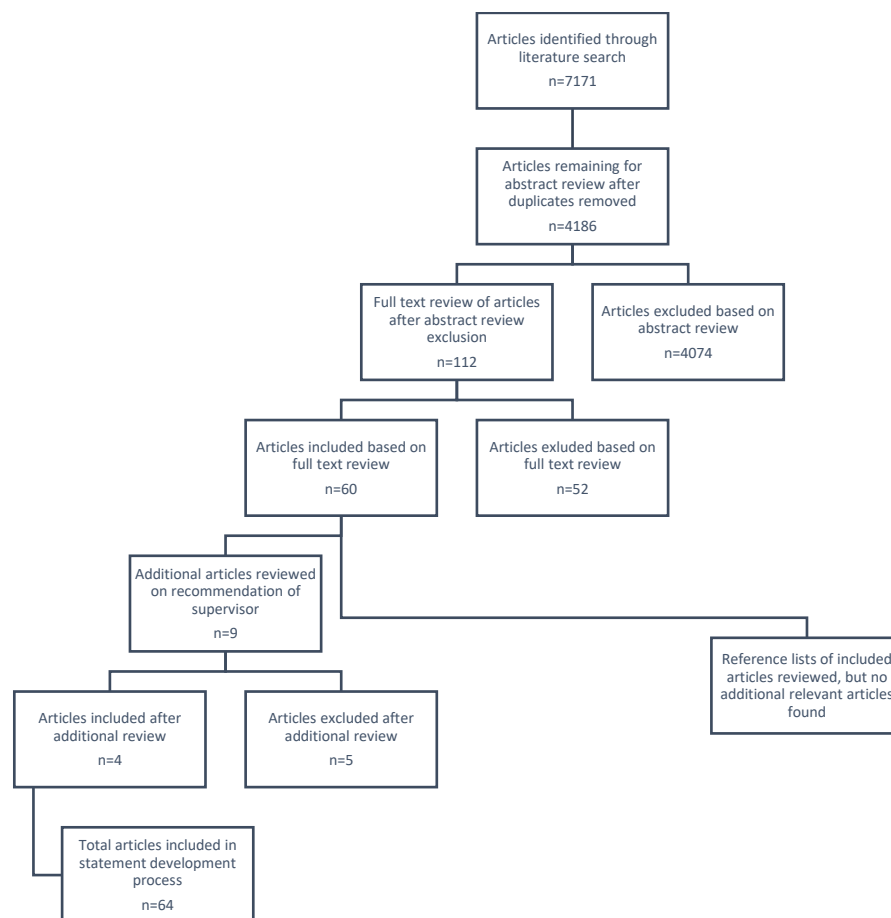


Figure 2-1 Literature review process

Statements were developed from these articles by extracting content that specifically addressed the objectives of this study. The themes for content extraction were occupational therapy postgraduate knowledge, skills, attitudes, and professional behaviours in rural settings, and methods of delivery for educational content in rural settings. Statements were entered into an Excel spreadsheet, and support for each statement presented on the same sheet through referenced extracts from the literature. To assess for clarity and ease of completion, the final statement list was piloted by two qualified occupational therapists. Some comments from the pilot were

related to the content of the statements, which could not be adjusted as the statements were based on the literature review. However, one of the occupational therapists commented: “Unsure what task-shifting indicates.”, and a definition of task-shifting was added to the relevant statement (Survey 1: Statement 3).

2.5.4.2 Consensus generation

A modified Delphi technique was used, and data were collected electronically through self-administered questionnaires using a survey tool – Research Electronic Data Capture (REDCap) (3,120). Although it had been anticipated that data collection may take place over three rounds, only two rounds were completed.

In the first round, the survey (Appendix D) was electronically distributed, and participants were required to review and rate their level of agreement or disagreement using a four-point Likert scale (strongly agree, agree, disagree, and strongly disagree). Participants were also given the opportunity to comment on each statement in the survey and to provide a final general comment relevant to the objectives of the study. This allowed participants to provide clarity on their reasons for agreement or disagreement with a statement, to provide valuable information based on personal experience, and to contribute new themes for consideration in addressing the aim of this study.

In terms of consensus, 80% of participants needed to have strongly agreed/agreed OR strongly disagreed/disagreed with a statement for that statement to have achieved consensus (3). Statements that had achieved consensus in the first round were then excluded from the second round.

The second survey (Appendix D) consisted of statements that had not achieved consensus during the first round (n=1), and statements generated from comments made by participants during the first round, which had been combined based on themes identified.

2.5.5 Ethical considerations for research with human participants

This study obtained ethical clearance from the Human Research Ethics Committee (HREC) at the University of the Witwatersrand, Johannesburg, prior to initiation of data collection (*clearance certificate number M200944*). All potential participants – those that had contacted the researcher directly or through RuReSA to volunteer, and those that had been nominated by others – were contacted with the details of the study (and to obtain informed consent from those that had been nominated), prior to

initiating data collection. Details included the nature of the study, potential participants' potential involvement, and the potential risks and benefits to them, and was e-mailed in the form of an information letter (Appendices B and C).

There were no potential risks in participating in the study, but it was requested that participants complete all rounds of the study once they had consented to participate. However, this was not obligatory and therefore not enforced. Two participants withdrew from the study during the second round. There were no direct benefits to the study for participants, but they did have the secondary benefit of being able to broaden the research related to the needs of occupational therapists in rural areas and how these can be met. Participants remained anonymous to one another throughout the research process, and all personal information was kept in a password protected folder on the researcher's personal computer. Basic demographic information (see Table 2-3 in results section) was collected at the start of Survey 1, which has been used to present participants' expertise, which provides credibility and validity to the study (120). Data collected have been processed on the researcher's personal password protected computer using an Excel spreadsheet and has only been accessible to the researcher and research supervisor. Statistical support was provided by an experienced researcher, and relevant statistical data were made available to her when applicable.

2.5.6 Data analysis

All collected data were captured on an Excel spreadsheet and analysed to determine the mean and standard deviation as recommended by Hsu and Sandford (3), and de Villiers, de Villiers and Kent (120). This data was used to measure the level of support for every statement (mean) and the level of dispersion (standard deviation), where the degree of certainty regarding consensus was based on the measure of standard deviation (120). Statements that had a mean that fell exactly between two points were rounded up. Lowest (≤ 0.500000) and highest (≥ 0.500001) SD scores were also calculated and presented. In terms of consensus, 80% of participants needed to have strongly agreed/agreed OR strongly disagreed/disagreed with a statement for that statement to have achieved consensus (3).

2.5.7 Rigor

It was necessary for the researcher to demonstrate rigor when developing statements from the literature for the Delphi process as the trustworthiness of findings are affected by this process. To address this, several strategies have been

suggested to ensure quality and validity of data (122). In terms of *credibility* and *confirmability*, the researcher employed strategies for reflexivity by being aware of and journaling her own preconceived ideas regarding what was expected and found in the literature, as well as during the Delphi process (122) [\(available as a supplementary \(hyperlinked\) document\)](#). In terms of *transferability*, the use of nominated experts as participants in the study ensured that the research question was answered by the most appropriate members of the occupational therapy community, and therefore ensured the contextual appropriateness of data collected (122). Dense description promoted *dependability* and *transferability* (122). In order to allow for this study to be repeatable, the researcher made use of an Excel spreadsheet to document each step of the literature review and statement development processes [\(available as a supplementary \(hyperlinked\) document\)](#), which also related to *dependability* and *transferability* (122). Peer examination was used to review the search strategy for statement development, and by piloting the first survey, and this added to the *credibility* and *dependability* of the study (122).

Pertaining to the development of the statements for review by the participants, Bandara et al. suggest using a four-phased approach to ensure rigor in the review of literature (123). These phases involve the identification, sourcing, and organisation of appropriate literature, the subsequent analysis of identified literature, and the presentation of the findings (123). The most relevant phase in ensuring rigor in this study was identifying and sourcing appropriate literature. Within this phase of the literature review, the important steps were selection of the correct sources, and using an appropriate search strategy, with the authors stressing the importance of carefully keeping track of every step of the process as this reflected the rigor of the process, and allowed for a precise description of the method (123). An illustration of the strategies suggested by Bandara et al., and the application of those to this study is attached as Appendix D.

2.6 Results

Various tables are used in the presentation of the results, and some are colour coded to present specific findings. These include tables 2-6, 2-7, and 2-8, and the full code is presented below in Table 2-2.

Code	Table 2-6	Table 2-7	Table 2-8
Achieved consensus	X	X	

Did not achieve consensus	X	X	
Lowest SD scores (≤ 0.500000)	X	X	
Highest SD scores (≥ 0.500001)	X	X	
Statements from Survey 1			X
Statements from Survey 2			X

Table 2-2 Colour code for tables 2-6, 2-7, and 2-8

2.6.1 Demographics of the panel

Table 2-3 presents the demographics of the panel. Pseudonyms have been allocated to all participants to ensure anonymity, and each participant's expertise based on the inclusion criteria is depicted. Some participants provided additional information on their experience and expertise, and this information is also included in the 'Other' column.

Participant pseudonym	Recent CS OT or considered to be a rural health expert	South African provinces worked	Expertise				
			Experienced in various rural healthcare fields	Manager for OT in a rural healthcare setting	Spokes-person or advocate for rural healthcare	Published in the field of rural healthcare	Other
Leah	Recent CS OT	Gauteng, Kwa-Zulu Natal, Mpumalanga		X			Managed OT services with one other CS OT during CS year, with little handover provided
Danielle	Rural health expert	Eastern Cape, Gauteng	X	X			Helped develop OT services at a rural district level hospital
Emma	Rural health expert	Kwa-Zulu Natal	X				
Bianca	Rural health expert	Eastern Cape	X			X	
Kim	Rural health expert	Kwa-Zulu Natal	X	X			

Victoria	Rural health expert	Kwa-Zulu Natal					10 years of experience working in rural and semi-rural areas
Nicole	Rural health expert	Eastern Cape	X				
Miranda	Rural health expert	Eastern Cape		X			Worked in a deeply rural rehabilitation department, co-developing the department with a physiotherapy colleague. Now serving as the managing director of the NGO established to support the hospital
Paige	Rural health expert	Northern Cape	X	X			
Rachel	Rural health expert	Eastern Cape, Kwa-Zulu Natal	X	X	X	X	
Anele	Rural health expert	Kwa-Zulu Natal		X		X	
Hannah	Rural health expert	Eastern Cape, Gauteng, Kwa-Zulu Natal, Limpopo, Mpumalanga,	X		X		Completed a master's research study in the effectiveness of block therapy in rural areas of RSA

		Northern Cape					
Sam	Rural health expert	Kwa-Zulu Natal	X		X		Five years of experience working in a rural district hospital
Cora	Rural health expert	Eastern Cape, Free State	X	X			
Julie	Rural health expert	Mpumalanga			X		Contributed to the community rehabilitation worker training programme
Gabby	Rural health expert	Mpumalanga	X	X	X		Supervised OT students completing their rural placement at a hospital and lectured medical students completing their rural health placement at the hospital

Table 2-3 Demographics of panel

2.6.2 Statements that did not achieve consensus

Tables 2-4 and 2-5 provide information regarding the statements from Survey 1 and 2 that did not achieve consensus.

2.6.2.1 Survey 1

<i>Statement</i>	<i>Category</i>	<i>Codes (n-value)</i>	<i>Illustrative quotes</i>
12: Telehealth	Challenges to telehealth	Need for translator (n=2)	Kim: "we only reach 2 out of 10 people...by phone"
		Lack of appropriate devices (n=4)	Leah: "People in rural settings not only have limited access to tablets, computers and phones, but have little to no network to connect to. Many times a translator is needed to provide adequate therapy, and a family or community member is usually used for this task. This is simply not possible over a screen."
		Network difficulties (n=7)	
		A future possibility (n=1)	Gabby: "Until technology is available and works reliably and can be maintained and repaired this is not viable in many rural hospitals. Once this is sorted, then it can be a game changer."
	Need to define telehealth	Treatment delivered through a telecommunication device (n=1)	
		Consultation with other therapists or field specialists in the treatment of patients (n=2)	

Table 2-4: Survey 1 non-consensus statement

The lack of clarity on this statement indicated the need for it to be revised, and for Survey 2 it was separated to consider both aspects of telehealth: telehealth as a treatment platform (statement 12), and telehealth used for specialist input (statement 13).

2.6.2.2 Survey 2

Three statements did not achieve consensus: Nguni based language fluency (statement 10), telehealth as a treatment platform (statement 12), and therapist competence in assisting patients with income generation using their disability grants (statement 18).

Statement	Category	Codes (n-value)	Illustrative quotes
10: Nguni based language fluency	Independent use of the language by therapists	Therapists need to at least be willing to learn to speak a <i>Nguni language</i> ³ (n=4)	Kim: "A (3rd) additional local spoken language a definite benefit. Not to be restricted to Nguni languages... also Sotho, Venda etc. If committed to their job and the service they deliver, people usually manage (if willing to try)"
		Not limiting the language to Nguni-based but rather a/the locally spoken language (n=1)	
		The usefulness of the knowledge of basic words for actions instead of fluency (n=2)	
	The use of human resources	The availability of interpreters determining the need for fluency (n=1)	Leah: "As long as common Nguni phrases are learnt, providing a translator would be best. Language barriers should not be barriers in providing efficient services."
12:Telehealth as a treatment platform	Challenges to telehealth	Lack of necessary resources in rural areas (n=6)	
		Ineffective intervention when telephone was used (n=1)	Danielle: "did not find intervention communicated over the phone effective"
		In person treatment cannot be replaced by telehealth (n=1)	Rachel: "Telehealth should not be considered a replacement for actual home visiting. Building relationships and gaining insight into context and family can't be done without physical presence."

³ Nguni languages are languages spoken by the Nguni people in the southern part of Africa (133), and four of South Africa's official languages (isiXhosa, isiZulu, isiNdebele, and siSwati) are Nguni-based languages.

18: Therapist competence in assisting patients with income generation using their disability grants	Limitations for therapists	Lack of time (n=1)	Paige: "There is not always time for this. Therapists are already rare in rural areas. OT's employed by DOH will often be too busy with hospital, clinic and creches.."
		The risk involved in providing advice for income generation in case there is a loss of income (n=1)	Gabby: "The OT can look at budgeting but to advise on how to make money is risky. What if the venture fails and the OT is blamed. I think this can complicate the therapeutic relationship and lead to family conflict"
	Community involvement	The responsibility and availability of other community organisations for the delivery of this service (n=1)	
	Prioritisation of intervention focus	Importance of skills development and maintaining independence rather than income generation (n=1)	

Table 2-5 Survey 2 non-consensus statements

2.6.3 Mean and standard deviation

The mean for each statement of Survey 1 and 2 is presented in tables 2-4 and 2-51. Results show that most of the means are 'strongly agree' and 'agree', with only one statement – which had also not achieved consensus – having a mean of 'disagree' (Survey 1: Statement 12). Statements that had a mean that fell exactly between two points were rounded up. This means that any mean that fell between 'strongly agree' and 'agree' was rounded up to 'strongly agree' (n=5), and a mean that fell between 'agree' and 'disagree' was rounded up to 'agree' (n=1) (Survey 2: statement 12).

The standard deviation for each statement is presented in table 2-4 and table 2-5, colour coded as indicated in table 2-2. The lowest SD, indicating the most agreement

between participants and therefore the most support for any statement, was 0.000000. This SD was only found for statements 4 and 27 from Survey 1. No statements from Survey 2 scored 0.000000 for SD, but the lowest score was 0.363137, for statements 1, 5, 14, 24, and 25.

The highest SD scores for Survey 1 was 0.793200 for statement 26, and 0.727438 for statement 14, indicating the least agreement between participants and the least support, despite both statements achieving consensus. For Survey 2, the highest SD scores were 0.960769 for statement 18, and 0.854850 for statement 12, both of which had not achieved consensus.

No	Statement	Consensus	Mean	SD	Percentage consensus
1	Rural-based occupational therapists need to be able to practice as skilled and knowledgeable generalist occupational therapists.	Yes	Strongly agree	0.341565	100
2	Rural-based occupational therapists need to be competent across their scope, and be capable of determining and addressing gaps in their knowledge.	Yes	Strongly agree	0.341565	100
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community.	Yes	Strongly agree	0.447214	100
4	Case load management, prioritisation and planning are crucial skills in rural occupational therapy.	Yes	Strongly agree	0.000000	100
5	Rural-based occupational therapists need good assessment skills, and need to be able to assess quickly and with limited use of resources, in varied settings.	Yes	Strongly agree	0.341565	100
6	Rural-based occupational therapists need to be skilled in addressing the social determinants of health and occupational justice issues.	Yes	Strongly agree	0.500000	100
7	Rural-based occupational therapists should have advanced knowledge of assistive devices, including ordering, appropriate prescription and issuing, and maintenance of devices.	Yes	Strongly agree	0.632456	93,75
8	Rural-based occupational therapists must be able to assist with appropriate, cost effective, and limited resource home adaptations.	Yes	Strongly agree	0.341565	100
9	Rural-based occupational therapists should be trained in community based rehabilitation (CBR).	Yes	Strongly agree	0.447214	100
10	Splinting is an important and valuable skill in rural occupational therapy practice, and should be developed further as a practical component of a postgraduate course.	Yes	Strongly agree	0.500000	100
11	Rural-based occupational therapists need to be able to provide vocational rehabilitation.	Yes	Agree	0.543906	93,75
12	Telehealth is a crucial skill for rural-based occupational	No	Disagree	0.655108	Consensus not achieved

	therapists.				
13	Rural-based occupational therapists need theoretical and practical knowledge on functional anatomy.	Yes	Strongly agree	0.512348	100
14	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology.	Yes	Strongly agree	0.727438	87,5
15	Good administration skills are crucial for efficient rural-based occupational therapy practice.	Yes	Strongly agree	0.512348	100
16	Rural-based occupational therapists need sound management skills.	Yes	Strongly agree	0.500000	100
17	Rural-based occupational therapists must be able to clearly and succinctly promote occupational therapy to all stakeholders.	Yes	Strongly agree	0.447214	100
18	Rural-based occupational therapists should have a focus on disability prevention (primary, secondary, tertiary) through campaigns, education of others, and direct treatment.	Yes	Strongly agree	0.512348	100
19	Rural-based occupational therapists should be equipped to organise and host health promotion campaigns.	Yes	Agree	0.683130	87,5
20	Rural-based occupational therapists require knowledge regarding South African health policies.	Yes	Strongly agree	0.478714	100
21	Rural-based occupational therapists require knowledge regarding South African health systems.	Yes	Strongly agree	0.447214	100
22	Rural-based occupational therapists require knowledge regarding communication at different levels of South African healthcare and management.	Yes	Strongly agree	0.516398	100
23	Communication skills and competency in interpersonal relationships are crucial skills for rural-based occupational therapists.	Yes	Strongly agree	0.250000	100
24	Rural-based occupational therapists must be fluent in health literacy in order to be able to communicate effectively with clients who may have low health literacy.	Yes	Strongly agree	0.447214	100
25	Rural-based occupational therapists need to be resilient.	Yes	Strongly agree	0.543906	93,75

26	Rural-based occupational therapists need to be flexible, adaptable, and resourceful.	Yes	Strongly agree	0.793200	93,75
27	Rural-based occupational therapists must be able to problem solve and be quick thinking.	Yes	Strongly agree	0.000000	100
28	Rural-based occupational therapists must exhibit cultural humility.	Yes	Strongly agree	0.447214	100
29	Rural-based occupational therapists must be able to understand the community.	Yes	Strongly agree	0.403113	100
30	Rural-based occupational therapists need to be skilled at interprofessional and collaborative practice as these form an important part of rural health.	Yes	Strongly agree	0.447214	100
31	Rural-based occupational therapists need to be able to speak and understand an African language (with some degree of fluency) that is common in a rural area in order to be able to effectively communicate with all stakeholders in the community. Languages may include Sesotho sa Leboa, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, isiNdebele, isiXhosa, isiZulu, English, or Afrikaans.	Yes	Agree	0.619139	93,75
32	Methods for delivery of postgraduate educational content may be electronic or internet based.	Yes	Agree	0.577350	93,75
33	Methods for delivery of postgraduate educational content may be face-to-face, in-person.	Yes	Agree	0.573730	87,5
34	Methods for delivery of postgraduate educational content may be a combination of face-to-face and electronic/internet based.	Yes	Strongly agree	0.516398	100
35	Methods for delivery of postgraduate educational content may make use of teleconferencing.	Yes	Agree	0.442531	93,75
36	Methods for delivery of postgraduate educational content may make use of videoconferencing.	Yes	Agree	0.543906	93,75

Table 2-6 Survey 1 results

No	Statement	Consensus	Mean	SD	Percentage consensus
1	Rural-based occupational therapists need to be able to practice as rural-generalists. This requires a rural-specific knowledge base and approach to practice. This includes being equipped with low-cost techniques and resources that are adaptable for different cultures and specific needs.	Yes	Strongly agree	0.363137	100
2	To become a "specialist generalist", rural-based occupational therapists require substantial time working in rural areas to build up the necessary expertise to become a "specialist generalist", however, this does not preclude the rural-based occupational therapist from developing areas of specialist interest.	Yes	Strongly agree	0.425815	100
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community. This should occur within healthy collaborative team relationships and should be done within safe boundaries, built on the necessary expertise.	Yes	Strongly agree	0.851631	92,86
4	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology, however, the rural-based occupational therapist needs to retain a core focus on function and participation.	Yes	Strongly agree	0.497245	100
5	In responding to extensive needs within the community and inevitable staff shortages, the rural-based occupational therapist needs to be able to prioritise interventions that will have the greatest impact and be effective. This includes being adept at implementing group-based therapy and programme-based intervention.	Yes	Strongly agree	0.363137	100
6	Rural-based occupational therapists should be adept with networking, accessing and effectively utilising resources available through private individuals and organisations.	Yes	Strongly agree	0.513553	100

7	In providing safe and appropriate assistive devices rural-based occupational therapists should be able to employ innovative and resourceful techniques to make assistive devices. Good partnerships with organisations that manufacture assistive devices and orthotics and prosthetics managers may also streamline the process of ordering, prescribing, and issuing appropriate devices.	Yes	Strongly agree	0.497245	100
8	Rural-based occupational therapists should be adept at using low-cost splinting materials and alternative modalities when commercial splinting material is not available.	Yes	Agree	0.497245	100
9	Rural-based occupational therapists should be able to advocate for and be competent in the appropriate use of interpreters (spoken communication) and translators (written communication e.g., home programmes) in clinical and community settings.	Yes	Strongly agree	0.497245	100
10	Rural-based occupational therapists should be able to speak at least one Nguni based language (with some degree of fluency) if the therapist speaks English/Afrikaans as their main language.	No	Agree	0.730046	Consensus not achieved
11	Rural-based occupational therapists should have knowledge of and be responsive to local health beliefs, and health communication should take these into account.	Yes	Strongly agree	0.518875	100
12	It is important for rural-based occupational therapists to be skilled in the use of telehealth as a treatment platform for reaching remote clients and performing virtual home visits/assessments (where there is access to the necessary resources).	No	Agree	0.854850	Consensus not achieved
13	Rural-based occupational therapists should be skilled at telehealth aimed at consulting with other occupational therapists and field specialists (where there is access to the necessary resources).	Yes	Strongly agree	0.755929	85,71
14	Although additional clinical input is helpful, applying knowledge in context and robust clinical reasoning (including ethical	Yes	Strongly agree	0.363137	100

	reasoning) is essential to advanced rural-based occupational therapy practice.				
15	Rural-based occupational therapists should be competent in information management in order to manage complex caseloads of hard-to-reach clients.	Yes	Strongly agree	0.646206	92,86
16	The rural-based occupational therapist should consider vocational rehabilitation as a multi-departmental task (Department of Health, Social Development, Education etc.) and therefore they need to be equipped to liaise with other governmental departments in order to facilitate the establishment of new vocational and prevocational skills training and community centres, appropriate for people with or without disabilities.	Yes	Agree	0.513553	100
17	Rural-based occupational therapists should be competent in pre-vocational skills training, basic work adaptation, facilitating phased return to work, and facilitating self-employment or income generation groups. This should occur within the contextual realities of rural settings and rural-based occupational therapists should be able to respond according to available resources.	Yes	Agree	0.646206	92,86
18	Rural-based occupational therapists should be competent in supporting people with disabilities in "using their grant money to make more money" where opportunities for formal employment are rare/non-existent.	No	Agree	0.960769	Consensus not achieved
19	Rural-based occupational therapists should be competent in performing disability grant assessments.	Yes	Agree	0.646206	92,86
20	Rural-based occupational therapists should be competent in facilitating disability inclusive development within communities.	Yes	Strongly agree	0.497245	100
21	Rural-based occupational therapists need to be able to establish and contribute to sustainable services.	Yes	Strongly agree	0.518875	100
22	Rural-based occupational therapists should assist in limiting interruptions in service delivery caused by annual staff turnover	Yes	Agree	0.726273	85,71

	by pursuing strategies for permanent post creation and recruitment and retention of staff.				
23	Rural-based occupational therapists should be aware of and adept at accessing resources that enable them to remain "up-to-date" with evidence-based practice and current trends in therapy in a time and cost efficient manner.	Yes	Strongly agree	0.468807	100
24	A strong base in teamwork is needed for rural-based occupational therapists.	Yes	Strongly agree	0.363137	100
25	Necessary for rural-based occupational therapy is a support system (within or outside the health facility) aimed at supporting rural-based occupational therapists' resilience and longevity within advanced rural practice and to allow therapists to authentically share their experiences and the realities that they are exposed to.	Yes	Strongly agree	0.363137	100

Table 2-7 Survey 2 results

2.6.4 Full statement list of all statements that achieved consensus

Table 2-8 presents the full list of all statements that achieved consensus (n=57). These are the statements that can be used for the development of a postgraduate programme for rural-based occupational therapists in South Africa, as they represent competencies that an expert panel have deemed to be necessary for rural practice. They have also been categorised according to the objectives of this study.

No	Final statement list	Knowledge	Skill	Professional behaviour/ attitude	Methods of delivery
1	Rural-based occupational therapists need to be able to practice as skilled and knowledgeable generalist occupational therapists.	X	X		
2	Rural-based occupational therapists need to be competent across their	X	X		

	scope, and be capable of determining and addressing gaps in their knowledge.				
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community.	X	X		
4	Case load management, prioritisation and planning are crucial skills in rural occupational therapy.	X	X		
5	Rural-based occupational therapists need good assessment skills, and need to be able to assess quickly and with limited use of resources, in varied settings.	X	X		
6	Rural-based occupational therapists need to be skilled in addressing the social determinants of health and occupational justice issues.	X	X		
7	Rural-based occupational therapists should have advanced knowledge of assistive devices, including ordering, appropriate prescription and issuing, and maintenance of devices.	X	X		
8	Rural-based occupational therapists must be able to assist with appropriate, cost effective, and limited resource home adaptations.	X	X		
9	Rural-based occupational therapists should be trained in community based rehabilitation (CBR).	X	X		
10	Splinting is an important and valuable skill in rural occupational therapy practice, and should be developed further as a practical component of a postgraduate course.	X	X		

11	Rural-based occupational therapists need to be able to provide vocational rehabilitation.	X	X		
12	Rural-based occupational therapists need theoretical and practical knowledge on functional anatomy.	X	X		
13	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology.	X	X		
14	Good administration skills are crucial for efficient rural-based occupational therapy practice.	X	X		
15	Rural-based occupational therapists need sound management skills.	X	X	X	
16	Rural-based occupational therapists must be able to clearly and succinctly promote occupational therapy to all stakeholders.	X	X	X	
17	Rural-based occupational therapists should have a focus on disability prevention (primary, secondary, tertiary) through campaigns, education of others, and direct treatment.	X	X		
18	Rural-based occupational therapists should be equipped to organise and host health promotion campaigns.	X	X		
19	Rural-based occupational therapists require knowledge regarding South African health policies.	X			
20	Rural-based occupational therapists require knowledge regarding South African health systems.	X			
21	Rural-based occupational therapists require knowledge regarding communication at different levels of South African healthcare and	X			

	management.				
22	Communication skills and competency in interpersonal relationships are crucial skills for rural-based occupational therapists.	X	X	X	
23	Rural-based occupational therapists must be fluent in health literacy in order to be able to communicate effectively with clients who may have low health literacy.	X	X		
24	Rural-based occupational therapists need to be resilient.			X	
25	Rural-based occupational therapists need to be flexible, adaptable, and resourceful.			X	
26	Rural-based occupational therapists must be able to problem solve and be quick thinking.	X	X		
27	Rural-based occupational therapists must exhibit cultural humility.			X	
28	Rural-based occupational therapists must be able to understand the community.	X			
29	Rural-based occupational therapists need to be skilled at interprofessional and collaborative practice as these form an important part of rural health.	X	X	X	
30	Rural-based occupational therapists need to be able to speak and understand an African language (with some degree of fluency) that is common in a rural area in order to be able to effectively communicate with all stakeholders in the community. Languages may include Sesotho sa Leboa, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, isiNdebele, isiXhosa, isiZulu, English, or Afrikaans.	X	X		
31	Methods for delivery of postgraduate educational content may be electronic				X

	or internet based.				
32	Methods for delivery of postgraduate educational content may be face-to-face, in-person.				X
33	Methods for delivery of postgraduate educational content may be a combination of face-to-face and electronic/internet based.				X
34	Methods for delivery of postgraduate educational content may make use of teleconferencing.				X
35	Methods for delivery of postgraduate educational content may make use of videoconferencing.				X
36	Rural-based occupational therapists need to be able to practice as rural-generalists. This requires a rural-specific knowledge base and approach to practice. This includes being equipped with low-cost techniques and resources that are adaptable for different cultures and specific needs.	X	X		
37	To become a "specialist generalist", rural-based occupational therapists require substantial time working in rural areas to build up the necessary expertise to become a "specialist generalist", however, this does not preclude the rural-based occupational therapist from developing areas of specialist interest.	X	X		
38	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community. This should occur within healthy collaborative team relationships and should be done within safe boundaries, built on the necessary expertise.	X	X		

39	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology, however, the rural-based occupational therapist needs to retain a core focus on function and participation.	X	X		
40	In responding to extensive needs within the community and inevitable staff shortages, the rural-based occupational therapist needs to be able to prioritise interventions that will have the greatest impact and be effective. This includes being adept at implementing group-based therapy and programme-based intervention.	X	X		
41	Rural-based occupational therapists should be adept with networking, accessing and effectively utilising resources available through private individuals and organisations.	X	X	X	
42	In providing safe and appropriate assistive devices rural-based occupational therapists should be able to employ innovative and resourceful techniques to make assistive devices. Good partnerships with organisations that manufacture assistive devices and orthotics and prosthetics managers may also streamline the process of ordering, prescribing, and issuing appropriate devices.	X	X	X	
43	Rural-based occupational therapists should be adept at using low-cost splinting materials and alternative modalities when commercial splinting material is not available.	X	X		
44	Rural-based occupational therapists should be able to advocate for and be	X	X	X	

	competent in the appropriate use of interpreters (spoken communication) and translators (written communication e.g., home programmes) in clinical and community settings.				
45	Rural-based occupational therapists should have knowledge of and be responsive to local health beliefs, and health communication should take these into account.	X	X	X	
46	Rural-based occupational therapists should be skilled at telehealth aimed at consulting with other occupational therapists and field specialists (where there is access to the necessary resources).	X	X		
47	Although additional clinical input is helpful, applying knowledge in context and robust clinical reasoning (including ethical reasoning) is essential to advanced rural-based occupational therapy practice.	X	X		
48	Rural-based occupational therapists should be competent in information management in order to manage complex caseloads of hard-to-reach clients.	X	X		
49	The rural-based occupational therapist should consider vocational rehabilitation as a multi-departmental task (Department of Health, Social Development, Education etc.) and therefore they need to be equipped to liaise with other governmental departments in order to facilitate the establishment of new vocational and prevocational skills training and community centres, appropriate for people with or without disabilities.	X	X	X	
50	Rural-based occupational therapists should be competent in pre-vocational skills training, basic work adaptation, facilitating phased return to work, and	X	X		

	facilitating self-employment or income generation groups. This should occur within the contextual realities of rural settings and rural-based occupational therapists should be able to respond according to available resources.				
51	Rural-based occupational therapists should be competent in performing disability grant assessments.	X	X		
52	Rural-based occupational therapists should be competent in facilitating disability inclusive development within communities.	X	X		
53	Rural-based occupational therapists need to be able to establish and contribute to sustainable services.	X	X		
54	Rural-based occupational therapists should assist in limiting interruptions in service delivery caused by annual staff turnover by pursuing strategies for permanent post creation and recruitment and retention of staff.	X	X	X	
55	Rural-based occupational therapists should be aware of and adept at accessing resources that enable them to remain "up-to-date" with evidence-based practice and current trends in therapy in a time and cost efficient manner.	X	X	X	
56	A strong base in teamwork is needed for rural-based occupational therapists.	X	X	X	
57	Necessary for rural-based occupational therapy is a support system (within or outside the health facility) aimed at supporting rural-based occupational therapists' resilience and longevity within advanced rural practice and to allow therapists to authentically share their experiences and the realities that they are exposed to.	X			

Table 2-8 Final statement list with statements from Survey 1 and 2 that achieved consensus, categorised with study objectives

2.6.5 Survey 2 participant comments

Participants' comments focused on various aspects related to the statements. Table 2-9 presents a summary of these comments, and Appendix E presents a full discussion of each statement. Non-consensus statements have been discussed in section 2.6.2.2.

Statement	Codes (n-value)
1: Rural-generalist	Cultural considerations (n=1)
	Understanding the context (n=1)
	Availability and usefulness of community resources (n=1)
2: "Specialist generalist"	Loss of generalist skills with specialisation (n=1)
	Opportunities for specialisation (n=1)
	Need for postgraduate training (n=1)
3: Scope extension	Need for holistic treatment (n=1)
	Assistance from professional associations is needed (n=1)
	Scope extension through teamwork (n=2)
4: Identifying common and rare underlying pathology	Clarity on diagnosis is not always the highest priority (n=2)
	Identification is difficult without personal experience (n=2)
	Difficulty experienced with referrals to other departments and need for therapists to be advocates for patients (n=1)
5: Prioritising most effective and impactful interventions	Group therapy and programme-based intervention (n=1)
	Creativity is necessary for efficient service delivery to a large number of patients (n=1)
	Therapists must consider their own interests in their decision-making regarding the most efficient interventions (n=1)
	Need for evidence-based practice and utilising the community (n=1)
6: Networking, accessing and effectively utilising resources	Availability of organisations (n=2) but some risk involved (n=1)
	External support is valuable and needed (n=1)
	Therapists need time to establish relationships with organisations (n=1)
7: Innovative and resourceful techniques to make assistive	Impractical and limited time may indicate possibility for community involvement but that that could pose new challenges in terms of payment and training (N=1)

devices	Need to follow correct routes and take care in the manufacturing (n=1)
	Good relationships with management assists in procurement and problem solving is key (n=1)
	Budgeting issues may hinder the process (n=1)
8: Use of low-cost splinting materials and alternative modalities when commercial splinting material is not available	Problem solving versus using rurality as an excuse for the lack of appropriate materials (n=1)
	Budget utilisation is necessary (n=1)
	Durability should be considered (n=1)
9: Use of interpreters and translators	Necessary for services to be developed (n=1)
	Lack of posts in public service (n=1)
	Therapists should rather learn to speak an African language (n=1)
	Use of home programmes to prevent unnecessary resource expenditure (n=1)
11: Health communication that takes local health belief into account	Knowledge and respect for traditional medicine is necessary (n=2) but evidence-based practice should be employed (n=1)
13: Telehealth aimed at consultation with specialists	Very important for CS therapists (n=1)
	Therapy programmes can be established through the “Vulamobile App” ⁴ (n=1)
14: Clinical reasoning	Should be the basis of intervention (n=1)
15: Information management	Facilitates identification of areas of need (n=1)
	Information sharing should be in a form that is accessible to patients (n=1)
16: Vocational rehabilitation as a multi-departmental task	Other governmental departments must liaise with department of health in community skills training centre development (n=2)
	Lengthy process requiring full commitment from therapists (n=1)
	Necessity of these projects to combat unemployment

⁴ This application allows healthcare workers to “receive advice on patient treatment plans and refer patients to specialist services and departments” (134).

	(n=1)
	Therapists must be involved in return-to-work processes (n=1)
	Other interventions may take priority over vocational rehabilitation (n=1)
17: Pre-vocational skills training, basic work adaptation, facilitating phased return to work, and facilitating self-employment or income generation groups	Difficult to perform these duties (n=3)
	Income generation groups are beneficial for other reasons (n=1)
19: Performance of disability grant assessments	Not the responsibility of the health facility employed occupational therapist (n=7)
	It is an important part of the health facility employed occupational therapist's duties (n=1)
	Health facility employed occupational therapist is an important team member especially for mental health cases (n=1)
	May provide a challenge in terms of compliance to treatment depending on the situation (n=1)
20: Facilitating disability inclusive development within communities	Therapists should be able to work with stakeholders who may be better positioned to perform these duties (n=1),
	Not the responsibility of the health facility employed occupational therapist (n=1)
	Area of speciality which would pose a challenge for junior therapists (n=1)
21: Rural-based occupational therapists need to be able to establish and contribute to sustainable services	Support of sustainability services (n=3)
	May be limited by specific budgetary and managerial restrictions, external organisations may be of assistance (n=1)
22: Limiting high staff turnover	Not the responsibility of the health facility employed occupational therapist rather that of the human resource (HR) department (n=1)
	Institutional organograms to which HR refers for staffing need to be reviewed based on the need identified per

	facility (n=1)
	District and provincial support is needed for change to occur (n=1)
	Important for therapists to understand the role of co-ordinators, budgeting and decision-making by HR, and how organograms are developed (n=1)
	Retention of staff is a mark of a healthy hospital (n=1)
	Service delivery interruptions are related to the fact that CS therapists are only employed at an institution for one year (n=1)
	Other issues external to the health facility contribute to the high staff turnover rates (n=1)
23: Accessing evidence-based resources	Evidence should be rural specific (n=1)
24: Teamwork	Teamwork is not always possible (n=1)
	Teamwork is essential in conflict resolution and communication (n=1)
	Transdisciplinary teamwork is needed in rural healthcare (n=1)
25: Support system	Therapists should know what is available to them, including online resources (n=1)

Table 2-9 Survey 2 comments

2.6.6 Additional comments added by participants

As with Survey 1, participants were given the opportunity to provide additional comments not specifically related to a statement. They were prompted to provide comments relevant to the study objectives. Experts commented on various aspects of rural-based occupational therapy, recognising challenges faced as well as additional educational content required.

Emma mentioned the need for occupational therapists to be employed in other governmental departments as rural-based occupational therapists often interact with these departments, and from her experience, “most often there's no follow through to the recommendations we make”.

Miranda recognised the need for rural-based occupational therapists to understand procurement processes, have knowledge of how to “advocate for budgets”, and how

to access the money once it has been approved. Additionally, Miranda noted that “wheelchair seating is also an essential skill required for a rural OT”. Lastly, she mentioned the importance of mental health intervention training for rural-based occupational therapists:

“At our hospital, where there are no psychology services, mental health management is often referred to OT for further counselling and intervention. This is often quite a large burden to bear. Equipping rural therapists with effective mental health intervention strategies and systems would be hugely beneficial”

Rachel provides the following suggestions:

“A lot is demanded of a good rural OT! It's essential that they are also able to [strategize] and prioritise, as well as pace themselves. A systems/big-picture perspective is essential.”

Gabby mentions that occupational therapists should “do a lot of self reflection and be very aware of what they are bringing to the situation”. In terms of a postgraduate programme for rural-based occupational therapists, she states the following:

“teaching OT's how to develop resilience, exceptional communication skills, change management knowledge and self awareness may be the most important [thing] to impart. Without this, no matter how much knowledge and skill the OT has, her potential impact will always be limited.”

Kim commented that more than theory was needed in rural practice. She provides the example of transdisciplinary teamwork:

“People learn of, and talk about the benefits of transdisciplinary teamwork but few know how to set shared goals for patients...[or] planning management as a team. We talk to each other and then go back and do our own thing in our [silos], scared to step on [the] toes of other professions”

Julie commented on the difficulty the development of a postgraduate programme might pose, and provided some suggestions for how to go about this:

“[It’s] going to be difficult to get everything in. Is there the option of working with other existing courses [e.g. vocational] rehab and getting them to offer a "rural oriented" block or series of workshops. Some of the knowledge and skills is not just relevant to OT, consider how to access existing Primary Health related courses for "common" knowledge and skills - this also builds up awareness of teams and working in teams, networking and using existing resources”

2.7 Discussion

The objectives of the study were to develop consensus on the postgraduate knowledge, skills, and professional behaviours and attitudes required by occupational therapists working in rural areas in South Africa, and to develop consensus on the most appropriate methods of delivery for this content. As shown in table 2-8, there is substantial overlap for these aspects of postgraduate education, and the discussion focusses on these aspects as they overlap. The results show that the challenges faced in rural healthcare in South Africa are similar to those experienced globally, and by extension, that the competencies required for rural practice are also largely universal.

The most overlap exists between the aspects of knowledge and skill, and as found in literature sourced globally, South African rural-based occupational therapists are also required to be skilled and knowledgeable generalists (21,22,26,38,44,59,62,63,66–71), competent across their scope (22,93) and able to extend their scope as needed through task-shifting (22,38,70,72). They must be skilled in case load management, prioritisation, and planning (22,38,59,62,64,65,74), and they need good assessment skills (22,25,38,65). They must be able to address the social determinants of health and occupational justice issues (84,85, 11), and must have advanced knowledge of assistive devices (38,64,92). Skills and knowledge in low cost and limited resource home adaptations (94), and in CBR (40,90,91) are important for the South African rural-based occupational therapist. The South African rural-based occupational therapist must be skilled in splinting (38,64), and vocational rehabilitation (95). They must have knowledge of functional anatomy (64), and be able to identify common and rare underlying pathology (22,38) and appropriately refer these patients. They must have good administration skills (62,65,72,74). Disability prevention and health promotion campaigns are part of the South African rural-based occupational therapist’s duties (22,57,58,60,61,63,64), and they must be fluent in health literacy

(56). They must be able to problem solve and be quick thinking (22,63,69,74), speak an African language with some degree of fluency (25,70,100), prioritise interventions with the greatest impact, and be skilled at telehealth aimed at consultation with specialists. Clinical reasoning, information management, pre-vocational skills training, disability grant assessments, disability inclusive development in the community, and the establishment of sustainable services are essential in rural practice.

The objective of knowledge is represented in the need for knowledge regarding South African health policies, systems, and communication at different levels of healthcare and management (38,59,64,74,75,77,78). Therapists also need to understand the community (21,22,66,75,76) and have a support system aimed at promoting their resilience and longevity within advanced rural practice.

The objective of professional behaviour and attitudes can be seen in the need for therapists to be resilient, flexible, adaptable, and resourceful (22,25,38,59,62,65,66,72–74). They must also exhibit cultural humility (25,60,62,65,66,70,72,73).

Considering the objectives of knowledge, skills, and professional behaviours and attitudes, management skills (22,38,62,64,65,78), communication skills and competency in interpersonal relationships (22,38,62,65,72,77,78,82,84), and the ability to clearly and succinctly promote occupational therapy to all stakeholders (22,38,59,62,65) are important. Competence in interprofessional and collaborative practice (22,63,65,69,79–85), networking and utilisation of external resources, and innovation with assistive device fabrication are also necessary. Finally, the use of interpreters and translators, responsiveness to local health beliefs, approaching vocational rehabilitation as a multi-departmental task, pursuit of strategies for permanent post creation, evidence-based practice, and a strong base in teamwork are essential.

While vocational rehabilitation (95) was found to be an important aspect of rural occupational therapy practice, participants expanded on this by mentioning the importance of income generation through means other than formal employment. This is a new aspect of rural practice that was not found in the initial literature search. This aspect speaks to the need in rural areas - data from Statistics South Africa (23) show that 68.8% of rural residents experience poverty. Considering these high levels of poverty and the limitations patients might experience in returning to work with a

disability, facilitating/encouraging income generation through other means is an important rural practice skill for an occupational therapist.

Although consensus had been achieved on the need for South African rural-based occupational therapists to have some fluency in an African language, limiting this to a Nguni based language – as had been suggested by a participant during Survey 1 and therefore developed as a statement in Survey 2 – posed a challenge. Participants felt that fluency was not necessary, indicating that action words may be sufficient. They also felt that therapists needed to be willing to learn, but that fluency need not be a requirement to start off with. Another participant mentioned that while it would be beneficial for therapists to know some phrases that are useful for therapy and that an interpreter would assist, language barriers should not be barriers to effective treatment. There is, therefore, strong support for a postgraduate programme to possibly include specific communication aspects. These include the option of a short course on a South African language (chosen by the student), teaching students alternative communication methods and skills, or providing language resources for therapy that include important words relevant to daily practice.

While skills in telehealth as a treatment platform is noted to be important in other countries (96), as mentioned by participants, in South Africa this presents various issues. The issues mentioned by participants related to infrastructure and resources in rural areas. A study on telehealth in rural and remote Australia found that there were several aspects that could either assist with or hinder telehealth in these areas (126). The noteworthy aspect for South African rural areas, based on feedback from participants, is “*Equipment* related to consideration of infrastructure” (p. 8) (126). This aspect is significant, as all other aspects mentioned (vision, ownership, adaptability, economics, and efficiency) (126) cannot be considered without the correct infrastructure in place. Infrastructure and resources for telehealth, regardless of what telehealth is used for, is the basis on which this service must be built. The aspect of telehealth that did achieve consensus in this study, telehealth as a method of acquiring specialist input or consultation, would, therefore, also be limited. As with telehealth as a treatment platform, if there is limited network or equipment in rural healthcare facilities, therapists requiring specialist consultation through telehealth would not be able to access this service. So, while telehealth for specialist input may be important to the rural-based occupational therapist, the very setting that requires this may also hinder its use.

While vocational rehabilitation (95) was found to be an important aspect of rural occupational therapy practice, participants expanded on this by mentioning the importance of income generation through means other than formal employment. This is a new aspect of rural practice that was not found in the initial literature search. This aspect speaks to the need in rural areas - data from Statistics South Africa (23) show that 68.8% of rural residents experience poverty. Considering these high levels of poverty and the limitations patients might experience in returning to work with a disability, facilitating/encouraging income generation through other means is an important rural practice skill for an occupational therapist.

Although consensus had been achieved on the need for South African rural-based occupational therapists to have some fluency in an African language, limiting this to a Nguni based language – as had been suggested by a participant during Survey 1 and therefore developed as a statement in Survey 2 – posed a challenge. Participants felt that fluency was not necessary, indicating that action words may be sufficient. They also felt that therapists needed to be willing to learn, but that fluency need not be a requirement to start off with. Another participant mentioned that while it would be beneficial for therapists to know some phrases that are useful for therapy and that an interpreter would assist, language barriers should not be barriers to effective treatment. There is, therefore, strong support for a postgraduate programme to possibly include specific communication aspects. These include the option of a short course on a South African language (chosen by the student), teaching students alternative communication methods and skills, or providing language resources for therapy that include important words relevant to daily practice.

While skills in telehealth as a treatment platform is noted to be important in other countries (96), as mentioned by participants, in South Africa this presents various issues. The issues mentioned by participants related to infrastructure and resources in rural areas. A study on telehealth in rural and remote Australia found that there were several aspects that could either assist with or hinder telehealth in these areas (126). The noteworthy aspect for South African rural areas, based on feedback from participants, is “*Equipment* related to consideration of infrastructure” (p. 8) (126). This aspect is significant, as all other aspects mentioned (vision, ownership, adaptability, economics, and efficiency) (126) cannot be considered without the correct infrastructure in place. Infrastructure and resources for telehealth, regardless of what telehealth is used for, is the basis on which this service must be built. The aspect of

telehealth that did achieve consensus in this study, telehealth as a method of acquiring specialist input or consultation, would, therefore, also be limited. As with telehealth as a treatment platform, if there is limited network or equipment in rural healthcare facilities, therapists requiring specialist consultation through telehealth would not be able to access this service. So, while telehealth for specialist input may be important to the rural-based occupational therapist, the very setting that requires this may also hinder its use.

In terms of methods of delivery for postgraduate education content, various options were found in literature, and results show that South African rural-based occupational therapists require content that is delivered in a variety of ways, including electronic/internet based methods (53,103,104,106,108,109), and face-to-face methods (102–104). This means that providing different options or a combination of face-to-face and internet-based methods might be most appropriate for the delivery of education content to rural-based occupational therapists. Literature's recommendation of "innovative" (p. 186) (50) techniques needs to be acted on. Following the COVID-19 pandemic, calls are being made for universities to rethink their strategic positioning for societal impact, and innovation is key to pursuing this (127). What 'innovation' may look like for a rural postgraduate program goes beyond the scope of this paper. However, the six aspects of student-centred learning synthesised by Bremner (128) may provide valuable foundations on which these innovations can be developed. "Active participation, adapting to needs, autonomy, relevant skills, power sharing and formative assessment" should be explored (p.159) (128). Co-design of a postgraduate curriculum (129) by rural therapists and educators/curriculum experts should be explored as a way of achieving this.

A noteworthy comment made by a participant during Survey 2 related to the retention issues rural facilities face. According to literature, some of the issues related to retention include the quality of working and living conditions, availability and quality of supervision, stimulation of the work environment, job satisfaction, prevalence of disease, availability of resources, and infrastructure (19). Some of these issues were also mentioned by the participant, suggesting that some of the challenges of rural healthcare are pervasive and difficult to address. However, one of the ways the retention of healthcare workers can be boosted is through opportunity for career development in the form of "further professional training"(p. 6) (19), which an appropriate postgraduate education programme would assist with. Therefore, while

some retention challenges are difficult to address, the provision of an appropriate postgraduate programme for rural-based occupational therapists may assist in retention efforts.

In terms of the means of the two surveys, Survey 1 results show that 78% of statements had a mean of 'strongly agree' (n=28), 19% had a mean of 'agree' (n=7), and 3% had a mean of 'disagree' (n=1). For Survey 2, 68% of statements had a mean of 'strongly agree' (n=17), and 32% had a mean of 'agree' (n=8). This shows that the majority of all statements at 74% had a mean of 'strongly agree' (n=45), while 25% had a mean of 'agree' (n=15).

This shows that many of the themes of these statements may be used in the development of a postgraduate programme for rural-based occupational therapists. No such programme currently exists, but it is possible that, as one participant suggested, modules from other programmes may be used or adapted to suit rural practice and incorporated into a programme catering specifically to the rural-based occupational therapist in South Africa. Many aspects mentioned are universal rural healthcare competencies and practice requirements, indicating that developing a programme positioned as a multidiscipline rural postgraduate programme for the first year, with discipline specific content to be addressed in the second year might also be both viable and responsive to the need. Table 2-10 presents a possible interpretation of the results based on the statement themes that achieved consensus in the study. It presents the content for a possible postgraduate programme in terms of general and occupational therapy specific content. An infographic of this information has also been included as Appendix F.

General skills and knowledge	Occupational therapy specific competencies
Administration and management skills	Promotion of occupational therapy
Information management	Establishment of and contribution to sustainable services
Case load management, planning, and prioritisation	Networking, accessing and effectively utilising resources
Strategies for permanent post creation and recruitment and retention of staff	Competency in generalist skills and knowledge
Knowledge regarding South African health policies, systems, and communication and	Assessment skills

different levels of management and healthcare	
Disability prevention and health promotion	Assistive devices skills and knowledge
Facilitation of disability inclusive development	Splinting
Communication skills and interpersonal relationship competency	Splinting with alternative materials
Interprofessional and collaborative practice	Group-based therapy
Teamwork	Programme-based intervention
Scope extension	Community based rehabilitation
Working with interpreters and translators	Addressing occupational justice issues
African language – some fluency	Low cost and limited resource home adaptations
Health literacy fluency	Vocational rehabilitation including basic work adaptation and phased return to work
Cultural humility and understanding the community	Development of new vocational and prevocational skills training and community centres through liaison with other government departments
Resilience, flexibility, adaptability, resourcefulness, problem solving skills	Pre-vocational skills training
Competence in accessing resources for rural evidence-based practice	Facilitation of self-employment or income generation groups
Telehealth for specialist consultation	Disability grant assessments
Clinical reasoning	
Addressing social determinants of health	

Table 2-10 Statement themes for general and occupational therapy specific content for a possible postgraduate programme

2.8 Limitations

The setting of this study – online with rural-based occupational therapists – posed various challenges. Signal cannot always be guaranteed in a rural area, and therapists are busy people, with significant delays in responses being the result. This resulted in an extended data collection period, and ultimately in two participants withdrawing from the study during the second round. These limitations excluded the possibility of a third round with participants, although this may have been beneficial to establish clarity and expand on new themes that emerged in the second round. The Covid-19 pandemic further limited the study as the initial recruitment of participants

would have been conducted at the South African annual rural health conference in 2020 or 2021, which unfortunately had to be postponed indefinitely. This meant that very few participants could be recruited through online means and snowballing, resulting in a small, albeit valuable, sample.

2.9 Conclusion

The results of this study provide a strong base for the development of an appropriate postgraduate programme for rural-based occupational therapists in South Africa. Currently, no individual such programme exists, but existing programmes may be adjusted to accommodate the specific rural competencies required, and then combined in a full programme that addresses the competencies identified in this study. Further research may be needed to ensure that such a generalist programme would be viable and valuable, with the option of extending it beyond rural-based occupational therapists to South African occupational therapists working in a generalist capacity in any area. Another option for postgraduate programme development is using a transdisciplinary approach, whereby the programme would cater for several disciplines in the first year and become discipline specific in the second. The last option is the use of a global strategy for a postgraduate programme. Such a programme could include international rural healthcare experts working collaboratively to present a postgraduate course catering to rural therapists globally, thereby sharing resources and expertise, and promoting accessibility for rural-based therapists in their professional development.

2.10 Acknowledgements

The authors would like to sincerely thank every participant for sharing their invaluable knowledge, experience, and time.

Chapter 3 Synthesis

3.1 Strengths and limitations

3.1.1 Strengths

This study is the first to report on the postgraduate education needs of rural-based occupational therapists in South Africa. The use of an expert panel allowed for a rich study with valuable results. Many of these results can be applied to other disciplines serving rural populations, and all are universal to rural healthcare. The results prompted many recommendations for postgraduate programme development, policymaking, and the employment of occupational therapists. This study also contributed uniquely to the understanding of what is important to and needed by the rural population – income generation through means other than formal employment. This aspect of rural occupational therapy practice was not found in the initial literature review and is an extremely important consideration for the population served in rural areas and should therefore be considered for a postgraduate programme. While consensus studies with expert panels may have a lower evidence level than some other types of research (130), this particular study proved to be of high value. Firstly, the findings of this study correlate with international literature, providing further support for the application of results. Secondly, considering the uniqueness of rural healthcare, expert (consensus) opinion based on lived experience provides invaluable information that may be difficult, if not impossible, to ascertain through other research methods. For this particular subject, using an expert panel consensus method was the most appropriate method of answering the research question.

3.1.2 Limitations

The setting of this study – online with rural-based occupational therapists – posed various challenges. Signal cannot always be guaranteed in a rural area, and therapists are busy people, with significant delays in responses being the result. This resulted in an extended data collection period, and ultimately in two participants withdrawing from the study during the second round. These limitations excluded the possibility of a third round with participants, although this may have been beneficial to establish clarity and expand on new themes that emerged in the second round. The Covid-19 pandemic further limited the study as the initial recruitment of participants would have been conducted at the South African annual rural health conference in 2020 or 2021, which unfortunately had to be postponed indefinitely. This meant that

very few participants could be recruited through online means and snowballing, resulting in a small, albeit valuable, sample.

3.2 Recommendations

Recommendations focus on the development of a postgraduate programme, policy making, the employment of occupational therapists, and distribution of findings to participants and stakeholders. There are various options for a postgraduate programme available for exploration, and recommendations for each of these are made in this section. A hybrid of these recommendations should also be considered:

3.2.1 Collaboratively applying the research findings to actions for education

It is recommended that the results of this study be presented in a workshop to a group of rural-based occupational therapists, representatives from tertiary institutions in South Africa and other relevant stakeholders (e.g., RuReSA, and the Occupational Therapy Association of South Africa, among others). From this workshop, plans for the development of an appropriate postgraduate programme (i.e., accredited short courses, a postgraduate diploma, or a master's degree) may be collaboratively generated and potential roadblocks to the establishment of such a programme be identified and addressed.

3.2.2 Exploring a transdisciplinary approach

The opportunity to develop a transdisciplinary programme should also be explored. This involves a similar process as mentioned above, but would include other disciplines (physiotherapy, speech therapy, audiology, and dietetics, with the option of including others) in a workshop. In this case, the general competencies as mentioned previously should be evaluated and discussed as a group, and then discipline specific competencies further discussed in smaller, discipline specific groups.

3.2.3 Joint-postgraduate programmes: harnessing international resources for global benefit

Another option is that of developing a postgraduate programme for rural-based occupational therapists using a global strategy. This will allow international rural health experts to contribute meaningfully and collaboratively to a postgraduate programme that will be accessible to a large number of healthcare workers from countries around the world. Such a programme would reduce inequalities in and between countries, promote quality education, the sharing of available resources

through partnerships, and good health and well-being, all of which are United Nations sustainable development goals (131).

3.2.4 Policy making

It is also recommended that South African healthcare policymakers liaise with stakeholders working in all areas, but specifically those working in challenging, under resourced areas, in order to understand and subsequently address the situation and need. Rural areas will especially benefit from this practice, as rural life and healthcare is unique and requires unique understanding and policymaking.

3.2.5 Employment of occupational therapists across government departments

Another recommendation is employing occupational therapists in other government departments (besides health). This was suggested by an expert in the study who mentioned that this may improve service delivery. Other benefits may include better communication between departments and promotion and better knowledge of occupational therapy, which may assist in necessary job creation nationally.

3.2.6 Distribution of findings to participants and relevant stakeholders

It is recommended that feedback on the results of this study be made available to participants and relevant stakeholders using an infographic (Appendix F) accompanied by a short report of the findings, at their request (as set out in the information letter).

These recommendations will assist in addressing the inequities experienced by the rural population. Improved training of healthcare workers, better policies for service delivery and health practice in rural areas, and better communication and liaison between government departments will all ultimately promote equitable healthcare for rural South African populations.

3.3 Conclusion

This study aimed to develop consensus on the postgraduate education needs of occupational therapists in rural areas in South Africa. The objectives addressing this aim focused on the postgraduate knowledge, skills, attitudes and professional behaviours required by occupational therapists in rural areas in South Africa. One objective also focused on the most appropriate method of delivery for a postgraduate programme.

The use of a modified Delphi technique with an expert panel allowed this aim to be achieved. The results of this study provide a variety of discipline specific and general competencies that are required in rural occupational therapy practice in South Africa. Most of these competencies are universal for rural-based occupational therapists, demonstrating the unique challenge that rural practice poses, regardless of geographical area. Consensus was also achieved on the most appropriate methods of delivery for a postgraduate programme for rural-based occupational therapists. Results show that the flexibility of a combination of face-to-face and online methods may be most appropriate. During the study, participants were able to share their lived experience, also shared by others, and subsequently provide a fuller picture of the need. This allows tertiary institutions to be responsive to that need in a realistic and practical way, and therefore equip healthcare workers to address the great need in rural areas – the health of the people.

References

1. Hammer DP. Professional Attitudes and Behaviors: The “A’s and B’s” of Professionalism. *Am J Pharm Educ* [Internet]. 2000;64:455–64. Available from: <http://www.aacp.org/resources/studentaffairspersonnel/studentaffairspolicies/documents/asandbsofprofessionalism.pdf>
2. Reid S. Community Service for Health Professionals. In: *South African Health Review 2002* [Internet]. 2002. p. 135–60. Available from: <http://www.hst.org.za/sahr/>
3. Salkind NJ, Frey BB, Dougherty DM, editors. *Encyclopedia of Research Design* [Internet]. First edit. California: Sage Publications, Inc.; 2010. Available from: <https://dx.doi.org/10.4135/9781412961288>
4. Merriam-Webster. Knowledge | Definition of Knowledge by Merriam-Webster [Internet]. 2021 [cited 2021 Sep 2]. Available from: <https://www.merriam-webster.com/dictionary/knowledge>
5. Merriam-Webster. Skills | Definition of Skills by Merriam-Webster [Internet]. 2021 [cited 2021 Sep 2]. Available from: <https://www.merriam-webster.com/dictionary/skills>
6. The Constitution of the Republic of South Africa [Internet]. 1996. 1–182 p. Available from: <https://dio.org/10.1017/S0021855300011499>
7. Republic of South Africa Department of Health. *National Health Insurance Healthcare for all South Africans*. Pretoria; p. 1–7.
8. Gaede B, Versteeg M. The State of the Right to Health in Rural South Africa. *South African Heal Rev* [Internet]. 2011;99–106. Available from: <http://www.hst.org.za/publications/south-african-health-review-2011>
9. Reid SJ. Rural health and transformation in South Africa. *South African Med J* [Internet]. 2006;96(8):676–7. Available from: <https://journals.co.za/doi/pdf/10.10520/EJC68805>
10. Kok P, Collinson M. Migration and urbanisation in South Africa [Internet]. Pretoria; 2006. Available from: https://www.researchgate.net/profile/Pieter-Kok-2/publication/236144246_Migration_and_urbanization_in_South_Africa/links/0c96051702284d1b0b000000/Migration-and-urbanization-in-South-Africa.pdf

11. South Africa - Rural Population [Internet]. Trading Economics. 2020 [cited 2020 Mar 17]. Available from: <https://tradingeconomics.com/south-africa/rural-population-percent-of-total-population-wb-data.html>
12. Reid S. The rural determinants of health: Using critical realism as a theoretical framework. Rural Remote Health [Internet]. 2019;19(3). Available from: <https://doi.org/10.22605/RRH5184>
13. Statistics South Africa. General Household Survey 2017 [Internet]. Statistical Release P0318. Pretoria; 2018. Available from: <https://www.statssa.gov.za/publications/P0318/P03182017.pdf>
14. Statistics South Africa. Mortality and causes of death in South Africa, 2015: Findings from death notification [Internet]. Statistical release P0309.3. Pretoria; 2017. Available from: <http://www.statssa.gov.za/publications/P03093/P030932015.pdf>
15. Day C, Gray A, Ndlovu N. Health and Related Indicators. South African Health Rev [Internet]. 2018;139–250. Available from: http://reference.sabinet.co.za/sa_epublication_article/healthr_2012_2013_a19
16. Jamieson L, Berry L, Lake L. The South African Child Gauge 2017 [Internet]. Children's Institute, University of Cape Town. Cape Town; 2017. Available from: http://www.ci.uct.ac.za/sites/default/files/image_tool/images/367/Child_Gauge/South_African_Child_Gauge_2017/Child_Gauge_2017_lowres.pdf
17. Bateman C. 'One size fits all' health policies crippling rural rehab - therapists. South African Med J [Internet]. 2012 [cited 2020 Apr 15];102(4). Available from: <http://www.samj.org.za/index.php/samj/article/view/5806/3970>
18. Rural Health Advocacy Project. Rural Health Fact Sheet 2015. 2015;1–92. Available from: <http://www.rhap.org.za/wp-content/uploads/2015/09/RHAP-Rural-Health-Fact-Sheet-2015-web.pdf>
19. Lehmann U, Dieleman M, Martineau T. Staffing remote rural areas in middle- and low-income countries: A literature review of attraction and retention. BMC Health Serv Res [Internet]. 2008;8:1–10. Available from: <http://www.biomedcentral.com/1472-6963/8/19%0AReceived:>

20. Eagar D, Rensburg R, Versteeg-Mojanaga M. Protecting Rural Healthcare in Times of Economic Crisis There is Another Way An Overview [Internet]. 2019. Available from: https://www.groundup.org.za/media/uploads/documents/Austerity_report_FINAL.pdf
21. Stagnitti K. Occupational therapy practice in rural and remote South Australia. Aust J Rural Health [Internet]. 2008;16(5):253–4. Available from: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1440-1584.2008.01002.x>
22. Roots RK, Brown H, Bainbridge L, Li LC. Rural rehabilitation practice: perspectives of occupational therapists and physical therapists in British Columbia, Canada. Rural Remote Health [Internet]. 2014;14:1–16. Available from: <https://doi.org/10.22605/RRH2506>
23. STATS SA, Unicef, Social Policy Research Institute. Child Poverty in South Africa: A Multiple Overlapping Deprivation Analysis [Internet]. Pretoria; 2020. Available from: <http://www.statssa.gov.za/publications/03-10-22/03-10-22June2020.pdf>
24. International Labour Office. Global evidence on inequities in rural health protection New data on rural deficits in health coverage for 174 countries [Internet]. Geneva; 2015. Available from: <http://www.social-protection.org/gimi/gess/RessourcePDF.action?id=51297>
25. van Stormbroek K, Buchanan H. Novice occupational therapists: Navigating complex practice contexts in South Africa. Aust Occup Ther J [Internet]. 2019;66:469–81. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/1440-1630.12564>
26. Lee S, Mackenzie L. Starting out in rural new South Wales: The experiences of new graduate occupational therapists. Aust J Rural Health [Internet]. 2003;11(1):36–43. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1440-1584.2003.00476.x>
27. Tryssenaar J, Perkins J. From Student to therapist: Exploring the First Year of Practice. Am J Occup Ther [Internet]. 2001;55(1):19–27. Available from: <https://doi.org/10.5014/ajot.55.1.19>
28. Versteeg M, du Toit L, Couper I. Building consensus on key priorities for rural

- health care in South Africa using the Delphi technique. *Glob Health Action* [Internet]. 2013;6:119–26. Available from: <http://dx.doi.org/10.3402/gha.v6i0.19522>
29. Statistics South Africa. Poverty Trends in South Africa: An examination of absolute poverty between 2006 and 2011 [Internet]. Statistics South Africa. 2014. 1–84 p. Available from: https://www.gov.za/sites/default/files/gcis_document/201409/povertytrends03a pril2014.pdf
 30. Gray A, Vawda Y, Masilela TC, Foster R, Chetty M, Moleko W, et al. South African Health Review 2013/2014. 2014;1–365. Available from: url: <http://www.hst.org.za/publications/south-african-health-review-2013/14>
 31. Ned L, Tiwari R, Buchanan H, Van Niekerk L, Sherry K, Chikte U. Changing demographic trends among South African occupational therapists: 2002 to 2018. *Hum Resour Health* [Internet]. 2020;18(22):1–12. Available from: <https://doi.org/10.1186/s12960-020-0464-3>
 32. Department of Water & Sanitation. Factsheet: The Blue Drop: Highlights and Trends from 2009 to 2014 [Internet]. 2015. Available from: <https://www.wrc.org.za/wp-content/uploads/mdocs/The Blue Drop Factsheet.pdf>
 33. World Health Organization. Social determinants of health [Internet]. 2022 [cited 2022 Jan 11]. Available from: https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1
 34. Obrist B, Iteba N, Lengeler C, Makemba A, Mshana C, Nathan R, et al. Access to Health Care in Contexts of Livelihood Insecurity: A Framework for Analysis and Action. *PLOS Med* [Internet]. 2007;4(10):1584–8. Available from: <https://doi.org/10.1371/journal.pmed.0040308>
 35. World Health Organization. Everybody's business Strengthening health systems to improve health outcomes WHO's framework for action [Internet]. Geneva; 2007. Available from: https://apps.who.int/iris/bitstream/handle/10665/43918/9789241596077_eng.pdf?sequence=1&isAllowed=y
 36. Hussey N. The Language Barrier: The overlooked challenge to equitable health

- care. In: South African Health Review 2012/2013 [Internet]. 2012. p. 189–95. Available from: http://reference.sabinet.co.za/webx/access/electronic_journals/healthr/healthr_2012_2013_a17.pdf
37. Black Sash. Report on Nine Provincial Community Consultations on Health Reform. Cape Town; 2011.
 38. Wielandt PM, Taylor E. Understanding rural practice: implications for occupational therapy education in Canada. Rural Remote Health [Internet]. 2010;10(3):1–14. Available from: <https://doi.org/10.22605/rrh1488>
 39. Volmink J, Bruce J, de Holanda Campos H, de Maeseneer J, Essack S. Reconceptualising Health Professions Education in South Africa: Consensus Study Report [Internet]. Pretoria: Academy of Science South Africa; 2018. Available from: https://www.researchgate.net/publication/326691385_Reconceptualising_health_professions_education_in_South_Africa/fulltext/5b882bfba6fdcc5f8b720223/Reconceptualising-health-professions-education-in-South-Africa.pdf
 40. Watson R. A population approach to occupational therapy. South African J Occup Ther [Internet]. 2013;43(1):34–9. Available from: <https://www.sajot.co.za/index.php/sajot/article/view/59/103>
 41. Bruenig M. Structural poverty, obviously the case [Internet]. MATT BRUENIG DOT COM. 2014. Available from: <https://mattbruenig.com/2014/07/29/structural-poverty-obviously-the-case/>
 42. Daas - KU Leuven Y. POVERTY: A STRUCTURAL PERSPECTIVE. 2018;1–9. Available from: https://www.researchgate.net/profile/Yousuf_Daas/publication/332963664_POVERTY_A_STRUCTURAL_PERSPECTIVE/links/5cd409e592851c4eab8cbe4d/POVERTY-A-STRUCTURAL-PERSPECTIVE.pdf
 43. Jenkins LS, Gunst C, Blitz J, Coetzee JF. What keeps health professionals working in rural district hospitals in South Africa? African J Prim Heal Care Fam Med [Internet]. 2015;7(1):5–9. Available from: <http://dx.doi.org/10.4102/phcfm.v7i1.805>
 44. Millsteed J. 1997 Sylvia Docker Lecture: The contribution of occupational

- therapy to the fabric of Australian rural and remote communities. *Aust Occup Ther J*. 1997;44:95–106.
45. Gray A, Vawda Y, Fryatt R, Hunter J, Wolmarans M, Solomon W, et al. South African Health Review 2014/15 [Internet]. Padarath A, King J, English R, editors. Durban: Health Systems Trust; 2015. 1–348 p. Available from: <http://www.hst.org.za/publications/south-african-health-review-2014/15>
 46. RuReSA. Vision and Mission [Internet]. 2014 [cited 2021 Feb 18]. Available from: <https://www.ruresa.com/vision--mission.html>
 47. RHAP. Rural Health Advocacy Project [Internet]. 2013. Available from: <http://rhap.org.za/about-us/>
 48. World Federation of Occupational Therapy. Minimum Standards for the Education of Occupational Therapists. Revised 2016. [Internet]. 2016. Available from: <https://www.wfot.org/assets/resources/COPYRIGHTED-World-Federation-of-Occupational-Therapists-Minimum-Standards-for-the-Education-of-Occupational-Therapists-2016a.pdf>
 49. Academy of Science South Africa. Reconceptualising Health Professions Education in South Africa Consensus Study Report [Internet]. Pretoria: ASSAf; 2018. 1–260 p. Available from: <http://dx.doi.org/10.17159/assaf.2018/0021>
 50. Lannin N, Longland S. Critical shortage of occupational therapists in rural Australia: Changing our long-held beliefs provides a solution. *Aust Occup Ther J* [Internet]. 2003;50(3):184–7. Available from: <https://doi.org/10.1046/j.1440-1630.2003.00394.x>
 51. Weinhold I, Gurtner S. Understanding shortages of sufficient health care in rural areas. *Health Policy (New York)* [Internet]. 2014;118(2):201–14. Available from: <http://dx.doi.org/10.1016/j.healthpol.2014.07.018>
 52. Bellingham L, De Jager R, Meyer T, Weinberg S, Williams C, van Stormbroek K. The Continuous Professional Development needs of rural occupational therapists working in the public health sector in South Africa. 2020.
 53. Seymour-Walsh AE, Bell A, Weber A, Smith T. Adapting to a new reality: COVID-19 coronavirus and online education in the health professions. *Rural Remote Health* [Internet]. 2020;20(2):1–6. Available from:

<https://doi.org/10.22605/RRH6000>

54. Department of Education. The Higher Education Qualifications Framework [Internet]. 2007. Available from: [http://www.dhet.gov.za/Policy and Development Support/The High Education Qualifications Framework \(HEQF\).pdf](http://www.dhet.gov.za/Policy_and_Development_Support/The_High_Education_Qualifications_Framework_(HEQF).pdf)
55. HPCSA. Continuing professional development guidelines for the health practitioners [Internet]. 2017. Available from: http://www.hpcsa.co.za/Uploads/editor/UserFiles/downloads/cpd/CPD_Guidelines_Sept_2017.pdf
56. Finlay S, Meggetto E, Robinson A, Davis C. Health literacy education for rural health professionals: Shifting perspectives. *Aust Heal Rev* [Internet]. 2019;43:404–7. Available from: <https://doi.org/10.1071/AH18019>
57. McFarlane K, Judd J, Wapau H, Nichols N, Watt K, Devine S. How primary health care staff working in rural and remote areas access skill development and expertise to support health promotion practice. *Rural Remote Health* [Internet]. 2018;18(2). Available from: <https://doi.org/10.22605/RRH4413>
58. Hightower-Vandamm M. An occupational therapist reaches out in the Phillipines. *Am J Occup Ther* [Internet]. 1980;34(9):559–62. Available from: <https://doi.org/10.5014/ajot.34.9.559>
59. Arntzen C, Sveen U, Hagby C, Bonsaksen T, Dolva AS, Høghagen S. Community-based occupational therapy in Norway: Content, dilemmas, and priorities. *Scand J Occup Ther* [Internet]. 2019;26(5):371–81. Available from: <https://doi.org/10.1080/11038128.2018.1548647>
60. Gifford V, Niles B, Rivkin I, Koverola C, Polaha J. Continuing education training focused on the development of behavioral telehealth competencies in behavioral healthcare providers. *Rural Remote Health* [Internet]. 2012;12:1–16. Available from: <https://doi.org/10.22605/RRH2108>
61. Krefting L. Strategies for the Development of Occupational Therapy in the Third World. *Am J Occup Ther* [Internet]. 1992;46(8):19–23. Available from: <https://doi.org/10.5014/ajot.46.8.758>
62. Devine S. Perceptions of occupational therapists practising in rural Australia: A

- graduate perspective. *Aust Occup Ther J* [Internet]. 2006;53(3):205–10. Available from: <https://doi.org/10.1111/j.1440-1630.2006.00561.x>
63. Boshoff K, Hartshorne S. Profile of occupational therapy practice in rural and remote South Australia. *Aust J Rural Health* [Internet]. 2008;16(5):255–61. Available from: <https://doi.org/10.1111/j.1440-1584.2008.00988.x>
 64. Brockwell D, Wielandt T, Clark M. Four years after graduation: Occupational therapists' work destinations and perceptions of preparedness for practice. *Aust J Rural Health* [Internet]. 2009;17(2):71–6. Available from: <https://doi.org/10.1111/j.1440-1584.2008.01020.x>
 65. Elliot-Schmidt R, Strong J. Rural occupational therapy practice: A survey of rural practice and clinical supervision in rural Queensland and Northern New South Wales. *Aust J Rural Health* [Internet]. 1995;3(3). Available from: https://www.researchgate.net/profile/Rachael-Schmidt/publication/229575171_Rural_occupational_therapy_practice_A_survey_of_rural_practice_and_clinical_supervision_in_rural_Queensland_and_Northern_New_South_Wales/links/607f62238ea909241e1211e6/Rural-occupa
 66. Chipp C, Dewane S, Brems C, Johnson ME, Warner TD, Roberts LW. "If Only Someone Had Told Me ...": Lessons From Rural Providers. *J Rural Heal* [Internet]. 2011;27(1):122–30. Available from: <https://doi.org/10.1111/j.1748-0361.2010.00314.x>
 67. Furness L, Tynan A, Ostini J. What supports allied health students to think, feel and act as a health professional in a rural setting? Perceptions of allied health staff. *Aust J Rural Health* [Internet]. 2019;27(6):489–96. Available from: <https://doi.org/10.1111/ajr.12557>
 68. Williams E, D'Amore W, McMeeken J. Physiotherapy in rural and regional Australia. *Aust J Rural Health* [Internet]. 2007;15(6):380–6. Available from: <https://doi.org/10.1111/j.1440-1584.2007.00931.x>
 69. Wills K, Case-Smith J. Perceptions and Experiences of Occupational Therapists in Rural Schools. *Am J Occup Ther* [Internet]. 1996;50(5):370–9. Available from: https://doi.org/10.1007/978-0-387-71799-9_361
 70. Pidgeon F. Occupational Therapy: What Does This Look Like Practised in Very Remote Indigenous Areas? *Rural Remote Health* [Internet]. 2015;15(2):1–7.

Available from: <https://doi.org/10.22605/RRH3002>

71. Daly J, Adamson L, Chang E, Bell P. The research and educational priorities of rural occupational therapists. *Aust Health Rev* [Internet]. 1997;20(1):129–38. Available from: <https://doi.org/10.1071/ah970129>
72. Thomas Y, Clark M. The aptitudes of allied health professionals working in remote communities. *Int J Ther Rehabil* [Internet]. 2007;14(5):216–20. Available from: <https://doi.org/10.12968/ijtr.2007.14.5.23539>
73. Leitich PC. Experience Of Occupational Therapists Practicing In Rural Kenya [Internet]. 2014. Available from: <https://encompass.eku.edu/etd>
74. Matheson C, Robertson HD, Elliott AM, Iversen L, Murchie P. Resilience of primary healthcare professionals working in challenging environments: A focus group study. *Br J Gen Pract* [Internet]. 2016;66(648):e507–15. Available from: <https://doi.org/10.3399/bjgp16X685285>
75. Van Schalkwyk S, Bezuidenhout J, Burch VC, Clarke M, Conradie H, Van Heerden B, et al. Developing an educational research framework for evaluating rural training of health professionals: A case for innovation. *Med Teach* [Internet]. 2012;34(12):1064–9. Available from: <https://doi.org/10.3109/0142159X.2012.719652>
76. Kingston GA, Williams G, Judd J, Gray MA. Hand therapy services for rural and remote residents: Results of a survey of Australian occupational therapists and physiotherapists. *Aust J Rural Health* [Internet]. 2015;23(2):112–21. Available from: <https://doi.org/10.1111/ajr.12141>
77. Sheppard L, Nielsen I. Rural and remote physiotherapy: Its own discipline. *Aust J Rural Health* [Internet]. 2005;13(3):135–6. Available from: <https://doi.org/10.1111/j.1440-1854.2005.00697.x>
78. Yanggratoke S, Briggs D, Alexander C, Taytiwat P, Cruickshank M, Fraser J, et al. The thai-Australian alliance: developing a rural health management curriculum by participatory action research. *World Health Popul* [Internet]. 2010;11(3):5–16. Available from: <http://doi.org/10.12927/whp.2010.21661>
79. Young L, Baker P, Waller S, Hodgson L, Moor M. Knowing your allies: Medical education and interprofessional exposure. *J Interprof Care* [Internet].

2007;21(2):155–63. Available from:
<https://doi.org/10.1080/13561820601176915>

80. Mpofu R, Late T, Daniels PS, Adonis TA, Karuguti WM. Impact of an interprofessional education program on developing skilled graduates well-equipped to practise in rural and underserved areas. *Rural Remote Health* [Internet]. 2014;14(3):1–12. Available from: <https://doi.org/10.22605/rrh2671>
81. Medves J, Paterson M, Chapman C, Young J, Tata E, Bowes D, et al. A new inter-professional course preparing learners for life in rural communities. *Rural Remote Health* [Internet]. 2008;8:1–8. Available from: <https://doi.org/10.22605/RRH836>
82. Howell D, English L, Page J. The Rockcastle Project: A Case Study of Interprofessional Clinical Education and Practice in a Rural Medical Center. *Internet J Allied Heal Sci Pract* [Internet]. 2011;9. Available from: <https://doi.org/10.46743/1540-580x/2011.1348>
83. Mu K, Chao CC, Jensen GM, Royeen CB. Effects of interprofessional rural training on students' perceptions of interprofessional health care services. *J Allied Health* [Internet]. 2004;33(2):125–31. Available from: <https://doi.org/10.1097/00001416-200501000-00014>
84. Morris D, Matthews J. Communication, respect, and leadership: Interprofessional collaboration in hospitals of rural Ontario. *Can J Diet Pract Res* [Internet]. 2014;75(4):173–9. Available from: <https://doi.org/10.3148/cjdpr-2014-020>
85. Leshabari S, Lubbock LA, Kaijage H, Kalala W, Koehler G, Massawe S, et al. First steps towards interprofessional health practice in Tanzania: An educational experiment in rural Bagamoyo district. *J Public Health Policy* [Internet]. 2012;33(SUPPL.1). Available from: <https://doi.org/10.1057/jphp.2012.49>
86. Walters L, Laurence CO, Dollard J, Elliott T, Eley DS. Exploring resilience in rural GP registrars - Implications for training Career choice, professional education and development. *BMC Med Educ* [Internet]. 2015;15(1):1–8. Available from: <http://dx.doi.org/10.1186/s12909-015-0399-x>
87. Manahan CM, Hardy CL, MacLeod MLP. Personal characteristics and

- experiences of long-term allied health professionals in rural and northern British Columbia. *Rural Remote Health* [Internet]. 2009;9(4):1238. Available from: <https://doi.org/10.22605/rrh1238>
88. Vesel L, Waller K, Dowden J, Fotso JC. Psychosocial support and resilience building among health workers in Sierra Leone: Interrelations between coping skills, stress levels, and interpersonal relationships. *BMC Health Serv Res* [Internet]. 2015;15(Suppl 1):1–8. Available from: <http://www.biomedcentral.com/1472-6963/15/S1/S3>
 89. Campbell N, Eley D, Mcallister L. What does personality tell us about working in the bush? Temperament and character traits of Australian remote allied health professionals. *Aust J Rural Health* [Internet]. 2013;21(5):240–8. Available from: <https://doi.org/10.1111/ajr.12047>
 90. Hooper K, Thomas Y, Clarke M. Health professional partnerships and their impact on Aboriginal health: An occupational therapist's and Aboriginal health worker's perspective. *Aust J Rural Health* [Internet]. 2007;15(1):46–51. Available from: <https://doi.org/10.1111/j.1440-1584.2007.00849.x>
 91. Kenkre IR. Occupational therapy in rural India. *Occup Ther Int*. 1994;1(1):29–35.
 92. Gitlow L, Sanford T. Assistive technology education needs of allied health professionals in a rural state. *J Allied Health*. 2003;32(1):46–51.
 93. Martiniuk A, Colbran R, Ramsdan R, Edwards M, Barrett E, Gotch B, et al. Capability...what's in a word? Rural doctors network of New South Wales Australia is shifting to focus on the capability of rural health professionals. *Rural Remote Health* [Internet]. 2020;20(3):1–8. Available from: <https://doi.org/10.22605/RRH5633>
 94. Coles J, O'Hare M. The role of occupational therapy in rural healthcare: A case study on farmers with disabilities. *Rev Disabil Stud* [Internet]. 2014;1(1):68–70. Available from: <https://www.rdsjournal.org/index.php/journal/article/view/16/54>
 95. Chetty V. A model of care for the rehabilitation of people living with HIV in a semi-rural South African setting. *South African Heal Rev* 2014/2015 [Internet]. :183–94. Available from: <https://www.hst.org.za/publications/South African Health Reviews/14 A model of care for the rehabilitation of people living with>

96. Ho C, Atchison K, Noonan V, McKenzie N, Cadel L, Ganshorn H, et al. Models of Care Delivery from Rehabilitation to Community for Spinal Cord Injury: A Scoping Review. *J Neurotrauma* [Internet]. 2021;XX:1–21. Available from: <https://doi.org/10.1089/neu.2020.7396>
97. Richards L-A, Galvaan R. Developing a socially transformative focus in Occupational Therapy: insights from South African practice. *South African J Occup Ther* [Internet]. 2018;48(1):3–8. Available from: <https://doi.org/10.17159/2310-3833/2017/vol48n1a2>
98. Wrisdale L, Mokoena MM, Mudau LS, Geere JA. Factors that impact on access to water and sanitation for older adults and people with disability in rural South Africa: An occupational justice perspective. *J Occup Sci* [Internet]. 2017;24(3):259–79. Available from: <https://doi.org/10.1080/14427591.2017.1338190>
99. Roots RK, Brown H, Bainbridge L, Li LC. Rural rehabilitation practice: perspectives of occupational therapists and physical therapists in British Columbia, Canada. *Rural Remote Health* [Internet]. 2014;14:2506. Available from: <https://doi.org/10.22605/RRH2506>
100. Colon-Gonzalez MC, El Rayess F, Guevara S, Anandarajah G. Successes, Challenges and Needs Regarding Rural Health Medical Education in Continental Central America: A Literature Review and Narrative Synthesis. *Rural Remote Health* [Internet]. 2015;15(3):1–16. Available from: <https://doi.org/10.22605/RRH3361>
101. Parker CE. The Needs of Newly Qualified Occupational Therapists. *Br J Occup Ther* [Internet]. 1991;54(5):164–8. Available from: <https://doi.org/10.1177/030802269105400503>
102. Harvey LM. Continuing Education and the Geographically Isolated Therapist. *Can J Occup Ther* [Internet]. 1983;50(4):125–32. Available from: <https://doi.org/10.1177/000841748305000405>
103. Stagnitti K, Schoo A, Reid C, Dunbar J. Access and attitude of rural allied health professionals to CPD and training. *Int J Ther Rehabil* [Internet]. 2005;12(8):355–61. Available from:

<https://doi.org/10.12968/ijtr.2005.12.8.19538>

104. Zhang Z, Zhan X, Li Y, Hu R, Yan W. Web-based training for primary healthcare workers in rural China: A qualitative exploration of stakeholders' perceptions. *PLoS One* [Internet]. 2015;10(5):1–18. Available from: <https://doi.org/10.1371/journal.pone.0125975>
105. Furness L, Kaltner M. Facilitating student education and support using videoconference. *Aust J Rural Health* [Internet]. 2015;23(4):249–53. Available from: <https://doi.org/10.1111/ajr.12148>
106. Cotton Z, Russell T, Johnston V, Legge J. Training therapists to perform Pre-Employment Functional Assessments: A telerehabilitation approach. *Work* [Internet]. 2017;57:475–82. Available from: <https://doi.org/10.3233/WOR-172578>
107. Doorenbos AZ, Kundu A, Eaton LH, Demiris G, Haozous EA, Towle C, et al. Enhancing access to cancer education for rural healthcare providers via telehealth. *J Cancer Educ* [Internet]. 2011;26(4):682–6. Available from: <https://doi.org/10.1007/s13187-011-0204-4>
108. Robinson T, Hills D, Kelly B. The evaluation of an online orientation to rural mental health practice in Australia. *J Psychiatr Ment Health Nurs* [Internet]. 2011;18(7):629–36. Available from: <https://doi.org/10.1111/j.1365-2850.2011.01712.x>
109. Rakototiana LB, Gottot R, Gottot S. Internet or dvd for distance learning to isolated rural health professionals, what is the best approach? *BMC Med Educ* [Internet]. 2017;17(1):1–9. Available from: <https://doi.org/10.1186/s12909-017-0991-3>
110. Seymour-Walsh AE, Weber A, Bell A, Smith T. Teaching psychomotor skills online: exploring the implications of novel coronavirus on health professions education. *Rural Remote Health* [Internet]. 2020;20(4):1–7. Available from: <https://doi.org/10.22605/RRH6132>
111. Sefako Makgatho Health Sciences University. Occupational Therapy Academic Programmes | Sefako Makgatho Health Sciences University [Internet]. [cited 2020 May 13]. Available from: <https://www.smu.ac.za/schools/health-care-sciences/departments/occupational-therapy/occupational-therapy-academic->

programmes/

112. University of the Witwatersrand. Masters In Occupational Therapy by coursework & research report programs - Wits University [Internet]. [cited 2020 May 12]. Available from: <https://www.wits.ac.za/therapeuticsscience/occupational-therapy/academic-programmes/postgraduate-studies/masters-in-occupational-therapy-by-coursework--research-report-programs/>
113. University of Pretoria. Postgraduate Studies [Internet]. [cited 2020 May 12]. Available from: <https://www.up.ac.za/occupational-therapy/article/45284/postgraduate>
114. University of the Free State. Faculty of Health Sciences Rulebook Postgraduate Degrees and Diplomas 2020 [Internet]. [cited 2020 May 13]. Available from: https://apps.ufs.ac.za/dl/yearbooks/353_yearbook_eng.pdf
115. University of Kwa-Zulu Natal. Post-Graduate Training – Discipline of Occupational Therapy [Internet]. [cited 2020 May 13]. Available from: <https://ot.ukzn.ac.za/post-graduate-training/>
116. University of the Western Cape. MSC. OCCUPATIONAL THERAPY (POST-GRADUATE) [Internet]. [cited 2020 May 12]. Available from: <https://www.uwc.ac.za/Faculties/CHS/OT/Pages/Postgraduate.aspx>
117. Stellenbosch University. Master of Occupational Therapy [Internet]. [cited 2020 May 12]. Available from: <http://www.sun.ac.za/english/faculty/healthsciences/OccupationalTherapy/Pages/Master-of-Occupational-Therapy.aspx>
118. University of Cape Town. MSc in Occupational Therapy by coursework (MM018) | Department of Health & Rehabilitation Sciences [Internet]. [cited 2020 May 12]. Available from: http://www.dhrs.uct.ac.za/dhrs/divisions/occu_therapy/postgraduate/courses/mm018
119. Stewart D, Gibson-Smith K, MacLure K, Mair A, Alonso A, Codina C, et al. A modified Delphi study to determine the level of consensus across the European Union on the structures, processes and desired outcomes of the management of polypharmacy in older people. PLoS One [Internet]. 2017;12(11):1–17.

Available from: <https://doi.org/10.1371/journal.pone.0188348>

120. de Villiers MR, de Villiers PJT, Kent AP. The Delphi technique in health sciences education research. *Med Teach* [Internet]. 2005;27(7):639–43. Available from: <https://doi.org/10.1080/13611260500069947>
121. Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi Survey Technique. *J Adv Nurs* [Internet]. 2000;32(4):1008–15. Available from: <https://doi.org/10.1046/j.1365-2648.2000.t01-1-01567.x>
122. Krefting L. Rigor in Qualitative Research: The Assessment of Trustworthiness. *Am J Occup Ther* [Internet]. 1991;45(3):214–22. Available from: <https://doi.org/10.5014/ajot.45.3.214>
123. Bandara W, Furtmueller E, Gorbacheva E, Miskon S, Beekhuyzen J. Achieving rigor in literature reviews: Insights from qualitative data analysis and tool-support. *Commun Assoc Inf Syst* [Internet]. 2015;37:154–204. Available from: <https://doi.org/https://aisel.aisnet.org/cais/vol37/iss1/8/>
124. University of the Witwatersrand. WHSL Emergency Medicine: DHET Accredited Journals [Internet]. Clarivate Analytics Web of Science (previously called ISI) (2021). 2022 [cited 2022 Mar 19]. Available from: <https://libguides.wits.ac.za/c.php?g=145310&p=953156>
125. Allen L, O'Connell A, Kiermer V. How can we ensure visibility and diversity in research contributions? How the Contributor Role Taxonomy (CRediT) is helping the shift from authorship to contributorship. *Learn Publ* [Internet]. 2019;32(1):71–4. Available from: <https://doi.org/10.1002/leap.1210>
126. Bradford NK, Caffery LJ, Smith AC. Telehealth services in rural and remote Australia: A systematic review of models of care and factors influencing success and sustainability. *Rural Remote Health* [Internet]. 2016;16:1–24. Available from: <https://doi.org/10.22605/RRH3808>
127. Wangenge-Ouma G, Kupe T. Seizing the COVID-19 conjuncture: Repositioning higher education beyond the pandemic. In: *Re-imagining Educational Futures in Developing Countries* [Internet]. Palgrave Macmillan, Cham; 2022. p. 17–37. Available from: https://doi.org/10.1007/978-3-030-88234-1_2

128. Bremner N. The multiple meanings of 'student-centred' or 'learner-centred' education, and the case for a more flexible approach to defining it. *Comp Educ* [Internet]. 2021;57(2):159–86. Available from: <https://doi.org/10.1080/03050068.2020.1805863>
129. Sbaiti M, Streule MJ, Alhaffar M, Pilkington V, Leis M, Budhathoki SS, et al. Whose voices should shape global health education? Curriculum codesign and codelivery by people with direct expertise and lived experience. *BMJ Glob Heal*. 2021;6:1–8.
130. Simmons University Library. Nursing - Systematic Reviews: Levels of Evidence [Internet]. 2022 [cited 2022 Mar 18]. Available from: <https://simmons.libguides.com/c.php?g=1023284&p=7412063>
131. United Nations. THE 17 GOALS | Sustainable Development [Internet]. 2022 [cited 2022 Mar 14]. Available from: <https://sdgs.un.org/goals>
132. SAQA. National Qualifications Framework Sub-frameworks and qualification types.
133. Nguni languages [Internet]. Google Arts & Culture. 2022 [cited 2022 Mar 12]. Available from: https://artsandculture.google.com/entity/nguni-languages/m020p_6?hl=en
134. Vula Mobile. How it works — Vula [Internet]. 2021 [cited 2022 Mar 12]. Available from: <https://www.vulamobile.com/how-it-works>

Appendices

Appendix A Ethical clearance certificate

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

Office of the Deputy Vice-Chancellor (Research and Postgraduate Affairs)

TO: Ms S Coetzee
School of Therapeutic Sciences
Department of Occupational Therapy
Medical School

E-mail: coetzee.sune@gmail.com

CC: Supervisor: Ms K van Stormbroek
Kirsty.vanStormbroek@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: 23 November 2020

REF: R14/49

PROTOCOL NO: **M200944** (This is your ethics application reference number. Please quote it in all enquiries, oral or written, relating to this study.)

PROJECT TITLE: *The postgraduate education needs of rural-based occupational therapists 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



R14/49 Ms S Coetzee

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M200944

NAME: Ms S Coetzee
(Principal Investigator)

DEPARTMENT: School of Therapeutic Sciences
Department of Occupational Therapy
Medical School
University

PROJECT TITLE: The postgraduate education needs of rural-based
occupational therapists in South Africa

DATE CONSIDERED: 2 October 2020

DECISION: Approved unconditionally

CONDITIONS:

SUPERVISOR: Ms K van Stormbroek

APPROVED BY: 
Dr CB Penny, Chairperson, HREC (Medical)

DATE OF APPROVAL: 23 November 2020

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

DECLARATION OF INVESTIGATORS

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

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


Principal Investigator Signature

15/03/2022
Date

Appendix B Information letter for experts



Dear Occupational Therapist,

My name is Suné Coetzee, and I am an occupational therapy master's student at the University of the Witwatersrand. Thank you for considering participation in this study as a rural occupational therapy expert. The study aims to develop consensus on the postgraduate education needs of rural-based occupational therapists in South Africa. The objectives of the study are to obtain consensus on:

1. The postgraduate knowledge required by occupational therapists in rural areas.
2. The postgraduate skills required by occupational therapists in rural areas.
3. The attitudes and professional behaviours required by occupational therapists in rural areas that should be developed in postgraduate training.
4. The method of delivery of postgraduate education required by occupational therapists in rural areas.

What participation will involve

Should you consent to participating in this study, you will be part of a consensus development team that determines the postgraduate education needs of rural-based occupational therapists in South Africa. This will involve using a Delphi technique, whereby a list of statements relating to this study's objectives is presented to you in a number of rounds. Using an online survey tool (REDCap), you will be required to demonstrate your level of agreement with each of the statements. You will also have an opportunity to explain your response or add additional statements to the list. Upon completion of each round, the statements that have achieved consensus will be removed from the survey, and any additional statements that have been suggested will be added to the next survey. This electronic process will repeat until consensus is reached on all statements. Three rounds are anticipated, but there may be fewer or more rounds depending on how quickly consensus is achieved. The approximate time between rounds will be 1-3 weeks, depending on how quickly participants are able to respond to each survey. Participation will therefore require multiple electronic

contact sessions, each round requiring approximately 15 minutes to complete. Participation will also require you to have access to a computer/mobile device, as well as have an email address that is in regular use, as all aspects of participation and communication will occur electronically.

Potential risks and benefits

There are no potential risks involved in this study, but participants will be required to complete all rounds to ensure valid results. There are no direct benefits to this study, but participants have the secondary benefit of being able to broaden the research related to the needs of occupational therapists in rural areas and how these can be met.

Voluntary participation and confidentiality

Participation in this study is completely voluntary, but as mentioned, participants will be required to complete all rounds once they have consented to participating. Participation will be anonymous, but reference will be made to the specific expertise of participants in any reporting of this study, as this is an important consideration in the inclusion criteria and validity of this study. Participants will be able to decide how they would like to be referred to in the publishing of results. If anonymity is preferred, the participant will be referred to as a “rural health expert”, with a note on this study’s criteria for the identification of an expert.

Reporting of the findings

This study will be written up as a research report in partial fulfilment of the requirements of the degree of Master of Science of Occupational Therapy. Upon completion, this research study will also be submitted for publishing in peer reviewed journals. The findings of the study will also be made available to participants upon request.

Ethical approval

This study has obtained ethical clearance from the Human Research Ethics Committee (HREC) at the University of the Witwatersrand, Johannesburg (*clearance certificate number M200944*), which serves to ensure that research with human participants is conducted in an ethical manner, protecting the dignity and rights of all participants. Should you have any ethical concerns regarding this study, please contact the Chairperson of the HREC, Professor Clement Penny on 011 717 2301, or at Clement.Penny@wits.ac.za. The Committee secretariat may also be contacted on

011 717 2700/1234, or at Zanele.Ndlovu@wits.ac.za and
Rhulani.Mukansi@wits.ac.za.

Informed consent

Should you agree to participate in this study, I ask that you respond to this email with your confirmation at your earliest convenience.

Should you have any questions or concerns about this study, please do not hesitate to contact me at this email address or on my cell phone at 082 849 3250.

Kind regards,

Researcher/MSc Student

Suné Coetzee

Email: 2009656@students.wits.ac.za

Tel: 082 849 3250

Research Supervisor

Kirsty van Stormbroek

Email: Kirsty.vanstormbroek@wits.ac.za

Tel: 011 717 3701

Appendix C Information letter for recent CS occupational therapists



Dear Occupational Therapist,

My name is Suné Coetzee, and I am an occupational therapy master's student at the University of the Witwatersrand. Thank you for considering participation in this study as an independent practitioner with experience in rural occupational therapy. The study aims to develop consensus on the postgraduate education needs of rural-based occupational therapists in South Africa. The objectives of the study are to obtain consensus on:

1. The postgraduate knowledge required by occupational therapists in rural areas.
2. The postgraduate skills required by occupational therapists in rural areas.
3. The attitudes and professional behaviours required by occupational therapists in rural areas that should be developed in postgraduate training.
4. The method of delivery of postgraduate education required by occupational therapists in rural areas.

What participation will involve

Should you consent to participating in this study, you will be part of a consensus development team that determines the postgraduate education needs of rural-based occupational therapists in South Africa. This will involve using a Delphi technique, whereby a list of statements relating to this study's objectives is presented to you in a number of rounds. Using an online survey tool (REDCap), you will be required to demonstrate your level of agreement with each of the statements. You will also have an opportunity to explain your response or add additional statements to the list. Upon completion of each round, the statements that have achieved consensus will be removed from the survey, and any additional statements that have been suggested will be added to the next survey. This electronic process will repeat until consensus is reached on all statements. Three rounds are anticipated, but there may be fewer or more rounds depending on how quickly consensus is achieved. The approximate time between rounds will be 1-3 weeks, depending on how quickly participants are able to respond to each survey. Participation will therefore require multiple electronic contact sessions, each round requiring approximately 15 minutes to complete.

Participation will also require you to have access to a computer/mobile device, as well as have an email address that is in regular use, as all aspects of participation and communication will occur electronically.

Potential risks and benefits

There are no potential risks involved in this study, but participants will be required to complete all rounds to ensure valid results. There are no direct benefits to this study, but participants have the secondary benefit of being able to broaden the research related to the needs of occupational therapists in rural areas and how these can be met.

Voluntary participation and confidentiality

Participation in this study is completely voluntary, but as mentioned, participants will be required to complete all rounds once they have consented to participating. Participation will be anonymous, but reference will be made to the specific expertise of participants in any reporting of this study, as this is an important consideration in the inclusion criteria and validity of this study. Participants will be able to decide how they would like to be referred to in the publishing of results. If anonymity is preferred, the participant will be referred to as an independent practitioner who has recently completed their community service year, and a note will be made on this study's criteria for the identification of an appropriate independent practitioner.

Reporting of the findings

This study will be written up as a research report as the partial fulfilment of the requirements of the degree of Master of Science of Occupational Therapy. Upon completion, this research study will also be submitted for publishing in peer reviewed journals. The findings of the study will also be made available to participants upon request.

Ethical approval

This study has obtained ethical clearance from the Human Research Ethics Committee (HREC) at the University of the Witwatersrand, Johannesburg (*clearance certificate number M200944*), which serves to ensure that research with human participants is conducted in an ethical manner, protecting the dignity and rights of all participants. Should you have any ethical concerns regarding this study, please contact the Chairperson of the HREC, Professor Clement Penny on 011 717 2301, or at Clement.Penny@wits.ac.za. The Committee secretariat may also be contacted on

011 717 2700/1234, or at Zanele.Ndlovu@wits.ac.za and
Rhulani.Mukansi@wits.ac.za.

Informed consent

Should you agree to participate in this study, I ask that you respond to this email with your confirmation at your earliest convenience.

Should you have any questions or concerns about this study, please do not hesitate to contact me at this email address or on my cell phone at 082 849 3250.

Kind regards,

Researcher/MSc Student

Suné Coetzee

Email: 2009656@students.wits.ac.za

Tel: 082 849 3250

Research Supervisor

Kirsty van Stormbroek

Email: Kirsty.vanstormbroek@wits.ac.za

Tel: 011 717 3701

Appendix D Detail on methods

Detailed inclusion criteria and the composition of the sample

Inclusion criteria
Occupational therapists considered to be experts in the field of rural health in RSA. Expert participants will include occupational therapists that: • have been identified as experts in the field of rural healthcare by RuReSA and/or, • have published works in rural healthcare and/or, • have a wide range of experience in various fields of rural healthcare and/or, • have served as occupational therapy managers in rural healthcare settings in RSA.
Occupational therapists who have: • completed their CS in the last two years in a rural area, • and have been identified as advocates or spokespersons for rural health by professional organisations and/or rural health experts and/or occupational therapists who had completed their CS with the identified occupational therapist, • and/or have published about their experience delivering services during CS.
Composition of the sample
Survey 1 • 15 experts • 1 recent CS occupational therapist Survey 2 • 13 experts • 1 recent CS occupational therapist

Databases and journals included in the literature review

A search of the following databases was conducted: EBSCOhost, Academic Search Ultimate, Africa-Wide Information, CINAHL Complete, Global Health, Health Source Nursing/Academic Edition, and Medline. Journal-specific searches of appropriate journals

(Journal of Rural Health, Rural and Remote Health, the Australian Journal of Rural Health, and the African Journal of Health Professions Education) were also conducted to ensure all relevant articles were found.

Search terms

No	Search terms
1	"occupational therapist" OR "occupational therapy" OR "occupational therapists" OR "healthcare worker" OR "healthcare workers" OR "health care worker" OR "health care workers" OR "health-care worker" OR "health-care workers"
2	"rural" OR "rural based" OR "rural area" OR "rural areas" OR "non urban" OR "non urban area" OR "non urban areas" OR "non urban based"
3	"skill" OR "skills" OR "ability" OR "abilities" OR "aptitude" OR "aptitudes" OR "expertise"
4	"postgraduate education" OR "postgraduate education course" OR "postgraduate education courses" OR "postgraduate degree" OR "postgraduate degree course" OR "postgraduate degree courses" OR "postgraduate degrees" OR "postgraduate teaching" OR "postgraduate teaching courses" OR "postgraduate teaching programme" OR "postgraduate teaching programmes" OR "postgraduate teaching programs" OR "postgraduate training" OR "postgraduate training course" OR "postgraduate training courses" OR "postgraduate training curricula" OR "postgraduate training curriculum"
5	"knowledge" OR "knowledges" OR "knowledge base" OR "understanding"
6	"competence" OR "competency" OR "competencies" OR "competences"
7	"professional behaviour" OR "professional behaviours" OR "professional behavior" OR "professional behaviors" OR "professional conduct" OR "professional performance"
8	"attitude" OR "attitude and behavior" OR "attitude and behaviour" OR "attitudes" OR "professional attitudes" OR "professional attitude" OR "approach"
9	"method of delivery" OR "methods of delivery" OR "delivery method" OR "delivery methods" OR "delivery method preferences" OR "delivery method preference"

Search term combinations

Search term no/ Combination no	Search term no 1	Search term no 2	Search term no 3	Search term no 4	Search term no 5	Search term no 6	Search term no 7	Search term no 8	Search term no 9
Combination 1	X	X	X						
Combination 2	X	X			X				
Combination 3	X	X				X			
Combination 4	X	X					X		
Combination 5	X	X						X	
Combination 6	X	X		X					X

Detailed literature search description

The literature search yielded a total of 7171 articles. Once duplicates were removed, 4186 articles remained, and the abstracts for these articles were reviewed for relevance. Articles that did not specifically address the objectives of this study were excluded (n=4074). All articles that had been included based on the abstract review (n=112) were further reviewed for relevance. Reference lists of the included articles were also examined for possible relevant articles, but no new articles relevant to the study were found. The full article review resulted in a total of 60 articles contributing to the statement development process. The researcher also reviewed nine additional articles on recommendation from her supervisor, based on possible relevance to the study objectives, of which four were included. Therefore, the total number of articles included in the statement development process was 64.

Survey 1 with supporting references

No	Statements
1	Rural-based occupational therapists need to be able to practice as skilled and knowledgeable generalist occupational therapists (21,22,26,38,44,59,62,63,66–71).
2	Rural-based occupational therapists need to be competent across their scope, and be capable of determining and addressing gaps in their knowledge (22,93).
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community (22,38,70,72).
4	Case load management, prioritisation and planning are crucial skills in rural occupational therapy (22,38,59,62,64,65,74).
5	Rural-based occupational therapists need good assessment skills, and need to be able to assess quickly and with limited use of resources, in varied settings (22,25,38,65).
6	Rural-based occupational therapists need to be skilled in addressing the social determinants of health and occupational justice issues (84,85, 11).
7	Rural-based occupational therapists should have advanced knowledge of assistive devices, including ordering, appropriate prescription and issuing, and maintenance of devices (38,64,92).
8	Rural-based occupational therapists must be able to assist with appropriate, cost effective, and limited resource home adaptations (94).
9	Rural-based occupational therapists should be trained in community based rehabilitation (CBR) (40,90,91).
10	Splinting is an important and valuable skill in rural occupational therapy practice, and should be developed further as a practical component of a postgraduate course (38,64).
11	Rural-based occupational therapists need to be able to provide vocational rehabilitation (95).
12	Telehealth is a crucial skill for rural-based occupational therapists (96).
13	Rural-based occupational therapists need theoretical and practical knowledge on functional anatomy (64).
14	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology (22,38).

15	Good administration skills are crucial for efficient rural-based occupational therapy practice (62,65,72,74).
16	Rural-based occupational therapists need sound management skills (22,38,62,64,65,78).
17	Rural-based occupational therapists must be able to clearly and succinctly promote occupational therapy to all stakeholders (22,38,59,62,65).
18	Rural-based occupational therapists should have a focus on disability prevention (primary, secondary, tertiary) through campaigns, education of others, and direct treatment (22,57,58,60,61,63,64).
19	Rural-based occupational therapists should be equipped to organise and host health promotion campaigns (22,57,58,60,61,63,64).
20	Rural-based occupational therapists require knowledge regarding South African health policies (38,59,64,74,75,77,78).
21	Rural-based occupational therapists require knowledge regarding South African health systems (38,59,64,74,75,77,78).
22	Rural-based occupational therapists require knowledge regarding communication at different levels of South African healthcare and management (38,59,64,74,75,77,78).
23	Communication skills and competency in interpersonal relationships are crucial skills for rural-based occupational therapists (22,38,62,65,72,77,78,82,84).
24	Rural-based occupational therapists must be fluent in health literacy in order to be able to communicate effectively with clients who may have low health literacy (56).
25	Rural-based occupational therapists need to be resilient (22,25,26,62,72,74,86–89).
26	Rural-based occupational therapists need to be flexible, adaptable, and resourceful (22,25,38,59,62,65,66,72–74).
27	Rural-based occupational therapists must be able to problem solve and be quick thinking (22,63,69,74).
28	Rural-based occupational therapists must exhibit cultural humility (25,60,62,65,66,70,72,73).
29	Rural-based occupational therapists must be able to understand the community (21,22,66,75,76).
30	Rural-based occupational therapists need to be skilled at interprofessional and collaborative practice as these form an important part of rural health (22,63,85,65,69,79–84).
31	Rural-based occupational therapists need to be able to speak and understand an African language (with some degree of fluency) that is common in a rural area in order to be able to effectively communicate with all stakeholders in the community. Languages may include Sesotho

	sa Leboa, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, isiNdebele, isiXhosa, isiZulu, English, or Afrikaans (25,70,100).
32	Methods for delivery of postgraduate educational content may be electronic or internet based (53,103,104,106,108,109).
33	Methods for delivery of postgraduate educational content may be face-to-face, in-person (102–104).
34	Methods for delivery of postgraduate educational content may be a combination of face-to-face and electronic/internet based.
35	Methods for delivery of postgraduate educational content may make use of teleconferencing (103).
36	Methods for delivery of postgraduate educational content may make use of videoconferencing (103,105–107).

Survey 2

No	Statements
1	Rural-based occupational therapists need to be able to practice as rural-generalists. This requires a rural-specific knowledge base and approach to practice. This includes being equipped with low-cost techniques and resources that are adaptable for different cultures and specific needs.
2	To become a "specialist generalist", rural-based occupational therapists require substantial time working in rural areas to build up the necessary expertise to become a "specialist generalist", however, this does not preclude the rural-based occupational therapist from developing areas of specialist interest.
3	Rural-based occupational therapists should be able to extend their scope as needed in their setting through task-shifting, stretching their role, and stepping in for other professionals when needed to assist clients or the community. This should occur within healthy collaborative team relationships and should be done within safe boundaries, built on the necessary expertise.
4	Rural-based occupational therapists need to be able to identify common and rare underlying pathology as well as appropriately refer clients to other disciplines for the management of the relevant pathology, however, the rural-based occupational therapist needs to retain a core focus on function and participation.
5	In responding to extensive needs within the community and inevitable staff shortages, the rural-based occupational therapist needs to be able to

	prioritise interventions that will have the greatest impact and be effective. This includes being adept at implementing group-based therapy and programme-based intervention.
6	Rural-based occupational therapists should be adept with networking, accessing and effectively utilising resources available through private individuals and organisations.
7	In providing safe and appropriate assistive devices rural-based occupational therapists should be able to employ innovative and resourceful techniques to make assistive devices. Good partnerships with organisations that manufacture assistive devices and orthotics and prosthetics managers may also streamline the process of ordering, prescribing, and issuing appropriate devices.
8	Rural-based occupational therapists should be adept at using low-cost splinting materials and alternative modalities when commercial splinting material is not available.
9	Rural-based occupational therapists should be able to advocate for and be competent in the appropriate use of interpreters (spoken communication) and translators (written communication e.g., home programmes) in clinical and community settings.
10	Rural-based occupational therapists should be able to speak at least one Nguni based language (with some degree of fluency) if the therapist speaks English/Afrikaans as their main language.
11	Rural-based occupational therapists should have knowledge of and be responsive to local health beliefs, and health communication should take these into account.
12	It is important for rural-based occupational therapists to be skilled in the use of telehealth as a treatment platform for reaching remote clients and performing virtual home visits/assessments (where there is access to the necessary resources).
13	Rural-based occupational therapists should be skilled at telehealth aimed at consulting with other occupational therapists and field specialists (where there is access to the necessary resources).
14	Although additional clinical input is helpful, applying knowledge in context and robust clinical reasoning (including ethical reasoning) is essential to advanced rural-based occupational therapy practice.
15	Rural-based occupational therapists should be competent in information management in order to manage complex caseloads of hard-to-reach clients.

16	The rural-based occupational therapist should consider vocational rehabilitation as a multi-departmental task (Department of Health, Social Development, Education etc.) and therefore they need to be equipped to liaise with other governmental departments in order to facilitate the establishment of new vocational and prevocational skills training and community centres, appropriate for people with or without disabilities.
17	Rural-based occupational therapists should be competent in pre-vocational skills training, basic work adaptation, facilitating phased return to work, and facilitating self-employment or income generation groups. This should occur within the contextual realities of rural settings and rural-based occupational therapists should be able to respond according to available resources.
18	Rural-based occupational therapists should be competent in supporting people with disabilities in "using their grant money to make more money" where opportunities for formal employment are rare/non-existent.
19	Rural-based occupational therapists should be competent in performing disability grant assessments.
20	Rural-based occupational therapists should be competent in facilitating disability inclusive development within communities.
21	Rural-based occupational therapists need to be able to establish and contribute to sustainable services.
22	Rural-based occupational therapists should assist in limiting interruptions in service delivery caused by annual staff turnover by pursuing strategies for permanent post creation and recruitment and retention of staff.
23	Rural-based occupational therapists should be aware of and adept at accessing resources that enable them to remain "up-to-date" with evidence-based practice and current trends in therapy in a time and cost efficient manner.
24	A strong base in teamwork is needed for rural-based occupational therapists.
25	Necessary for rural-based occupational therapy is a support system (within or outside the health facility) aimed at supporting rural-based occupational therapists' resilience and longevity within advanced rural practice and to allow therapists to authentically share their experiences and the realities that they are exposed to.

An illustration of the strategies suggested by Bandara et al., and the application of those to this study.

Strategy (123)	Application to study
----------------	----------------------

Having clarity on the relevant topics of the study	The topics of this study had been set out in the objectives, and isolated as search terms for the literature review. These had been developed over time and chosen as they directly addressed the aim of the research.
“identify relevant databases, and justify the range of sources” selected (p.162)	Relevant sources have been mentioned under the <i>development of statements for consensus process</i> section.
	These sources had been chosen as they allowed for a wide search using specific search terms.
	They were chosen as they have previously yielded relevant results related to the topics for this study.
Using an appropriate search strategy – selecting search terms that address the research topic and goals	The initial search terms have also been mentioned under the <i>development of statements for consensus process</i> section.
	Keyword searches were used along with synonyms that yielded other relevant keywords and more specific keywords.
	Exclusive use of primary texts was made.

Appendix E Survey 2 Statements

Statement 1

While consensus indicated that participants agreed that rural-based occupational therapists need to be able to practice as rural-generalists, comments included that “[c]ultural considerations are very important in rural settings” (Victoria), and that understanding the context and tailoring needs to that context is necessary (n=1). Expert Julie also noted that there are various community resources available, and mentioned the many benefits to these services:

“community resources include CHW, peer supporters and parent facilitators, NGO’s and DPOs that may be able to provide support, guidance, activities, for patients and families; and be trained in some basic rehab to do at home if needed”

This links to and adds support for statement 6 of Survey 2 – the need for rural-based occupational therapists to be well informed and well connected regarding the community as part of their rural-generalist specialisation.

Statement 2

Although this statement on becoming a “specialist generalist” – with possible special areas of interest for the therapist – achieved consensus, one expert, Victoria, noted that therapists are not “superhumans” and raised concern regarding the possible loss of generalist skills should therapists choose an area of specialisation in addition to delivering the range of generalist skills. Danielle, another expert, mentioned the opportunities for specialisation that rural practice offers therapists:

“Rural provides really great opportunities to develop specific areas of interest because you are exposed to so much, you find areas in [which] you flourish more in and there is always opportunity to grow and develop services in that area if interest.”

Julie also recognised the need for rural postgraduate training:

“we do need “rural specialist” post grad training: workshops, short course[s] or formal PG courses”.

This provides further support for the development of an appropriate postgraduate programme for rural-based occupational therapists.

Statement 3

Experts provided support for this statement on extension of their scope through task shifting and other methods. Emma notes that holistic treatment is necessary, regardless of the available disciplines:

“Sometimes the rehab team is not complete and you have to assist the patient holistically and offer guidance or assistance that may not fall under your scope of practice.”

Danielle also mentioned the need to extend one’s scope into other disciplines by being a “trans-disciplinary team”. Another expert, Gabby, commented on the importance of transdisciplinary teamwork, and noted that some conditions more easily allow this, while some situations require this, but “that it needs to be within healthy collaborative team relationships”. Julie explained that it is necessary for the professional associations to assist and support this aspect of practice:

“The professional associations need to come on board with this and have guidelines as to how this could be done in areas where there are few rehab resources”

Statement 4

While this statement regarding therapists’ ability to identify common and rare underlying pathology (while retaining a core focus on function and participation) achieved consensus, experts noted that clarity on diagnosis was not always the highest priority (n=1). Victoria shared this sentiment and further explained:

“I agree, but in a resource limited health care setting, I think often the reality is that "survival" becomes the main goal of intervention, followed by prevention of secondary body structure and function limitations and only then a look at function and participation. Prevent death, prevent damage, facilitate function....”

They noted the difficulty therapists may experience in identifying rare underlying pathology without having personal experience with that specific pathology (n=1).

Gabby agreed, and also mentioned the difficulty therapists – especially junior therapists – experience in referring patients for further investigations and management by the appropriate department and the need for therapists to advocate for patients:

“I think to identify rare underlying pathologies is a difficult one. There are so many so impossible to learn them all. I tend to learn these by being exposed to a client with the condition and then over the years your repertoire of knowledge increases. It is very difficult for an OT to refer a client outside the hospital without first going through a doctor, at least in Mpumalanga. The only exception is a referral to another OT department, but then mostly within the province. So I think OT's really need to know how to advocate and lobby on their clients behalf, as you have to be confident enough to discuss it with the doctor and badger him/her if necessary. This is difficult for younger therapists, especially if the doctor is older and old-schooled.”

Statement 5

Experts supported this statement on prioritising interventions that will have the greatest impact and be effective. Danielle mentions some of the benefits of group therapy and programme development:

“Definitely! Groups are not only time effective, but also have plenty of [therapeutic] benefits. If a rural OT is not facilitating a group at...least once a week, they need to reconsider their approach. Program development is also really helpful as it saves needing to re-invent the wheel for every patient.”

One expert, Emma, emphasised that creativity is necessary for efficient service delivery to a large number of patients, and explained further:

“OTs are not utilized as well as they should [be], and they are very under appreciated by the current health system.”

Gabby mentioned the need for therapists to consider their own interests in their decision-making regarding the most efficient interventions:

“If the therapist is going to be spending many years at a rural hospital, to keep motivated and maintain some resilience, it is important for the therapist to also consider her interest...when making decisions regarding which intervention will have the greatest impact.”

Expert Julie also emphasised the importance of evidence-based practice and “using resources in [the] community” – specifically, midlevel and community health workers for some aspects of rehabilitation.

Statement 6

Experts supported this statement on being adept with networking, accessing and effectively utilising resources available through private individuals and organisations. Danielle mentioned several organisations that are available, and while Victoria agreed with the statement, she noted the risk involved:

“This within the limits of provincial, departmental and institutional prescription/prohibition of some types of donations (For instance - requesting donations of nappies from the private sector could land a health care worker in trouble, as this is a stock-item that should be available based on the hospital's budget planning and stores-management.)”

Gabby reiterated the need for and value of external support:

“Linking with private individuals and organisations can be an important support for the OT, as a form of mentoring, support and feeling that you are not alone. If the OT is passionate about her work, but others in the department are not, it can be a very lonely journey. Linking up with other enthusiastic and driven rural therapists help to keep a bigger picture alive.”

One recent CS occupational therapist, Leah, did note that therapists would, however, “need to be granted the time to build adequate networks”.

Statement 7

While this statement on innovative and resourceful techniques to make assistive devices achieved consensus, experts expressed concerns. One expert mentioned the practicality and time it may take to manufacture alternative assistive devices and

stated that this could possibly be outsourced to community members but that that could pose new challenges in terms of payment and training (n=1). Another expert, Victoria, mentioned that “departmental, provincial and institutional policies” needed to be followed in this process, and explained further regarding using innovation in the making of assistive devices:

“Care should be taken to not endanger a patient with an innovation that has not been tested or approved. The patient's dignity and preferences should also always be considered.”

One expert, Danielle, mentioned that establishing good relationships with management assisted in the procurement of required assistive devices and stated that “[w]e also made use of our sewing machine, toolbox, and donated wetsuits often in making a plan”. Julie, another expert, expanded on budgeting issues therapists might face:

“The issue is usually budget so therapists need to understand how to develop and [motivate] for budgets and how to manage budgets effectively for the "greatest good"”

Statement 8

Experts supported this statement regarding the use of low-cost splinting materials and alternative modalities when commercial splinting material is not available. Kim commented on problem solving versus using rurality as an excuse for the lack of appropriate materials:

“Should be able to problem solve BUT being rural should not be an excuse or a reason for not having access to quality materials (vs public services in urban areas).”

An expert also mentioned the importance of utilising allocated budget to procure splinting material, noting that allocated budgets are lost if not utilised correctly (n=1). A recent CS occupational therapist also mentioned that in using alternative splinting materials, therapists should consider durability (n=1).

Statement 9

Some experts supported this statement on the use of interpreters and translators, noting that “rehab service[s] will never expand without this” (Danielle), but that there were no posts available for interpreters in the public health system, which would need to be addressed (n=1). Another expert, Julie, mentioned that it is preferable for therapists to have “a 2nd African language” – relating to statement 10 – and that a “home programme repository” needed to be considered to prevent repeated unnecessary resource expenditure.

Statement 10

This statement did not achieve consensus and was presented in section 2.6.2.2.

Statement 11

Experts supported this statement regarding health communication that takes local health belief into account. Danielle stated that therapists needed to have “basic knowledge and respect for traditional medicine”. Kim supported this statement but explained further:

“Important to have insight into [patients’] perspective on health, sickness etc to be able approach their problem effectively BUT not at [the] cost of evidence based [practice].”

Statement 12

This statement did not achieve consensus and was presented in section 2.6.2.2

Statement 13

A recent CS occupational therapist mentioned that telehealth aimed at consultation with other therapists and field specialists was of particular importance for CS therapists (n=1). Julie, an expert, also mentioned that the “Vulamobile App”⁵ was available for the establishment of therapy programmes.

Statement 14

One expert, Gabby, commented on this statement regarding clinical reasoning being part of the “basics”:

⁵ This application allows healthcare workers to “receive advice on patient treatment plans and refer patients to specialist services and departments” (134).

“yes, sometimes coming back to the basics is what really counts, especially as this is what the therapist is doing on a daily basis.”

Statement 15

Experts supported this statement on information management. Danielle specifically noted the value of information management in identifying areas of need:

“Keeping record of clients is essential. Also when in the instance where the normal hospital filing system is unreliable. We had a massive CP database that was audited every year which made a huge difference to identifying areas of need.”

Julie commented on the value of information sharing in an accessible form for patients and families through drawings or layman’s language and stated that “therapists need to give rehab skills to carers”.

Statement 16

While this statement on vocational rehabilitation as a multi-departmental task achieved consensus, experts mentioned that other governmental departments need to liaise with the department of health – and occupational therapists specifically – in the planning phases of community skills training centres (n=2). Expert Gabby commented on how lengthy this process might be, and the necessity of full commitment from therapists wanting to be involved:

“This is ideal but a big ask! It would involve a lot of energy and is not going to happen overnight so the therapist would need to be committed for a number of years as these ventures take a long time to fund and set up”.

Another expert, Danielle, highlighted the need for these projects:

“Unemployment is the biggest barrier to meaningful participation in the community”

Another expert mentioned that as part of vocational rehabilitation, occupational therapists also need to know whether patients’ employers are aware of patients’ admission to ensure they can reap the full benefits of their employment contracts (n=1). One recent CS occupational therapist, Leah, agreed with the statement but

stated that in her experience “vocational rehabilitation is often not the focus of rural rehab”.

Statement 17

Although this statement on competence in pre-vocational skills training, basic work adaptation, facilitating phased return to work, and facilitating self-employment or income generation groups achieved consensus, experts mentioned some challenges. Experts noted the difficulty facility based occupational therapists experience in performing these duties (n=3), and Gabby further explained:

“I have not seen one income generation group in my community, that a therapist or even community member has facilitated, succeed in the long run. All folded at some point and are not sustainable without substantial external funding. Once the funding stops, the project falters.”

Gabby did, however, mention that these groups could be beneficial for reasons besides income generation:

“Saying that [I] do believe in some of these groups, but the main benefit is not income but the social interaction and support that it provides group members.”

Statement 18

This statement did not achieve consensus and was presented in section 2.6.2.2.

Statement 19

Although this statement on performing disability grant assessments achieved consensus, many comments were related to which professionals were responsible for performing this duty. Some experts and one recent CS occupational therapist mentioned that this responsibility should not or could not fall upon the occupational therapists at the facility and should or would be undertaken by doctors and/or therapists employed by the South African Social Security Agency (SASSA) (n=7). In contrast, expert Danielle noted that this was definitely part of the rural-based occupational therapist's duties, and mentioned other important factors in this process:

“Definitely, and have a good relationship with SASSA. I found this also required A LOT of ethical reasoning and took a long time to feel confident in my decision making regarding grants”

Expert Julie stated that occupational therapists were important team members in this process, “especially for people with mental health issues”. Kim provides examples of two contrasting situations for consideration in the process of disability grant assessments:

“A challenge when patients see rehab services as [the] entry point to receiving a grant and then not complying with rehab in order to enhance chances to qualify for a grant (in this scenario [it is] better if DG assessments are independent from health services). A useful function in cases where the patient is well-known to rehab services and can be assisted there and then; without extra expenses and effort to access services elsewhere (travel, more assessments, more people involved).”

Statement 20

While this statement regarding facilitating disability inclusive development within communities achieved consensus, expert comments indicated that therapists should be able to work with stakeholders who may be better positioned to perform these duties (n=1), and that “[s]ocial development could appoint therapists to facilitate this” (Cora). Expert Julie commented that this aspect of work in rural healthcare is a “specialist” ability and way of thinking” which junior therapists would not perform.

Statement 21

This statement related to the need for rural-based occupational therapists to be able to establish and contribute to sustainable services. Comments on this statement showed support of sustainability efforts (n=2), “as far as it lies within their power” (Rachel). Another expert, Julie, noted that sustainability may be limited by specific budgetary and managerial restrictions and that external organisations may be of assistance:

“Due to budget restrictions and some CEOs a sustainable service may be very limited within the district hospital. It is important that we recognise the

gaps and motivate for resources to bridge these gaps - this may mean liaison with external organisations”

Statement 22

Experts recognised the challenge staff turnover causes and mentioned that the human resource (HR) department may be responsible for the task of permanent post creation (n=1), but that the institutional organograms to which HR referred for staffing needed to be reviewed based on the need identified per facility (n=1). Organogram development was mentioned by another expert, Julie, who also noted the need for “strong guidance and direction from district and provincial co-ordinators”, without which therapists would experience difficulty in attempting to effect change in HR and managerial decision-making regarding staffing. Julie also stated that it was important for therapists to understand the role of co-ordinators, budgeting and decision-making by HR, and how organograms are developed. One expert, Danielle, mentioned retention of staff as a mark of a healthy hospital:

“Definitely, an indication of a growing healthy hospital is one which retains more staff than it loses every year. This needs to be fought for, along with [accommodation] for a growing staff team...”

Another expert recognised the challenge of service delivery interruptions and related it to the fact that CS therapists were only employed at an institution for one year (n=1). Expert Kim provided insight into some of the reasons for the high staff turnover in rural hospitals:

“But [the] reason for high staff turnover in rural areas is much bigger... Poor quality schooling, poor municipal services, poor quality accommodation, generally poor management, limited employment opportunities for spouses....Those are the main things driving people away.”

Statement 23

Expert Julie commented on this statement on accessing evidence-based resources and stated that the evidence-based practice should specifically be “rural based evidence and rural appropriate practice”.

Statement 24

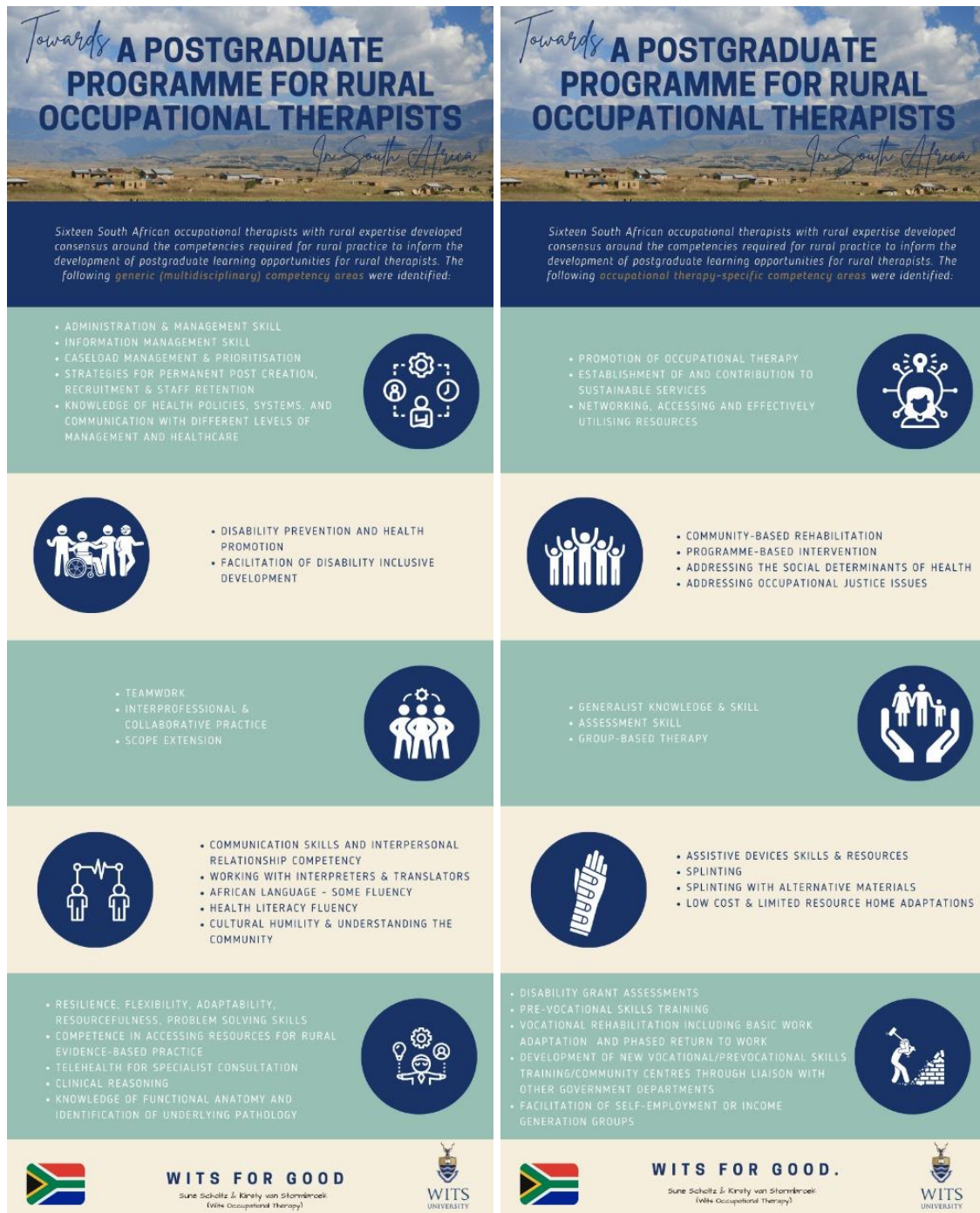
Although this statement on teamwork achieved consensus, one expert, Bianca, commented that this aspect of rural based healthcare happened “in an ideal world”. Expert Gabby stated that a strong base in teamwork was needed, “especially in conflict resolution and exceptional communication skills”, while Kim commented “transdisciplinary teamwork”, highlighting the specific type of teamwork needed in rural healthcare.

Statement 25

This statement related to the necessity of a support system for rural-based occupational therapists, and expert Julie commented:

“Knowledge of what is available is important - now there are more online resources to access”

Appendix F Infographic of results



Appendix G Turnitin report



Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author: **Sun Coetzee**
Assignment title: **FINAL TURNITIN FOR SUBMISSION Part 1 (Moodle TT)**
Submission title: **Research Report**
File name: **671_Sun_Coetzee_Research_Report_2878_911283989.docx**
File size: **1.85M**
Page count: **127**
Word count: **34,942**
Character count: **206,916**
Submission date: **19-Mar-2022 02:47PM (UTC+0200)**
Submission ID: **1359891628**



Research Report

ORIGINALITY REPORT

6%

SIMILARITY INDEX

5%

INTERNET SOURCES

3%

PUBLICATIONS

2%

STUDENT PAPERS

PRIMARY SOURCES

1

hdl.handle.net

Internet Source

1%

2

Submitted to University of Witwatersrand

Student Paper

1%

3

Edwin Mavindidze, Lana van Niekerk, Lizahn Cloete. "Inter-sectoral work practice in Zimbabwe: professional competencies required by occupational therapists to facilitate work participation of persons with disabilities", Scandinavian Journal of Occupational Therapy, 2019

Publication

<1%

4

wiredspace.wits.ac.za

Internet Source

<1%

5

etd.aau.edu.et

Internet Source

<1%

6

researchonline.jcu.edu.au

Internet Source

<1%

7

Benita Olivier, Michele Verdonck, Daleen Caseleijn. "Digital technologies in

<1%

undergraduate and postgraduate education
in occupational therapy and physiotherapy: a
scoping review", JBI Evidence Synthesis, 2020
Publication

8	Submitted to University of KwaZulu-Natal Student Paper	<1 %
9	www.sanews.gov.za Internet Source	<1 %
10	doras.dcu.ie Internet Source	<1 %
11	www.escif.org Internet Source	<1 %
12	Submitted to University of Stellenbosch, South Africa Student Paper	<1 %
13	journals.sagepub.com Internet Source	<1 %
14	www.tandfonline.com Internet Source	<1 %
15	www.hst.org.za Internet Source	<1 %
16	"Innovations in Rehabilitation Sciences Education: Preparing Leaders for the Future", Springer Science and Business Media LLC, 2005 Publication	<1 %

17	books.aosis.co.za Internet Source	<1 %
18	core.ac.uk Internet Source	<1 %
19	sajot.co.za Internet Source	<1 %
20	scholarshare.temple.edu Internet Source	<1 %
21	www.researchsquare.com Internet Source	<1 %
22	eprints.leedsbeckett.ac.uk Internet Source	<1 %
23	Martlie Mocke - Richter, Andrew Walubo, Cornel Rooyen. "A Framework for the Use of Biological Medicines in the Free State Province, South Africa", Pharmacoepidemiology and Drug Safety, 2021 Publication	<1 %
24	eprints.lancs.ac.uk Internet Source	<1 %
25	formative.jmir.org Internet Source	<1 %
26	scholarworks.sjsu.edu Internet Source	<1 %

27	S. OTA. "Definitions for haemophilia prophylaxis and its outcomes: The Canadian Consensus Study", Haemophilia, 1/2007 Publication	<1 %
28	researchspace.ukzn.ac.za Internet Source	<1 %
29	static.pmg.org.za Internet Source	<1 %
30	ulspace.ul.ac.za Internet Source	<1 %
31	researcharchive.wintec.ac.nz Internet Source	<1 %
32	Oakes, William C.. "Engineering Your Future", Oxford University Press Publication	<1 %
33	frdc.com.au Internet Source	<1 %
34	libguides.wits.ac.za Internet Source	<1 %
35	www.biomedcentral.com Internet Source	<1 %
36	Submitted to Griffth University Student Paper	<1 %
37	Submitted to University of the Western Cape Student Paper	<1 %

38	melbourneinstitute.unimelb.edu.au Internet Source	<1 %
39	Submitted to Cranfield University Student Paper	<1 %
40	Rebecca Jean Chedid, Angela Dew, Craig Veitch. "Barriers to the use of Information and Communication Technology by occupational therapists working in a rural area of New South Wales, Australia", Australian Occupational Therapy Journal, 2013 Publication	<1 %
41	Sarah Lee. "Starting out in rural New South Wales: the experiences of new graduate occupational therapists", Australian Journal of Rural Health, 1/2003 Publication	<1 %
42	Submitted to University of Essex Student Paper	<1 %
43	flinders.edu.au Internet Source	<1 %
44	repositorio-aberto.up.pt Internet Source	<1 %
45	Ann E. Parkin. "WORK EXPERIENCE PROGRAM AT A METROPOLITAN PAEDIATRIC HOSPITAL: ASSISTING RURAL AND METROPOLITAN ALLIED HEALTH PROFESSIONALS EXCHANGE	<1 %

CLINICAL SKILLS", Australian Journal of Rural
Health, 12/2001

Publication

46	Submitted to Australian Catholic University Student Paper	<1 %
47	Valerio Tripi, Salvatore Sau, Anna Chiara Tizzoni, Emiliana Mansi et al. "A general thermodynamic model for eutectics of phase change molten salts in concentrating solar power applications", Journal of Energy Storage, 2021 Publication	<1 %
48	digitalscholarship.unlv.edu Internet Source	<1 %
49	etd.uwc.ac.za Internet Source	<1 %
50	www.emerald.com Internet Source	<1 %
51	www.moneyweb.co.za Internet Source	<1 %
52	Brent Daniel Mittelstadt, Luciano Floridi. "The Ethics of Big Data: Current and Foreseeable Issues in Biomedical Contexts", Science and Engineering Ethics, 2015 Publication	<1 %

53	Charle Andre Viljoen, Rob Scott Millar, Kathryn Manning, Vanessa Celeste Burch. "Determining electrocardiography training priorities for medical students using a modified Delphi method", Research Square, 2020 Publication	<1 %
54	bmjopen.bmj.com Internet Source	<1 %
55	eprints.usm.my Internet Source	<1 %
56	health-policy-systems.biomedcentral.com Internet Source	<1 %
57	onlinelibrary.wiley.com Internet Source	<1 %
58	pdfs.semanticscholar.org Internet Source	<1 %
59	pure.ulster.ac.uk Internet Source	<1 %
60	pureadmin.qub.ac.uk Internet Source	<1 %
61	research-repository.griffith.edu.au Internet Source	<1 %
62	research.assaf.org.za Internet Source	<1 %

63	uir.unisa.ac.za Internet Source	<1 %
64	www.afmc.ca Internet Source	<1 %
65	www.recoveryhumanface.org Internet Source	<1 %
66	Gururajaprasad Kaggal Lakshmana Rao, Yulita Hanum P Iskandar, Norehan Mokhtar. "Developing consensus in identifying challenges of undergraduate orthodontic education in Malaysian public universities using e - Delphi", European Journal of Dental Education, 2020 Publication	<1 %
67	Jeannine Millsteed. "The contribution of occupational therapy to the fabric of Australian rural and remote communities", Australian Occupational Therapy Journal, 2010 Publication	<1 %
68	Judith Merritt, David Perkins, Frances Boreland. "Regional and remote occupational therapy: A preliminary exploration of private occupational therapy practice", Australian Occupational Therapy Journal, 2013 Publication	<1 %
69	Mariko Oshiro, Midori Kamizato, Sayuri Jahana. "Factors Related To Help-Seeking For	<1 %

Cancer Medical Care Among People Living In Rural Areas: A Scoping Review", Research Square Platform LLC, 2022

Publication

70	ajod.org Internet Source	<1 %
71	digiresearch.vut.ac.za Internet Source	<1 %
72	docplayer.net Internet Source	<1 %
73	doi.org Internet Source	<1 %
74	educationforhealth.net Internet Source	<1 %
75	effectivehealthcare.ahrq.gov Internet Source	<1 %
76	eprints.qut.edu.au Internet Source	<1 %
77	eprints.utas.edu.au Internet Source	<1 %
78	f1000research.com Internet Source	<1 %
79	link.springer.com Internet Source	<1 %

80	open.library.ubc.ca Internet Source	<1 %
81	www.dovepress.com Internet Source	<1 %
82	www.researchprotocols.org Internet Source	<1 %
83	www.statssa.gov.za Internet Source	<1 %
84	www.unicef.org Internet Source	<1 %
85	Abigail M Hatcher, Michael Onah, Saul Kornik, Julia Peacocke, Stephen Reid. "Placement, support, and retention of health professionals: national, cross-sectional findings from medical and dental community service officers in South Africa", Human Resources for Health, 2014 Publication	<1 %
86	Caroline Deignan, Alison Swartz, Sara Cooper, Christopher J. Colvin. "Stakeholders' Understandings of Human Papillomavirus (HPV) Vaccination in Sub-Saharan Africa: A Rapid Qualitative Systematic Review", Vaccines, 2021 Publication	<1 %
87	bmchealthservres.biomedcentral.com	

<1 %

88

Mark C. Creamer, Tracey Varker, Jonathan Bisson, Kathy Darte et al. "Guidelines for peer support in high-risk organizations: An international consensus study using the delphi method", Journal of Traumatic Stress, 2012

Publication

<1 %

89

Nils Erik Ness, Sissel Horghagen. "Occupational Therapy in Norway: Influence of the Nordic Welfare State Policy and the Professional Development of Occupational Therapy and Occupational Science Worldwide", Annals of International Occupational Therapy, 2020

Publication

<1 %

90

Rebecca Mete, Jane Kellett, Rachel Bacon, Alison Shield, Kristen Murray. "The P.O.S.T Guidelines for Nutrition Blogs: A Modified e-Delphi Study", Journal of the Academy of Nutrition and Dietetics, 2021

Publication

<1 %

91

Submitted to International School of Geneva

Student Paper

<1 %

92

analytics-magazine.org

Internet Source

<1 %

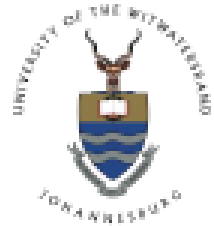
Exclude quotes On

Exclude matches Off

Exclude bibliography On

Appendix H Plagiarism declaration

Faculty of Health Sciences, Postgraduate Office
Philip V Tobias Building, 2nd Floor
Cnr York & Princess of Wales Terrace, Parktown 2193
Tel: (011) 717 2745 | Fax: (011) 717 2139
Email: Mathoto.senamela@wits.ac.za



PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I Suné Scholtz (Student number: 2009856) am a student
registered for the degree of MSc Occupational Therapy in the academic year 2021.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unsided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unsided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature: S. Scholtz Date: 15/03/2022