



Occupational Therapy Association of South Africa



SOUTH AFRICAN JOURNAL OF OCCUPATIONAL THERAPY

VOLUME 54, NUMBER 1, APRIL 2024, ISSN ONLINE 2310-3833



South African Journal of
Occupational Therapy
(SAJOT)

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Journal Web site: <https://sajot.org.za/index.php/sajot>

ISSN Print: 0038-3887

ISSN On-line: 2310-3833

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Laying claim to occupational therapy practice, one rapid review at a time

The Occupational Therapy Association of South Africa (OTASA) wanted to understand the current occupational therapy research focus areas in South Africa and possibly develop recommendations for occupational therapy priority research areas for the future. The setting of research priorities is seen as an important activity for every organisation¹. The understanding of the research priority areas would assist the occupational therapy profession in developing and providing research-based evidence to support occupational practice in preparation for Universal Health Coverage (UHC).

The World Health Organisation (WHO) defines UHC as ensuring that all people have access to promotive, preventative, curative, rehabilitative and palliative services². As part of the process of preparing for transformed healthcare through the National Health Insurance (NHI) in South Africa, there is a need for the development of treatment guidelines. Treatment guidelines are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. In response to the latter request to formulate guidelines, OTASA commissioned a research project in 2023 that focused on the use of Rapid Reviews in order to provide the necessary research-based evidence to support occupational therapy practice in South Africa. Rapid review methodology was selected as a strategy due to the following benefits it offers: 1) It takes minimal time to identify credible research 2) It produces reliable research evidence in order to support decision making 3) It provides support for treatment approaches, and 4) It is a cost-effective research strategy. Rapid reviews have increased in popularity by various stakeholders including the Cochrane Collaboration, as an evidence-based strategy that allows health policy makers to make decisions in limited timeframes with limited resources^{3, 4}.

Supporting the OTASA initiative, a mapping review by Hendricks, Buchanan and Clark⁵ of research published in this journal, the South African Journal of Occupational Therapy (SAJOT) called for a South African based occupational therapy research strategy to support evidence-based practice. Research conducted by Soeker and Olumide⁶, identified the need to obtain Level 1A and Level 1B occupational therapy researched-based evidence to provide sound evidence of the contribution of the occupational therapy profession to the health and wellbeing of South Africans. They identified specific areas of occupational therapy practice for which high level evidence was needed. In Paediatrics: HIV, Cerebral Palsy, Intellectual disability and Long-term health conditions and in Adults: Stroke (CVA), TBI and Spinal cord injury. This edition of SAJOT features the first two of a series of rapid reviews conducted by a team of four researchers over a period of eight months. Van Biljon et al.⁷ provide a comprehensive

description of research evidence in the area of Burns and Van der Walt et al.⁸ provide a thorough description of occupational therapy practice evidence with reference to Autism Spectrum Disorder. The reviews provide evidence that supports the importance of occupational therapy as an intervention to remediate the functional deficits related to the medical conditions mentioned above. Furthermore, the rapid reviews provide direction and recommendations for continued research in the respective areas of practice. Further reviews will be published in subsequent editions of the SAJOT. In conclusion, I would like to urge the occupational therapy community to continue to engage in and publish evidence-based research that highlights the important contribution that we tirelessly make to the lives of all our clients throughout South Africa. Without the presentation of evidence that supports our practice, we may negatively affect the scientific contribution that occupational therapy provides as a profession.

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REFERENCES:

- 1) World Federation of Occupational Therapists, Mackenzie L, Coppola S, Alvarez L, Cibule L, Maltsev S, Loh S, Mlambo T, Ikiugu MN, Pihlar Z, Sriphetcharawut S, Baptiste S, Ledgerd R. International Occupational Therapy Research Priorities: A Delphi Study OTJR: Occupation, Participation and Health. 2017. DOI: <https://doi.org/10.1177/1539449216687528>
- 2) The world health report 2010 – Health systems financing: the path to universal coverage Geneva: World Health Organization; 2010. Available from: http://www.who.int/whr/2010/whr10_en.pdf [accessed 2 June 2013]
- 3) King, V.J., Stevens, A., Nussbaumer-Streit, B. et al. Paper 2: Performing rapid reviews. Syst Rev 11, 151 (2022). <https://doi.org/10.1186/s13643-022-02011-5>
- 4) Garritty, C., Gartlehner, G., Nussbaumer-Streit, B., King, V. J., Hamel, C., Kamel, C., Affengruber, L., & Stevens, A. Cochrane Rapid Reviews Methods Group offers evidence-informed guidance to conduct rapid reviews. 2021 Journal of clinical epidemiology, 130, 13–22. <https://doi.org/10.1016/j.jclinepi.2020.10.007>
- 5) Hendricks F, Buchanan H, Clark A. Wrestling with evidence-based practice: An evidence mapping review of publication trends in the South African Journal of Occupational Therapy. South African Journal of Occupational Therapy. Vol 23 No 3. December 2023. <https://doi.org/10.17159-2310-3833/vol53no3a5>

- 6) Soeker MS. & Olaoye, O. Determining the research priorities for the profession of occupational therapy in South Africa. South African Journal of Occupational Therapy. 2023. Vol 53 No1, April 2023. DOI: <https://doi.org/10.17159/2310-3833/2023/vol53n1a2>
- 7) Van Biljon HM, Engelbrecht M, Van der Walt J, Soeker, S. Occupational therapy practice with burn injuries – A rapid review. South African Journal of Occupational Therapy. Vol 54 No 1. April 2024. DOI: <https://doi.org/10.17159/2310-3833/2024/vol54no1a9>
- 8) Van der Walt J, Engelbrecht M, Van Biljon HM, Soeker, S. Occupational Therapy interventions for Autistic Spectrum Disorder. South African Journal of Occupational Therapy. Vol 24 No1. April 2024. DOI: <https://doi.org/10.17159/2310-3833/vol54no1a10>

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generic work skills, standard scores for ability (productivity), South African work context, screening assessment tool

HOW TO CITE THIS ARTICLE

Franzsen D, Gurayah T, Magill K, de Witt PA.
Clinical evaluation, useability and utility of the Work Ability Screening Profile II (WASP II). South African Journal of Occupational Therapy. Vol 54 No 1 April 2024. DOI: <https://doi.org/10.17159/2310-3383/2024/vol54no1a2>

ARTICLE HISTORY**Submitted:** 28 April 2023**Reviewed:** 11 October 2023**Revised:** 27 October 2023**Accepted:** 29 October 2023**EDITOR**

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Data available on request from the corresponding author

FUNDING

No funding was received for the research.

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ISSN On-line 2310-3833

Clinical evaluation, useability, and utility of the Work Ability Screening Profile II (WASP II)

ABSTRACT

Introduction: The Work Ability Screening Profile (WASP) was conceptualised and developed by occupational therapists at the University of Durban Westville to provide a basic vocational screening assessment. Its purpose was to screen competence in generic work skills which reflected performance in activities essential to workplace participation relevant to the South African context. The assessment was revised in 2005 and renamed the WASP II. It was decided this screening assessment tool would be continuously reviewed using action research with clinicians involved in the ongoing evaluation so ensure validity and reliability for the population with which it is used. This study considered the clinical evaluation, useability and utility of the WASP II in order to inform further revision.

Method: A cross sectional survey was used to gather data from 70 occupational therapy clinicians familiar with or using the WASP II in clinical practice.

Results: A sample of 70 respondents indicated the WASP II was suitable to assess current work ability and production speed with a variety of clients with physical and mental health dysfunction. Ten of the 12 subtests were used by at least 40% of the time by the 28 respondents who used the WASP II frequently. These respondents reported good to adequate useability in terms of cost, sensitivity to clients' educational level and ease of understanding instructions, incorporation into clinical practice contexts while supporting clinical reasoning and judgement. The accommodation of clients' language and provision of standard scores were indicated as inadequate. Utility was considered adequate for all aspects including discrimination of moderate to severe dysfunction, informing the choice of other assessments as well as supporting vocational rehabilitation intervention. The WASP II outcomes were also understood by other service providers, employers, referring parties as well as clients.

Conclusion: While the WASP II was considered appropriate for use in the South African context and has adequate useability and utility, some subtests need to be updated and revised in terms of the standard times and content validity for current practice in the work environment.

Implications for practice

The WASP II has useability

- aligned with generic work skills of acquiring information or following directions numeracy, conveying information and written communication
- for with those with work experience and with scholars and students yet to enter the workplace

The WASP II has utility in relation to

- cost and clients' educational levels
- detailed instructions on the task layout but some standardisation needs to be interpreted with care
- sensitivity to all aspects of assessment of generic work skills, except discrimination of mild dysfunction

INTRODUCTION

Vocational rehabilitation has been included in the Compensation for Occupational Injuries and Diseases Amendment Bill in 2020¹ and makes provision for funding for these multidisciplinary services for workers injured on duty by the Department of Employment and Labour in South Africa. These services may be offered by occupational therapists², to a diverse client base due to multicultural, educational, political and socio-economic diversity within the country.

It is essential that a work assessment for dysfunction related to work, or to prevent work dysfunction from occurring is customised for each individual, be it preparing for or the worker role, returning to work, or being considered for an alternate work role. This is due to the individual nature of clients, their work capacity and work interests, experiences and capacities and illness/disability limitations related to various job demands³. Relevant general or basic work skills or prevocational skills need to be screened to gain an initial indication of the individual's work abilities to assist in the selection of appropriate vocational assessments to evaluate specific work skills⁴. In South Africa, this presents challenges for assessing generic work skills due to a lack of locally standardised work assessments.

The need for a basic vocational screening assessment to screen generic work skill competencies reflecting performance in activities essential to workplace participation⁵ relevant for the South African context was expressed by occupational therapists in KwaZulu Natal as far back as 1995⁵. The high cost of available work assessment screening instruments (most of which had been standardised in the global north), could not be justified in the light of other health and rehabilitation needs⁶. In addition, the imported tests were not found to be culturally or language-impartial for the local population served⁷. Clinicians believed that rather than just observing general activity participation as a screening for work ability, they required a more contextually relevant, valid and reliable screening tool with evidence-informed scores⁶. This was essential to substantiate findings in reports and criteria to support more comprehensive assessment⁸.

Led by Sue Barnard, a team of lecturers and students from the University of Durban Westville (now University of Kwa-Zulu Natal (UKZN)), clinicians from KwaZulu Natal's public sector occupational therapy departments treating patients with psychiatric, neurological, and physical dysfunction, as well as occupational therapists in private practice considered experts in the field of vocational rehabilitation, collectively developed a series of job samples in subtests. These subtests considered components necessary for work ability screening. Approximately three weeks was spent constructing a series of job samples which included basic work tasks typical within the South African work context⁸, which collectively became the prototype named the Work Ability Screening Profile (WASP I)⁸.

General work requirements including memory, concentration, decision making, judgement, organising and planning, motor abilities, co-ordination, dexterity, following of

instructions and dynamic postures (which were later reflected in the 'activities' component of the International Classification of Functioning, Disability and Health (ICF)⁹, were determined for each of the tasks included in the WASP I screening battery. Tasks to evaluate some psychosocial components such as client perceptions of stress, time management and issues in their work situations were also included in the battery⁸.

Scores for both ability (competence) and speed (productivity) were compiled. Lack of ability was judged on the number of errors made during the task execution. Speed was measured using Modular Arrangement of Predetermined Time Standards (MODAPTS)¹⁰ which allows for the comparison of a clients' performance against the time taken by an average competent worker completing the screening assessment tasks. Detailed information on the structuring of each screening assessment task was provided so as to conform to the speed standards provided⁸. All subtests were designed to be standalone, and therapists could choose to administer subtests that suited the client's needs. Moreover, the screening provided a baseline for further in-depth testing and designing of vocational rehabilitation intervention programmes⁸. The reliability and validity of the WASP I was not researched. The occupational therapists used their clinical skills and experience to interpret test performance⁶.

The WASP I was revised and published as the WASP II in 2005. Decisions regarding the revisions were based on the clinical experience of using the WASP I by a team of three experienced occupational therapists working in vocational rehabilitation and academia. Changes that were made included adding and removing tasks in the subtests, changing times and scoring in some job samples⁸. In the WASP II, it was made clear that not all subtests were timed, and these subtests reflected ability scores alone. There were plans to develop more specific tasks for particular occupations to add to the WASP II but these plans were not followed up so only the 12 job samples which screen basic work skills were retained⁸. To facilitate the ongoing development of the screening assessment it was decided the WASP II would be continuously reviewed using action research with clinicians involved in the ongoing evaluation and revision of the screening assessment. This process was anticipated to allow the occupational therapist to screen for capability consistent with criteria based on standards and competence measured using accuracy appropriate to the South African employment context⁸. The purpose of this action research was to evaluate the appropriateness of the screening instrument in terms of theoretical and empirical evidence of validity, reliability, and compatibility with local service delivery, needs and population fit¹¹.

The WASP I and WASP II have been produced and sold by the University of KwaZulu Natal since 1995 and 2005 respectively⁸. Although many kits were purchased, the assessment has not been systematically evaluated and the useability and clinical utility of the WASP II to screen clients in current occupational therapy practice in South Africa has not been determined.

Literature review

The purpose of any screening battery is to identify those at risk of poor performance in various domains related to work, and participation differences amongst referred clients, to determine if a detailed vocational evaluation is required using appropriate, reliable and valid standardised tests.

The evaluation of a screening assessment such as the WASP II is contingent on the purpose for which it is used. The WASP II at present is used clinically as a diagnostic tool¹² to evaluate the nature and extent of a client's deficits in generic work skills or prevocational skills based on their level of education.

The assessment also has the potential to be used as a work readiness assessment¹³ to determine what prevocational skills have been consolidated, and which need to be further developed, for example with adolescents who are required to transition into the workplace¹⁴. There are other standardised screening assessments which evaluate generic work skills but do not include the components assessed by the WASP II. Two examples are the Assessment of Work Performance (AWP)¹⁵ and Work Ability Index (WAI)¹⁶. The AWP¹⁵ is an activity-based assessment of a client's work ability skills when performing any work activity in real-life and other settings where findings are reported in relation to body structure, as well as motor skills, process skills and communication skills. Three specific structured simulated work tasks have been added to the AWP and this specific application instrument is called the AWP-SA¹⁷. The WAI also screens aspects affecting work but is a self-report questionnaire which includes one section on mental capabilities for work¹⁶.

Literature indicates the following guidelines be used for the evaluation of universal screening assessments: The targeted domain, constructs and the format of the screening assessment must be clearly defined. Clarity on whether the screening assessment needs to be used in its entirety, how information will be obtained, as well as how often the assessment should be administered must be justified. The clinical useability and utility of the screening assessment should be determined¹¹.

Useability

Even if a screening assessment has been shown to be valid and reliable, aspects such as feasibility of the administration, identification outcomes, and compatibility with local service delivery needs must be ensured⁶. Smart (2006)¹⁸ conceptualised clinical utility under four constructs for interventions in the workplace: appropriateness, relevance, practicality and accessibility in terms of cost. Appropriateness is related to how effective the assessment is and how it fits into the existing intervention process which includes formal evidence for the use of the assessment. Relevance relates to the impact it has on treatment and clinical decision-making. A screening assessment should be able to identify difficulties that an individual currently experiences¹⁹ across the working age bands and with both acute and chronic conditions. The WASP II has been used with subacute and chronic multi-diagnostic clients from 15 years to 65 years. The assessment was designed to accommodate persons with a

wide range of educational backgrounds, although some job samples require a basic level of literacy, and no work experience is required. The WASP II has been used to screen clients for medicolegal and insurance claims and return to work situations. Additionally, it has also been found to be suitable for screening of prevocational skills for scholars and for job seekers⁸.

The practicality of the screening assessment considers the administration setting, training required, time efficiency, scoring complexity as well as accessibility in relation to the cost relative to the benefits of identifying dysfunction²⁰. The WASP II is accessible in terms of the cost of administration and cost-effectiveness in reusing materials¹⁸. The subtests must be administered by an occupational therapist and their professional knowledge and experience are required for observations to support the scores obtained and in interpreting the results. Practicality in the administration of all job samples in the WASP II in terms of the completeness of the instructions have been addressed and the job sample layout is standardised irrespective of the position of the therapists in relation to the client during testing. The scoring is relatively simple since ability and speed are scored on a 5-point scale with a rating of 5 indicating above average performance and with a rating of 1 indicating severely impaired performance⁸.

Utility

The utility of an assessment determines acceptability to all stakeholders, including the clients, their family, the multidisciplinary team, employers, legal experts and insurance companies for meaningful impact on service delivery¹⁸. All stakeholders should be able to understand the implications, consequences and outcomes of the screening assessment. In the WASP II all subtests are presented in English and a translator may be used to explain the instructions if the client's first language is not English, but no formal translation of these instructions is available. Knowledge of appropriate further assessments, interventions and work accommodations needed are based on the screening are also important. Screening without the opportunity for further, more comprehensive assessment, intervention planning and service delivery is a waste. It can result in the unnecessary labelling of clients as disabled, which may impact their ability to achieve future outcomes¹⁸.

Recommendations as a result of the screening assessment should be feasible and contextually relevant²⁰. This includes the ecological validity of the screening assessment in relation to real-world tasks and real-world functioning in employment²¹. To improve the relevance of the WASP II, job samples were based on South African educational norms and 12 job samples which reflect generic abilities required in many occupations were assessed⁸. WASP II was designed to screen sample behaviours in a context other than the workplace. The choice of administering only some subtests or tasks relevant to the client allows for a client-centred approach¹⁸ and the effect of testing on the clients themselves, can be monitored by the occupational therapist²². The WASP II can be administered

to one client or in a group of up to five clients at a time. The WASP II can also be administered according to the client's level of endurance, for example, a few job samples a day i.e., 2/3 or more/ up to 5/6 at a time⁸.

METHODOLOGY

Study design

This study used a quantitative, descriptive and cross-sectional survey design. A questionnaire was used to gather data to describe the use of the WASP II and the reported useability and utility of the WASP II in occupational therapy services.

Population and Sampling

Occupational therapists living and working in South Africa who are members of the Occupational Therapy Association of South Africa (OTASA) or who had purchased the WASP II constituted the population for this study. Convenience and snowball sampling were used. Participants who received the survey were asked to forward it to other occupational therapists they knew who had experience using the WASP II.

Since the number of occupational therapists who have had experience using the WASP II was unknown, based on the fact that 100 occupational therapy practices/departments had bought the WASP I and II, it was estimated that a sample of 55 participants was required to be representative of this population, with a 5% margin of error accommodating for a small sample size, according to Cochranes formula²³.

Research Instrument

An online questionnaire for occupational therapists was specifically developed by the researchers to evaluate the characteristics of the WASP II, as well as the useability and utility in clinical settings. The questionnaire incorporated questions similar to those used in a published study for determining the utility and useability of another instrument²⁴. The questionnaire included both closed and open-ended questions.

The questionnaire was piloted for content validity and relevance by occupational therapists familiar with the WASP II, but who were not presently using the WASP II in their practices. Five occupational therapists with experience in questionnaire development and familiar with vocational assessments were purposively selected and requested to comment on the relevance, clarity and ambiguity of the questions²⁵. In addition, they were asked to propose any other questions that should be included in the questionnaire²⁶. Eight questions did not achieve a score of 0.8 on the Content Validity Index (CVI) and these questions were therefore removed.

Research Procedure

The questionnaire, the information letter and consent to participate was distributed on an electronic link on the Research Electronic Data Capture (REDCap) system²⁷ via the OTASA platform and individually to occupational therapy departments based on the UKZN's purchase records of the WASP II. Those receiving the survey were asked to forward it to other occupational therapists practicing vocational rehabilitation²⁶ who were not members of OTASA.

The participants were given a month to respond. Ethical clearance for the study was obtained from University of KwaZulu Natal Humanities and Social Sciences research ethics committee.

Data Analysis

Demographic and contextual factors, as well as all questions on the questionnaire, were analysed using frequencies and percentages. The open-ended questions were analysed using summative analysis and comments were identified as positive or negative responses.

RESULTS

Seventy-seven respondents completed the questionnaire, but only 70 questionnaires were analysed as seven were incomplete.

Demographics of the sample

As seen from Table I (below) the greatest number of respondents were between the ages of 40-45 years, with nearly half of respondents having postgraduate training or postgraduate degrees.

Table I: Demographics of respondents

		n	%
Age(n=70)	20-29	9	12.85
	30-39	21	30
	40-49	23	32.85
	50-59	10	14.28
	60+	5	7.14
Level of OT qualification(n=70)	B OT/BSc OT	36	51.42
	Postgraduate diploma	15	21.42
	MOT/MSc OT	17	24.28
	PhD	1	1.42
Work Sector (n=134)*	Private sector	47	67.14
	Insurance	28	40.00
	Medicolegal	29	41.42
	Public Sector	8	11.42
	Health	10	14.28
	Basic education	4	5.71
	Military	3	4.28
	NGO	1	1.42
	Other*	4	5.71
* Some respondents indicated that they provided services in more than one sector. Sectors in Other included: higher education, the mining sectors and the Road Accident Fund (RAF).			

Respondents reported having completed additional training courses on vocational assessment, ranging from postgraduate courses, MODAPTS Plus courses to webinars. Over 40% of respondents had more than 10 years' experience in vocational rehabilitation.

Evaluation of the WASP II

Respondents provided services to more than one type of client in their clinical practices, with more than 80% providing services to clients with physical impairments and more than 60% providing services to clients with mental health concerns. Disability assessments for the Road Accident Fund (RAF) and Passenger Rail Agency of South Africa (PRASA), as well for medical negligence cases were included under 'Other' in the answers.

The WASP II was used most frequently with the clients' presenting with traumatic brain injuries (27%) and upper limb and hand injuries (26%). Forty two percent of respondents indicated they screened clients with depression, schizophrenia, bipolar mood disorder and anxiety using this screening assessment. Other clients included neurological conditions, such as stroke, spinal cord injuries, learning disabilities and intellectual disabilities. The WASP II was found to be suitable irrespective of the first language (11%), as well as for clients with no previous work history (20%), and for acute or chronic conditions (59%), but was least useful for a client with visual deficits.

Respondents reported that the subtests of the WASP II were used most frequently to screen/assess current work ability (42%) and production speed (71%), and least frequently for work placement in new /alternative jobs (14%). The results of the WASP II were used in reports for insurance companies (29%), employers (21%), and medico-legal associates (20%).

Only 26 of the 70 respondents who used the WASP II in clinical practice felt they were familiar enough with the WASP II to answer section 2 of the questionnaire. Results for these participants are presented in Table II (below). The analysis of open-ended questions on each subtest indicated the appropriateness of the subtests for the South African context are also reported in Table II (below). Ten of the 12 subtests were used by more than 40% of the respondents. Tasks for comprehension, graded arithmetic and basic accounting were used by the highest percentage (73.91%) of respondents.

Table II:Subtest use and evaluation

	Percentage who used subtest	Positive and negative comments for each subtest	
Subtest 1 General Cognitive Functions			
Orientation	39.13	Positive: easy and quick to administer, appropriate, especially for the South African context, good determination of basic cognitive functioning including memory and a range of work abilities.	Negative: orientation and general awareness are too basic and inappropriate for some clients.
General Awareness	34.78		
Functional Memory: Task 1 - auditory recall	65.22		
Functional Memory: Task 2 - visual recall	60.87		
Subtest 2- Writing			
Writing Samples 1 and 2	17.39	Positive: easy to conduct, good assessment of administration tasks, the efficiency of pencil grip and copying. Useful for scholars with learning problems, assessment of upper limb and cognitive problems.	
Subtest 3 Functional Reading & Comprehension			
Task 1: Comprehension	73.91	Positive: appropriate in determining comprehension/ understanding, a useful tool for scholars with learning problems, clients with a head injury, and workers in administration.	Negative: time-consuming, language barriers, sentence sequencing was unreliable, client dependent.
Task 2: Comprehension	65.22		
Task 3: Appropriate words	47.83		
Task 4: Sentence sequencing	30.43		
Subtest 4 Functional Mathematics			
Task 1: Graded arithmetic	73.91	Positive: practical, easy to explain, useful if less than grade 12, learning problems, head injuries and medico-legal reports, assesses cognition and financial/clerical skills	Negative: time-consuming, does not translate into function, not applicable to some clients
Task 2: Basic use of a calculator	65.22		
Subtest 5 Visual Perception			
Task 1: 3D to 3D copying	60.87	Positive: useful to screen for perceptual issues and task concept according to the Vona duToit Model of Creative Ability (VdTMoCA,) and for client who do manual labour.	Negative: other perceptual tools were preferred as more evidence based.
Task 2: 2D to 3D copying	47.83		

Subtest 6 Following instructions			
Task 1: Verbal instructions	39.13	Positive: useful to assess cognitive concerns, task concept within VdTMoCA, work ability for new and alternate jobs and clients with learning disabilities.	Negative: verbal scores not valid, use other tests.
Task 2: Written instructions	60.87		
Subtest 7: Problem Solving			
Task 1: Social awareness	34.78	Positive: very relevant to South Africa, useful for assessing clients with mental health issues and screening planning and general work and functional ability.	Negative: language barriers and other tests are more useful.
Task 2: Logical reasoning	30.43		
Task 3: Word associations	17.39		
Task 4: Verbal abstraction	21.74		
Subtest 8: Coordination and dexterity			
Task 1: Discs	43.48	Positive: useful for screening fine motor, unilateral and bilateral dexterity and hand manipulation.	Negative: norms for the subtest need improvement, preferred other tests, only useful for specific vocations
Task 2: Nuts and Bolts	52.17		
Task 3: Stencil cut out	8.70		
Subtest 9: Dynamic Posture			
Dynamic Postures	47.83	Positive: good alternative to the expensive tests, screening of memory, agility and mobility in work tasks and task concept in VdTMoCA.	Negative: too brief.
Subtest 10: Money Management			
Task 1: Identification of coins	26.09	Positive: necessary and appropriate useful for screening administrative tasks and money management intervention in head injury.	Negative: outdated – other more valid assessments.
Task 2: Calculating change	26.09		
Task 3: Reading a cash register receipt	21.74		
Task 4: Completing a bank deposit slip	17.39		
Task 5: Completing a cheque	13.04		
Task 6: Basic accounting	73.91		
Subtest 11: Organization and sequencing			
Filing cards	17.39	Positive: useful for screening for work ability in administrative tasks.	Negative: other methods preferred
Subtest 12: Computer Sample			
Task 1: Theory	26.09	Positive: practical, user-friendly for screening of work-related typing, computer and administration skills.	Negative: outdated and not user-friendly
Task 2: Practical	47.83		
Psychological battery			
Stress Questionnaire	56.52	Positive: useful with persons with mental illness, self-report tools effective and useful to understanding the source of stress.	Negative: long assessment and subjective. Source of questions
Time management	21.74		
Self report work situation	30.43		
Goal Setting at work	17.39		

WASP II useability and utility

Useability

The useability of the WASP II is presented in Table III (page 11). The majority of respondents agreed the WASP II was cost-effective, was sensitive to clients' educational level and the instructions were easy for the clients to understand. They also agreed the WASP II could easily be incorporated into clinical practice, was suitable to their practice context and supported their clinical reasoning. Fewer respondents agreed that administration time was appropriate, and the WASP II supported their clinical judgement. Only a third of respondents agreed that the WASP II provided standard scores for prevocational and vocational skills and was sensitive to the client's language.

Table III: Useability ofthe WASP II

	Variable	Percentage agreement
Cost and benefit	is cost effective as compared to other vocational screening tools	71
	is cost effective in relation to other work assessments	75
	provides standard scores for prevocational and vocational skills	33
Acceptability to clients	is sensitive to South African clients for culture	56
	is sensitive to South African clients for language	38
	is sensitive to South African clients for education level	67
	Is easy for the clients to understand in relation to the instructions	83
Appropriateness for clinical practice	subtests are appropriate in terms of administration time	54
	WASP II battery is appropriate in terms of administration time	54
	ease with which WASP II can be incorporated into clinical practice	63
	suitability of the WASP II to the practice context	67
	support of the WASP II to clinical reasoning	79
	support of the WASP II to clinical judgement	54
	Variable	Percentage agreement
Cost and benefit	is cost effective as compared to other vocational screening tools	71
	is cost effective in relation to other work assessments	75
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	ease with which WASP II can be incorporated into clinical practice	63
	suitability of the WASP II to the practice context	67
	support of the WASP II to clinical reasoning	79
	support of the WASP II to clinical judgement	54

Utility

While only a third of respondents agreed that the WASP II could identify mild dysfunction, between 67% -79% agreed that the screening assessment supports all other utility items, including discrimination for a severe level of dysfunction, informing the choice of other assessments and intervention, and supporting vocational rehabilitation intervention. Fewer respondents agreed that the WASP II outcomes were

understood by other service providers, referring parties such as lawyers and insurers, as well as clients, although most indicated this was not an issue for other health professionals and employers (Table IV below).

Table IV: Utility of the WASP II

	Variable	Percentage agreement
Discriminate between different levels of dysfunction	identify mild dysfunction	39
	identify moderate dysfunction	54
	identify severe dysfunction	78
	identify dysfunction irrespective of client's diagnosis	70
	identify prevocational skills	58
Clinical utility	can inform the choice of other assessments for a more detailed work evaluation	79
	can inform the choice of other clinical interventions	75
	informs report writing	75
Supports further work intervention	informs recommendations for work placement	74
	informs recommendations for work readiness	75
	informs recommendations for work support	75
	informs recommendations for work accommodations	67
	informs recommendations for return to work	67
Understanding the implications of the WASP II screening	other health professionals	100
	other service providers	52
	other referring parties such as lawyers and insurers	61
	employers	70
	Clients	57

DISCUSSION

Data for the study were collected from a heterogeneous group of occupational therapists providing vocational rehabilitation services to clients with different conditions in a variety of settings. Nearly half of the respondents in this study could be considered experienced clinicians as they had postgraduate qualifications and have been practicing in vocational rehabilitation for more than 10 years. Data can therefore be assumed to reflect the views of occupational therapists familiar with the WASP II screening assessment.

Most respondents reported selecting subtests on the WASP II that were aligned with individual client needs. Aspects of general work skills such as on-task behaviour, quality of work performance, work rate and errors²⁸ were assessed on all tasks in the WASP II except for the psychosocial battery.

The administration of the entire screening assessment and some subtests were considered inappropriate in terms of administration time by nearly half of the respondents, and mostly only one or two tasks within the subtests were administered in an assessment. The most frequently used subtests were: Functional reading and comprehension, Functional mathematics, Following instructions and Money management. The tasks for comprehension, graded arithmetic, basic accounting, use of a calculator and following written instructions were all used by more than 60% of respondents. The premise for assessing generic or general work using practical tasks, which are required in many work settings, was supported since these tasks align with key general²⁹ or generic work skills of acquiring information³⁰ or

or following directions²⁸, numeracy, conveying information³⁰ and written communication³¹. Positive feedback on the use of these generic work skills was also reported in terms of their use with scholars and students yet to enter the workplace, where adaptation of general or generic skills are increasingly required for changing job requirements³¹. The computer tasks which align with the generic work skill for application of information technology³¹, were used by fewer respondents, probably because the tasks were developed in 2005, Although based on programmes commonly used in computers, aspects of these tasks need to be updated.

Other key generic or general work skills such as organisation and applying logical processes³⁰ or problem solving³¹ can be assessed using the WASP II. However, the tasks in these subtests were only used by a third of respondents or less, even though positive comments indicated their appropriateness for the South African context and general work ability, especially with mental health care users (MHCUs). Respondents reported using other outcome measures to assess these aspects but did not specify which ones. In the Problem-solving subtest the social awareness task was more frequently used, supporting the importance of this aspect in the workplace, for the generic work skills or working with others or group³⁰ or team work³¹.

The General cognitive functions, Writing, Visual perceptual, Coordination and dexterity and Dynamic posture subtests, all include tasks which assess work skills related to impairments in memory, visual processing and fine and gross motor ability. Tasks for visual and auditory functional memory and 3D to 3D copying were used by more than 60% of respondents, while the tasks assessing gross and fine motor performance were used by more than 40% of respondents. The use of these tasks is congruent with clients with neurological, mental health and upper limb dysfunction, which respondents reported they assessed most frequently.

Some tasks such as writing samples, cutting a stencil, completing a bank deposit slip and completing a cheque were used by less than 17% of respondents. While these tasks may allow scoring of general work skills such as accuracy and errors, they required extra materials or were outdated, and did not reflect current practice in the work situation, and their retention needs to be reviewed.

The psychosocial battery, a self-report set of questionnaires, was used by 57% of respondents or less. The stress questionnaire was the most useful assessment in understanding work stressors, followed by the self-report of the situation at work. However, it was reported that the questionnaires were long with subjective results that need to be interpreted as such.

While the utility of the WASP II in relation to cost was considered good, the perceived lack of benefits in providing standardised scores was a concern. Even though the WASP II is based on MODAPTS standard times for the tasks with average times indicated for each, and detailed instructions on the task layout required on the mat provided, no information about the coded MODAPTS times was available in the assessment manual. The times can thus not be validated if required. A number of the tasks on the WASP II are not timed

and assess ability in relation to errors made. There is no standardisation for the number of errors scored, indicating the need for further research and validation of this aspect of the WASP II.

The WASP II was reported to be useable with acceptable sensitivity to clients' educational levels. It could be incorporated into clinical practice in various settings in South Africa, including private and public sectors and schools. Unlike the useability reported for the AWP assessment, the WASP II provides the required materials in the assessment kit since tasks are standardised and therapists do not need source resources¹⁷. Allowing flexibility in the use of one or many of the tasks in the assessment also meant the WASP II supported therapists clinical reasoning on the unique needs of each client, even if the lack of standardised scores especially for ability, did not offer as much support for their clinical judgement. The issue with the WASP II not accommodating the client's home language is an ongoing concern³² when screening and standardised assessments are used in a multilingual country like South Africa³³. A similar problem was reported in the utility of the AWP for clients whose home language was not Swedish, the language in which the assessment is administered¹⁷. Translation of instructions could be considered, but 83% of respondents agreed that the instructions in the WASP II were not complex and easy for clients to understand.

The utility of the WASP II was adequate for all aspects, except discrimination of mild dysfunction. This may be due to the labelling of the scores 5-1 on the WASP II. The MODAPTS standard time scores relate to the ability of the average worker, although this is indicated as an Above average for a score of 5 on the Likert scale on the WASP II for time and ability. A score of 5 could be reflected as Average to align with an intervention to maintain work ability as indicated on the Work Ability Index³⁴. A score of 4 or Average indicates the client may take twice as long to complete the task. This score should indicate Below average and align with support work ability on the Work Ability Index³⁴. A score of 3 should indicate mild impairment and a score of 2 should reflect moderate impairment which aligns with improving work ability and restoring work ability respectively on the Work Ability Index. A score of 1 is a severe impairment where the clients can take 10 times longer to complete a task and may be unable to achieve any work skill.

A strength of the WASP II is the clinical utility which informs other assessments and intervention and reporting in vocational rehabilitation. The scoring system also means that the implications of the WASP II can be understood by other stakeholders, but clarity and simplification of the results is required for clients and other service providers.

Limitations

The sample of respondents who evaluated the WASP II was small, and results must be viewed in that light. The screening assessment appears to be used by a limited number of therapists in practice, with a considerable variation in the number of therapists using a limited number of the subtests and tasks available in the WASP II battery.

Recommendations

This study has highlighted the need for some subtests and tasks on the WASP II to be revised. A need for additions to the manual indicating the MODAPTS coding for tasks which are timed, and further research to establish validity and reliability of the WASP II ability scores is recommended. The client, employers and other stakeholders' perspective of the implications of the WASP II screening assessments should also be established.

CONCLUSION

Many of the subtests and tasks on the WASP II were viewed as an appropriate assessment for screening general or generic work skills in relation to specific impairments in the South African context. WASP II screening assessment accommodates differing abilities in clients depending on the education level and diagnosis but may under-assess high-functioning clients. Except for clients' home language and providing standard scores for generic work skills, the WASP II was considered to have adequate useability and utility for use in clinical practice with a variety of clients as a screening tool. However, research for updating some subtests and tasks, particularly Organising and sequencing and Money management, is urgently required.

Author Contributions

Denise Franzsen and Pat de Witt conceptualised and carried out the research. Tavanesi Gurayah assisted with data collection and position of research historically. Kerry Magill assisted with data management and analysis.

Conflict of interests

The authors have no conflicts of interest to declare.

REFERENCES

1. Republic of South Africa. Compensation for Occupational Injuries and Diseases Amendment Bill B21-2020. 2020. [accessed 2021 Oct 06] <https://www.gov.za/documents/compensation-occupational-injuries-and-diseases-amendment-bill-10-sep-2020-0000#>
2. Casteleijn D. Occupational work therapy practice in South Africa. *Work*. 2007 [accessed 2021 Apr 12];29(1):1–2.
3. Kelly E, Maître B. Identification of skills gaps among persons with disabilities and their employment prospects. Dublin; 2021. Report No.: 107. doi:<https://doi.org/10.26504/sustat107>
4. Buys T, van Biljon H. Functional capacity evaluation: An essential component of South African occupational therapy work practice services. *Work*. 2007;29(1):31–36.
5. American Occupational Therapy Association. Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*. 2020;74(Suppl. 2):7412410010. doi: <https://doi.org/10.5014/ajot.2020.74S2001>
6. Harmse S. Evaluating validity of MODAPTS as an assessment method of work speed in relation to the open labour market. Masters dissertation. University of Pretoria; 2019. [accessed 2023 Oct 10] https://repository.up.ac.za/bitstream/handle/2263/68456/Harmse_Evaluating_2019.pdf?sequence=1
7. Laher S, Cockcroft K. Current and future trends in psychological assessment in South Africa: Challenges and opportunities. In: Laher S, Cockcroft K, editors. *Psychological assessment in South Africa: Research and applications*. New York: NYU Press; 2013. p. 535–552.
8. Discipline of Occupational Therapy, University of Kwa-Zulu Natal. Work Ability Screening Profile (WASP). 2006:2. [accessed 2021 Apr12]<https://www.pdfFiller.com/jsfiller-desk11requestHash=95ee70f4152dd11fda8b827a3e834db6439aa713c4d9393824ef77ec9bb0e0b0&projectId=687898362#641ea834afea5cdfa85523c65a47696e>
9. World Health Organization. International classification of functioning, disability, and health. 2001:303. doi:<https://doi.org/10.1300/J006v27n02>
10. Sullivan B, Carey P, Farrell J. Heyde's MODAPTS: A Language of Work. Jonesboro, AR: Heyde Dynamics Pty, Limited. Heyde DynamicsPty,Limited;2001.
11. Glover TA, Albers CA. Considerations for evaluating universal screening assessments. *Journal of School Psychology*. 2007;45(2):117–135.doi:<https://doi.org/10.1016/j.jsp.2006.05.005>
12. Bimrose J, Barnes S, Brown A, Hasluck C. Skills diagnostics and screening tools: A literature review. Warwick Institute for Employment Research: Department for Work and Pensions; 2007. [accessed 2022 Sept 22] https://warwick.ac.uk/fac/soc/ier/publications/2007/bimrose_et_al_2006_rrep459.pdf
13. Caballero CL, Walker A. Work readiness in graduate recruitment and selection: A review of current assessment methods. *Journal of Teaching and Learning for Graduate Employability*. 2010;1(1):13–25.doi:<https://doi.org/10.21153/jtlge2010vol1no1art546>
14. Nel L, van der Westhuyzen C, Uys K. Introducing a school-to-work transition model for youth with disabilities in South Africa.*Work*.2007;29(1):13–18.
15. Sandqvist JL, Törnquist KB, Henriksson CM. Assessment of work performance (AWP)–development of an instrument. *Work*. 2006;26(4):379–387.
16. Healy P, Jiang J, Brooke L, Taylor P. Work Ability Index. Promotion of Work Ability towards Productive Aging. 2008;(2):27–32.doi:<https://doi.org/10.1201/9780203882511.ch5>
17. Karlsson EA, Liedberg GM, Sandqvist JL. Initial evaluation of psychometric properties of a structured work task application for the Assessment of Work Performance in a constructed environment. *Disability and Rehabilitation*. 2018;40(21):2585–2591.doi:<https://doi.org/10.1080/09638288.2017.1342279>
18. Smart A. A multi-dimensional model of clinical utility. *International Journal for Quality in Health Care*. 2006;18(5):377–382.doi:<https://doi.org/10.1093/intqhc/mzl034>
19. Van Den Berg TIJ, Elders LAM, De Zwart BCH, Burdorf A. The effects of work-related and individual factors the work ability index: A systematic review. *Occupational and Environmental Medicine*.2009;66(4):211–220.doi:<https://doi.org/10.1136/oem.2008.039883>
20. American Educational Research Association (AERA), American Psychological Association (APA), National Council on Measurement in Education (NCME). Standards for educational and psychological testing. Washington.2014.<https://www.testingstandards.net/open-access-files.html>

21. Chaytor N, Schmitter-Edgecombe M. The ecological validity of neuropsychological tests: A review of the literature on everyday cognitive skills. *Neuropsychology Review*. 2003;13(4):181–197. doi:<https://doi.org/10.1023/B:NERV.0000009483.91468.fb>
22. Bossuyt PM, Reitsma JB, Linnet K, Moons KG. Beyond Diagnostic Accuracy: The Clinical Utility of Diagnostic Tests. *Clinical Chemistry*. 2012;58(12):1636–1643. doi:<https://doi.org/10.1373/clinchem.2012.182576>
23. Bartlett J, Higgins C, Kotrlik JW. Organizational research: Determining appropriate sample size for survey research. *Information Technology, Learning, and Performance Journal*. 2001;19(1):43–50.
24. Khokhar B, Jorgensen-Wagers K, Marion D, Kiser S. Military Acute Concussion Evaluation: A Report on Clinical Usability, Utility, and User's Perceived Confidence. *Journal of Neurotrauma*. 2021;38(2):210–217. doi:<https://doi.org/10.1089/neu.2020.7176>
25. Polit D, Beck C. The Content Validity Index: Are You Sure You Know What's Being Reported? Critique and Recommendations. *Research in Nursing & Health*. 2006;29:489–497. doi:<https://doi.org/10.1002/nur.20147>
26. Addington-Hall JM. Survey research: methods of data collection, questionnaire design and piloting. In: Addington-Hall JM, Bruera E, Higginson IJ and, Payne S, editors. *Research Methods in Palliative Care*. Oxford: Oxford University Press; 2007. p. 61–82. doi:<https://doi.org/10.1093/acprof:oso/9780198530251.003.0005>
27. Vanderbilt University. Research Electronic Data Capture (REDCap). 2019. [accessed 2021 March 23] <https://projectredcap.org/software/>
28. Sitlington PL. Students with reading and writing challenges: Using informal assessment to assist in planning for the transition to adult life. *Reading and Writing Quarterly*. 2008;24(1):77–100. doi:<https://doi.org/10.1080/10573560701753153>
29. Cappelli P, Rogovsky N. Skill Demands, Changing Work Organization, and Performance. EQW Working Papers WP32. Philadelphia; 1995. [accessed 2022 Jan 16] <https://eric.ed.gov/?id=ED394001>
30. McCurry D. Notions of Work-related Skill and General Abilities: The Generic Skills Debate and the The Whole-school Assessment of Generic Skills Doctoral thesis, Monash University; 2004. [accessed 2021 Oct 12] https://bridges.monash.edu/articles/thesis/Notions_of_Work-related_Skill_and_General_Abilities_The_Generic_Skills_Debate_and_the_The_Whole-school_Assessment_of_Generic_Skills/5188573/1
31. Pumphrey J, Slater J. An assessment of generic skills needs. London; 2002. [accessed 2021 Nov 19] http://dera.ioe.ac.uk/4698/1/SD13_Generic.pdf
32. Shafiee E, MacDermid J, Farzad M, Karbalaee M. A systematic review and meta-analysis of Patient-Rated Wrist (and Hand) Evaluation (PRWE/PRWHE) measurement properties, translation, and/ or cross-cultural adaptation. *Disability and Rehabilitation*. 2021:online1-15. doi:<https://doi.org/10.1080/09638288.2021.1970250>
33. Bornman J, Ronski M, Tonsing K, Sevcik R, White R, Barton-Hulsey A, Morwane R. Adapting and translating the mullen scales of early learning for the South African context. *South African Journal of Communication Disorders*. 2018;65(1):1–9. doi:<https://doi.org/10.4102/sajcd.v65i1.571>
34. Ilmarinen J. The Work Ability Index (WAI). *Occupational Medicine*. 2006;57(2):160–160. doi:<https://doi.org/10.1093/occmed/kqm008>

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KEYWORDS

human grasp, manipulation, hand rehabilitation, activities of daily living, grasp force data

HOW TO CITE THIS ARTICLE

Keller MM, Barnes RY, Brandt C. *Activities of daily living with grasp types and force measurements during object manipulation*. South African Journal of Occupational Therapy. Vol 54 No 1, April 2024. DOI: <https://doi.org/10.17159/2310-3383/2024/vol54no1a3>

ARTICLE HISTORY

Submitted: 15 August 2023

Reviewed: 21 October 2023

Revised: 19 December 2023

Accepted: 21 December 2023

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DATA AVAILABILITY

Available on request from corresponding author.

FUNDING

The study was funded by the FRC Seed funding grant (001 254 8491105 5121105 000000 00000000000 5254) obtained from the University of the Witwatersrand and the South African Society of Physiotherapy Research Foundation grant (RF2020/08/01).

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ISSN On-line 2310-3833

Activities of daily living with grasp types and force measurements during object manipulation

ABSTRACT

Background: Limited scientific evidence guides hand rehabilitation towards improved hand function, and safe early return to work. Grasp types, the subunits of object manipulation and the forces which may improve functional outcomes, have been identified as missing links that may inform rehabilitation after second to fifth metacarpal fractures, through progression of basic and instrumental activities of daily living (ADL). The aim of the study was to collect ADL forces through grasp types to inform hand rehabilitation for second to fifth metacarpal fractures.

Methods: This cross-sectional, quantitative study included 32 conveniently sampled healthy adults aged 20 and 59 years. Thirty-one (31) ADLs, both basic and instrumental, each associated with a predominant grasp type, were tested. The participants donned two testing gloves, with force sensing resistors (FSRs) glued to the fingertips, the ADLs were performed, and forces measured. The researcher imported the force data into an Excel spreadsheet for both descriptive and inferential analyses with STATA.

Results: Fourteen males and 18 females, with a mean age of 37 years, participated. Statistically significant differences between genders were found for seven grasp types. Three thumb-adducted power palm grasps, three thumb-abduction precision pad grasps, and one thumb-abduction power palm grasp constituted the testing. Light and heavy ADLs and their associated grasp types were identified.

Conclusion: To ensure optimal hand function, early safe return to ADLs should be the goal of second to fifth metacarpal fracture rehabilitation and may be achieved by incorporating active grasp types as exercises with graded resisted grasp types and ADLs.

Implications for practice

- Occupational therapists can incorporate grasp types in their observation during assessments of individuals who sustained second to fifth metacarpal fractures to determine the subcomponents of functional deficits.
- Hand rehabilitation may be augmented by incorporating grasp types in isolation during unresisted active joint range of motion.
- Occupational therapists, guided by the analysis of hand functioning, can incorporate ADLs with the predominant grasp types which may improve hand function.
- Grasp force data may guide safe and early return to function.

INTRODUCTION

Hand function plays a crucial role in an individual's ability to perform daily tasks, and a hand injury can have devastating consequences. The primary role of the human hand lies in the manipulation of objects to achieve specific goals¹. Difficulties in using one's hands can significantly impact independence and participation. The hand's capacity to attain various positions and exert precise pressure for object manipulation is attributed to the combined contributions of the skeletal structure, muscular strength,

and the extensive sensory input from nerves. This sensory feedback is crucial for evaluating the characteristics such as shape, size, texture, and weight of the objects. In both the grasping and lifting processes, the brain relies on accurately interpreting the information received from the hand and executing appropriate responses¹.

Robinson et al.² found that acute wrist and hand injuries impose a substantial burden on society and individuals. Therefore, hand rehabilitation should be based on scientific evidence and best practices to improve hand function. Internationally hand and wrist injuries account for 20% of all emergency visits², with metacarpal fractures being the most common³.

Hand rehabilitation involves more than just face to face consultations; it also includes home exercise programs (HEP). Adherence to these programmes has a significant impact on the effectiveness and outcomes of hand therapy interventions⁴. When considering the effectiveness of HEP, Gülke et al. 2018⁵, undertook research involving 60 individuals who had experienced a single diaphyseal or metaphyseal second to fifth metacarpal fracture. The goal was to compare the effectiveness of a standard physical therapy (PT) program with a newly developed HEP following surgical management through open reduction internal fixation. The participants were divided into two groups using controlled block randomisation after a 2-week splinting period. The PT group received 12 sessions of 30-minute PT over 6 weeks, with therapists recommending exercises for home use. In contrast, the HE group participants performed exercises three times a day, consisting of four to six exercises per session lasting 20 to 30 minutes. The study's results indicated that a well-structured HEP post-surgery for second to fifth metacarpal fractures (excluding the thumb) showed comparable effectiveness to traditional rehabilitation⁵.

Valdes et al.⁶ advocated for hand therapy HEPs that are appealing and promote adherence. Valdes et al.^{6:569} stated that "Generally speaking, an HEP for an individual attending hand therapy tends to be multimodal so that information is taught in the clinic is carried over into the home environment." They suggest that home exercises should be integrated into clients' daily routines while protecting the injured body structure. Although there is a growing body of literature advocating for enhanced hand rehabilitation and improved adherence, the authors found a dearth of studies incorporating grasp types and force sensor data, especially incorporating 10 fingers during ADLs, to back the inclusion of daily routines, grasp types and ADLs into HEPs safely.

Kimmerle et al.⁷ also emphasised the need for more functional assessments and rehabilitation therapies for individuals with hand injuries. The functional hand repertoire model encourages therapists to incorporate reaching, object manipulation, and releasing as one of the components of hand actions into the key components of hand actions, considering factors such as object properties, movement patterns, and task demands⁷. In a recent study, Valdés et al.⁸ reported that most of the 311 participants believed that occupational-based interventions should be included in hand therapy management, 40% using occupation-based

interventions should be included in hand therapy management, 40% using occupation-based interventions between 26% and 50% of time. The Disability of the Shoulder, Hand and Arm (DASH) outcome measure was the most frequently used outcome measure⁸.

Incorporating grasp types, which are the subunits of manipulation during ADLs, into hand rehabilitation may improve hand function and can ideally be included in HEPs. However, there is currently a lack of force sensing scientific evidence on when to incorporate safe grasping based on the force production on injured hand structures.

Previous studies have investigated grasp types and their frequency of use in common manipulation tasks. For example, Bullock⁹ observed the unstructured hand-use behaviour of individuals during their working day. The unstructured hand-use behaviour of two housekeepers and two machinists was investigated by taking video footage over 7.45 hours of their working day. In previous studies, hand grasps were measured regarding pre-selected objects with the hand posture used in manipulation⁹. In another study, Sperling and Jacobson-Sollerman¹⁰, encoded the human grasp types and general surfaces of the hand in 30 participants while they were eating a meal, and documented 1 277 different grips. The most comprehensive collection of grasp types is collated in the GRASP taxonomy of the human hand grasp types¹¹.

Riddle et al.¹² measured individual finger forces among participants with or without osteoarthritis. The research was undertaken to provide a biomechanical hand model to determine the effect of osteoarthritis on hand function¹². Although the study is useful, Riddle et al.¹² suggested that force testing during the execution of a wider variety of everyday ADL tasks is required.

Studies measuring forces with limited fingers and grasps and using sensors on a glove or objects have been performed¹²⁻¹⁵. Castro and Cliquet, for instance, investigated the grasping of cylindrical objects and measured the associated static forces with FSRs¹⁴, while Romeo et al.¹⁵ determined the finger forces exerted with a tripod grasp during spherically shaped ball-grasping, with the FSRs mounted on the contact areas of the ball. The above studies measured forces including only limited grasps which is challenging to generalise the results to hand rehabilitation for example after metacarpal fractures.

In hand rehabilitation, after having sustained second to fifth metacarpal fractures, individuals may interpret returning to light function differently, leading to inappropriate bending, torsion, and shear loading between the two fracture ends, thus disrupting the bone healing process¹⁶. The healing of the bone could also be disrupted by physical damage to the new capillaries and repairing tissue, with possible non-union as a result¹⁶. A scientific approach is needed to inform hand rehabilitation, grade rehabilitation forces with grasp-type exercises, and ensure a timely but safe return to ADLs.

The study aimed to gather force sensing data through grasp types and forces during ADLs, intended for the advancement of hand rehabilitation specifically tailored for second to fifth metacarpal fractures. The objectives of this cross-sectional study were to determine the basic and

instrumental task forces exerted by the human hand through its grasps on the objects that it manipulates, as well as the associations between mean maximum forces and gender among a purposively sampled group of healthy human adults between the ages of 20 and 59 years, and with the aid of FSRs.

METHODS

In a previous published study¹⁷, the methodology of this study was described. A brief overview follows. Participants who met the inclusion criteria and provided informed written consent wore gloves with FSRs attached to the fingertips. A total of 105 ADLs, consisting of 38 basic and 67 instrumental, were observed over a 24-hour period to capture hand use. The researchers supplemented the task data with the use of the English DASH questionnaire¹⁸ by adding tasks that were not in the task list but appeared in the DASH to ensure comprehensive coverage. The 105 ADLs were categorised into five sections namely: personal care and hygiene, transport and mobility, home environment (inside the home), gardening and outdoor activities, and a miscellaneous category "other" for ADLs not falling into the aforementioned categories. The ADL tasks were further classified as light, medium, or heavy demand based on a study by Han et al.¹⁹. To investigate the biomechanical features of callus, Han et al.¹⁹ conducted a compression test, and the resulting load-displacement forces of bone callus were measured¹⁹. The early stages of callus displacement ranged from 0.6 to 1.3 millimetres with forces of 5N.

To ensure reliability, the demographic questionnaire, FSR measurements, and grip strength measurements were conducted using a standardised and piloted method led by one researcher and a trained research assistant. The finger force sensor measurement data collected during the piloted feasibility study¹⁷, were recorded on a laptop using Realterm software. During this feasibility study, the researcher then determined the predominant grasp types employed for each of the 105 ADLs. Subsequently, the data for each activity were imported into an Excel spreadsheet and converted into Newton (N) forces. The maximum force per finger per activity was calculated, and the activities were categorised into light, moderate, or heavy force groups. Specifically, activities with finger forces measuring between 0 and 3 N were classified as light, those between 3 and 7 N as moderate, and those exceeding 7 N as heavy. Upon completing the feasibility study the researcher identified and grouped the ADLs with similar grasp types and similar maximum forces within each category of light, medium, and heavy demand ADL, following the classification proposed by Feix et al.¹¹, to place them in the same force category. A total of 31 ADLs were thus selected for measurement in this study. Information pertaining to the participants, instrumentation and testing procedures are now presented.

Participants

The research study included adult human participants residing and working in east Gauteng, specifically in the city of Kempton Park and its neighbouring areas within the Ekurhuleni municipality. The researcher purposively selected individuals from the local community, considering their age range (20–59 years), language spoken (English or isiZulu), and

their residence's proximity to the testing facility. Individuals under 20 years of age were excluded due to skeletal immaturity²⁰, while those over 59 years of age were excluded based on literature suggesting a low incidence of metacarpal fractures in this age group²¹. Participants with previous hand injuries were also excluded. No incentives were provided for participation.

Instrumentation

The instrumentation used to measure ADL forces was previously described in Keller et al.¹⁷. In brief, Flexiforce 13mm FSRs, ARDUINO Pro mini, 10 K 0.25 W resistors, ESP-01 kit, and Arduino UNO R3 compatible boards were utilised to capture the ADL grasp forces. The pressure applied to the tested object produced a resultant voltage (V) output, which was displayed on a software program visible to the researcher on a laptop or desktop computer. These V-values were then converted to forces, measured in Newton (N). The maximum force exerted during each ADL was recorded and saved in an Excel spreadsheet and FSRs detected forces exerted on the objects. The FSRs were connected in series with 10-Kohm resistors, which were inserted into the ARDUINO Pro mini. The FSRs were connected to the Arduino Pro Mini 5V via a USB port.

Arduino Uno hardware consists of circuit boards and a microcontroller placed on the Arduino Uno. The Arduino Uno is a programmable microprocessor specifically designed to record changes in V. An image of an Arduino Uno board is included in Image 1 (below). Each Arduino Uno board has the capability to monitor up to five FSRs. Therefore, in this study, two Arduino Uno boards were employed to monitor ten FSRs, one for each finger. The microcontroller chip, located on the circuit board's crystal resonator, controls the speed of the microcontroller's operations. This chip enables the upload of custom software from a computer to the main microcontroller via a USB cable, facilitating communication between the computer and Arduino.

To prepare the hardware for testing, the researcher downloaded Arduino software from the Arduino.cc website and installed it on their laptop. This software provided the necessary tools to create a sketch that could receive and process V measurements from the FSRs.

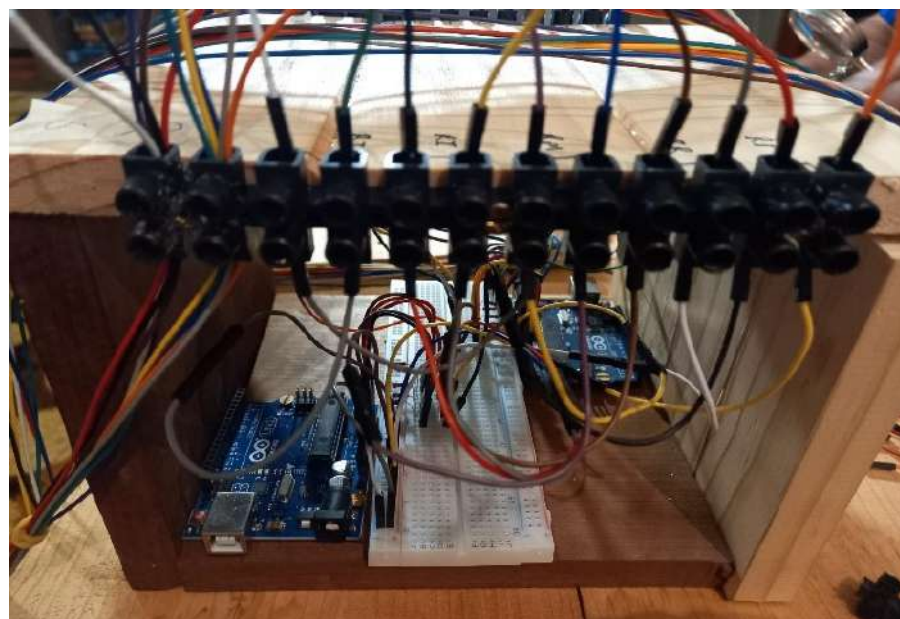


Image 1: Arduino and equipment setup

Prior to the experiments, the FSRs underwent calibration using a range of calibrated weights spanning from 1 gram to 10 kilogrammes (kg). For each weight, the corresponding V was recorded. This process enabled the researcher and technical expert to construct a graph illustrating the relationship between V and weight. By utilising the equation $F = m \times g$, where F represents force in N, g is the gravitational acceleration (m/s^2), and m is the mass (kg), the researchers converted the V measurements to forces. Figure 1 (below) presents the V versus force graph obtained from this calibration process. This graph allows the conversion of any recorded V from the Arduino's FSRs to a corresponding force value. To determine the general equation for the V force graph, a curve-fitting program was employed. The resulting equation was found to be $0.5917 \times \tan(0.3223 \times \text{max value})$. The Arduino's were programmed to capture ten measurements per second.

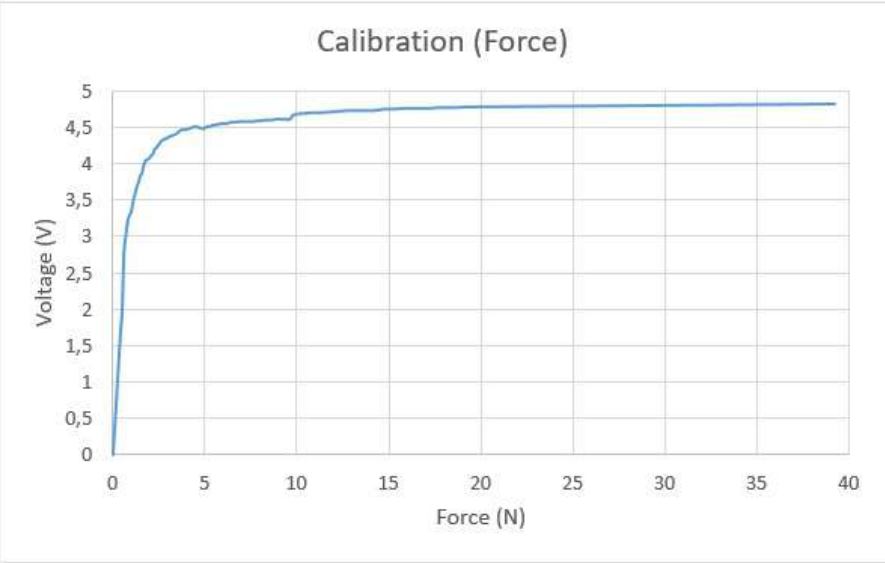


Figure 1: Voltage versus force calibration graph

In order to measure the force exerted by each finger, two gloves were equipped with FSRs, with one FSR attached to each finger. Image 2 (below) depicts the gloves featuring the attached FSRs.

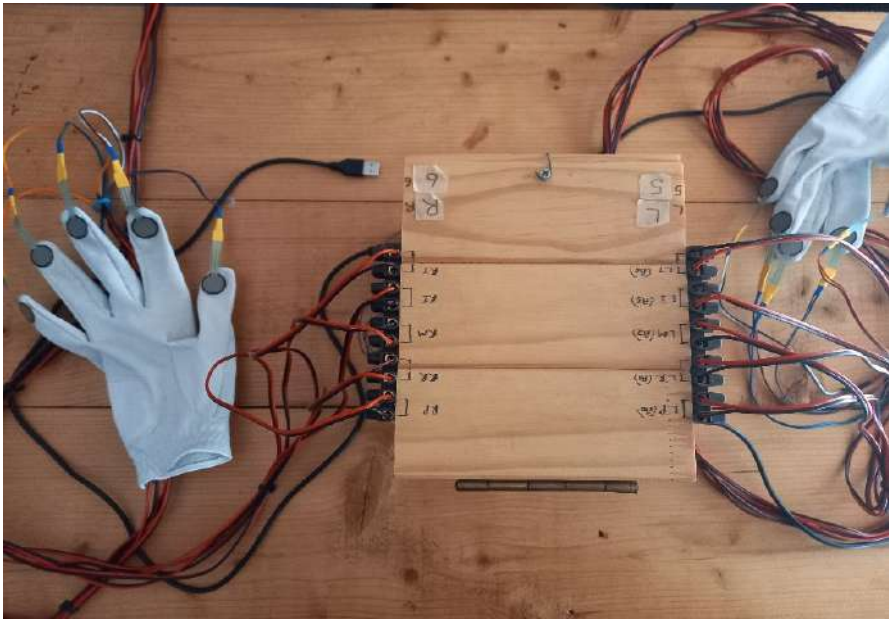


Image 2: Testing equipment and gloves

All measurements taken during the tasks were meticulously recorded and stored in comma-delimited text files. To facilitate this process, the software package Realterm was utilised. Subsequently, the comma-delimited text files were

imported into Excel, where the V measurements were converted to forces using the aforementioned equation. An example of the text file capturing measurements from the five fingers of the left hand is presented in Figure 2 (below). For each grasp type, both the left and right hands, encompassing all ten fingers, were included in the text file. The researcher imported the data from the Excel spreadsheet into STRATA statistics software, using StataCorp, after which a statistician conducted data analysis.

```
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Figure 2: Text file: squeezing water out of a sponge

Testing procedure

Pilot testing preceded the main data collecting during a feasibility study¹⁷. The researcher refined the design of the testing procedure and equipment after the feasibility study¹⁷. Changes made from the feasibility study are that golf gloves replaced household gloves, and the wires were positioned dorsally rather than volarly/palmarly on the hand. Stronger glue was used to secure the sensors to the gloves, applying the glue to all ten sensors and allowing five minutes for a more secure connection, as recommended by the glue manufacturer. To further prevent the sensors from detaching during testing, washing line pegs were used to secure the sensors to the gloves for five to ten minutes after gluing the FSRs to the gloves.

At the outset, participants underwent Covid-19 screening conducted by a proficient research assistant who had received thorough training in the screening process and was fluent in English and isiZulu. Subsequently, the participants completed a demographic questionnaire. Grip-strength measurements were then conducted using a calibrated Jamar hand-held dynamometer, following the standardised measurement

guidelines outlined by the American Society of Hand Therapy. These grip-strength measurements preceded the force testing using FSRs. To ensure that the participants would not be fatigued and, that the validity of the force measurements, were not compromised, the grip-strength measurements with the hand-held dynamometer were taken by the primary author, after sixteen tasks and at the completion of the 31 tasks. Average grip strength of either the dominant or non-dominant hands differed by two kgs, based on an average of three maximal attempts, participants were granted an additional five minutes of rest before testing resumed. Through pilot testing, it was determined that five minutes provided sufficient resting time for participants to feel ready to continue with the testing.

Participants wore gloves with FSRs attached to both their right and left hands. After putting on the testing gloves, they were instructed to perform the tasks in a manner consistent with their normal activities at home. Participants performed ADLs such as putting washing on a washing line with pegs or dusting and squeezing water out of a sponge. Standardised instructions regarding data collection and testing procedures were provided to the participants. The researcher read out the tasks from the grasp types tested per type and per category sheet, ensuring that the necessary equipment for each task was within the participants' reach and that no additional objects needed to be manipulated, thereby allowing the FSRs to solely measure the forces exerted during the tasks.

Reliability and validity

Reliability was ensured through the utilisation of a single laboratory equipped with standardised, calibrated, and piloted FSRs and instrumentation. Grip strength testing employed a calibrated dynamometer. Both FSRs²² and the Jamar dynamometer²³ have been established as valid tools for assessing forces and grip strength.

Data analysis

Descriptive statistics were employed to summarise the demographic characteristics of the participants as well as the finger force measurements. Two-sample t-tests were utilised to analyse differences in grip strength and force measurements based on gender.

Ethical considerations

This research was approved by the HSREC of the University of the Free State under the number (UFS-HSD2019/0046/2602-0002) obtained in 2021. Any associated research materials pertaining to the obtained results will be made accessible through the primary author's ORCID account.

RESULTS

A total of thirty-two (32) participants, comprising 18 females and 14 males, with a mean age of 37 years, willingly agreed to take part in the study. Among the participants, two (6.25%) were left-handed, while the majority, thirty participants (93.75%), were right-handed. To gain insight into the participants' demographics, refer to Table I (adjacent), which provides information on their occupations and education levels.

Table I: Demographics for occupation and level of education

Occupation	Name	n(%)
	Cleaner	7 (22.58%)
	Student	5 (16.13)
	Gardener	3 (9.68)
	Administrator	2 (6.45)
	Teacher	2 (6.45)
	Aircon technician	1 (3.23)
	Nurse auxiliary	1 (3.23)
	Designer	1 (3.23)
	Electrical technologist	1 (3.23)
	Executive personal assistant	1 (3.23)
	Financial manager	1 (3.23)
	Fitter and turner	1 (3.23)
	Quality and compliance manager	1 (3.23)
	Security guard	1 (3.23)
	Self-employed	1 (3.23)
	Store manager	1 (3.23)
	Trader	1 (3.23)
	Unemployed	1 (3.23)
Level of Education	High school completed	15 (46.88)
	Some college credits, no degree	7 (21.88)
	Bachelor's degree	4 (12.50)
	Completed schooling up to Grade 8	3 (9.38)
	Master's degree	1 (3.13)
	Trade, technical, vocational training	1 (3.13)
	No schooling completed	1 (3.13)

Supplementary File 1 (attached as metadata) presents the means, standard deviations, as well as the minimum and maximum N force measurements for grasp force. For a detailed examination of maximum forces, please refer to Supplementary File 2 (attached as metadata). The grasp types per ADL were categorised into light, medium, and heavy demand categories, allowing us to identify which grasp types and ADLs could be employed in progressive hand rehabilitation. It is important to note that clinical reasoning should always guide hand rehabilitation, taking into consideration each individual patient's unique injury and comorbidities to ensure a safe rehabilitation process. The data provided in Supplementary File 2 is invaluable when prescribing a HEP with specific ADLs and grasp types. Each finger interacts with the manipulated object differently, and depending on the finger fracture and the individual's functional limitations, other ADL grasp types may be employed following an assessment. The precise results per category, as indicated in Supplementary File 2, will now be highlighted.

Light ADLs, accompanied by their associated grasp types¹¹, which are suitable for individuals with injuries in any finger,

include tasks such as dusting (light tool), operating a cellular phone (lateral), using a television remote (ventral), and handling money (lateral tripod). The medium force ADLs and their corresponding grasp types vary depending on the finger involved, and therapists should refer to the supplementary files to guide their prescription and utilisation in hand rehabilitation. Heavy demand ADLs and grasp types, which should be delayed to ensure proper bone healing, include activities such as squeezing water out of a sponge (power sphere), drying clothes (medium wrap), opening and closing large round taps (quadpod), opening tight or new jars (four-finger sphere and precision disk), and lifting a 25 kg box (adducted thumb).

An analysis of the force measurements for grasp types per ADL task, conducted using the GRASP Taxonomy¹¹ and presented with the results of the t-test of equal variance in Table II (below), revealed statistically significant gender differences. However, no statistically significant difference in grasp forces was observed for the remaining 25 tested tasks.

Table II: Statistically significant differences between genders according to GRASP taxonomy and activities

GRASP Taxonomy Headings	Grasp type	ADL task	t-test p-value
Thumb-adducted Power Palm	Adducted thumb	Lifting a box of 25 kg onto the counter	p = 0.009
	Index finger extension	Washing car	p = 0.002
	Power sphere	Squeezing water out of a sponge	p = 0.000
Thumb-abducted Precision Pad	Quadpod	Opening and closing a tap (large round shape)	p = 0.003
	Prismatic four fingers	Brushing teeth	p = 0.047
	Precision disc	Opening a tight or new jar	p = 0.006
Thumb-abducted Power Palm	Large diameter	Moving a couch in the living room	p = 0.002

Furthermore, a two-sample t-test with equal variance was performed to assess gender differences in grip strength measurements taken prior to the force testing. The results indicated no statistically significant difference, with p = 0.0958.

DISCUSSION

When comparing the data for healthy participants in this research to the results of Riddle et al.¹², some similarities can be observed. The age ranges of the healthy participants in Riddle et al.'s study (20 to 65 years) and the participants in this study are relatively close, with ages ranging from 20 to 59 years for the collection of force data. However, it should be noted that the individual finger forces collected by Riddle et al. for the osteoarthritic group¹² cannot be directly compared to the findings of this research.

In another study by Castro and Cliquet¹⁴, the range of forces measured for different weights and finger positions was documented. For example, for the index and middle fingers, a

0.2 kg weight resulted in forces ranging from zero to one-and-a-half N, while a 1.02 kg weight led to forces ranging from zero to seven N. Comparing these grasp forces to the findings of the present study, similar forces ranging from zero to seven N were observed during tasks involving cylindrical object manipulation. Additionally, Romeo et al.¹⁵ measured forces exerted by the thumb, index finger, and middle finger, allowing for a comparison of these three fingers. The forces in their study ranged from 0.3N to a maximum of 2.7N. Comparatively, in this research, the average maximum forces per finger during the power-sphere grasp were as follows: thumb 2.44N, index finger 1.48N, middle finger 1.38N, ring finger 1.66N, and little finger 0.21N. These findings align with the previous study, even though the FSRs in this research were mounted on the fingers of a glove rather than the manipulated object.

Several studies investigating finger and grasp forces have explored potential associations with gender. Rice, Leonard, and Carter¹³ and Castro and Cliquet¹⁴ found significant differences in grip and pinch strength measurements between genders but did not observe significant differences in the forces exerted. Similarly, in this study, the majority of grasp types (78%) showed no statistically significant difference between male and female participants. The identification of grasp types in ADL and the maximum grasp forces measured in this research offer valuable exercise options for physiotherapists and occupational therapists to incorporate into hand rehabilitation and home exercise prescriptions after hand fractures such as second to fifth metacarpal fractures.

CONCLUSION AND LIMITATIONS

The collection of force-sensing data during the 31 ADL tasks provided a substantial contribution to the existing knowledge base, shedding light on different hand manipulations. However, due to the inherent complexities and individual differences among participants, drawing absolute conclusions from the data remains challenging, even with larger sample sizes. It is important to acknowledge that the use of FSRs on gloves to measure grasp forces may introduce variations compared to grasping without gloves, as the hand relies on sensory feedback from the skin.

While the error rate on the FSR sensors during testing was minimal and no data was lost, future research should consider increasing the sample size and directly attaching FSRs to the skin. Additionally, efforts should be made to ensure a balanced representation of genders, handedness, and various occupations, as the current sample primarily consisted of students and cleaners, limiting the generalisability of the study's findings.

The insights gained from this study's findings have implications for the development of clinical hand rehabilitation guidelines, particularly regarding the forces involved in predominant grasp types. These findings can inform physiotherapists and occupational therapists in designing effective exercise programmes and prescribing home exercises for individuals who sustained second to fifth metacarpal fractures.

Clinical Implications

Incorporating grasp types as free active exercises while the injured finger is immobilised may be started early to maintain

joint range of motion and improve hand function. The researcher suggests that starting ADLs falling into the light category with immobilisation may be beneficial as long as no pain is experienced, and the treating doctor has been consulted about early functional rehabilitation and HEP. Clinical reasoning should be used, as well as the extent of the fracture and associated injuries.

Author contributions

Monique Keller proposed the topic for the research, wrote the protocol for ethical approval and the first version of the article. The protocol and article were read, elaborated upon, and refined by Monique Keller, Roline Barnes and Corlia Brandt.

Acknowledgements:

The authors acknowledge Thomas Feix for permitting the use of the GRASP Taxonomy, Paul Keller and Jean-Paul Heynek for their technical support, the participants, and Zvifadzo Matsena Zingoni at the University of the Witwatersrand for her statistical assistance.

Conflicts of interest

None to declare.

REFERENCES

1. UKEssays. The Major Function Of Human Hand Psychology Essay [Internet]. November 2018. [Accessed 12 December 2023]; Available from: <https://www.ukessays.com/essays/psychology/the-major-function-of-human-hand-psychology-essay.php?vref=1>.
2. Robinson LS, Sarkies M, Brown T, O'Brien L. Direct, indirect and intangible costs of acute hand and wrist injuries: A systematic review. *Injury*, 2016; Dec; 47(12): 2614-2626. <http://dx.doi.org/10.1016/j.injury.2016.09.041>.
3. Gudmundsen TE, Borgen L. Fractures of the fifth metacarpal. *Acta Radiologica*, 2009; Apr; 50(3): 296-300. <http://dx.doi.org/10.1080/02841850802709201>.
4. Groth GN, Wilder DM, Young VL. The impact of compliance on the rehabilitation of patients with mallet finger injuries. *Journal of Hand Therapy*, 1994; 7(1): 21-24. [http://dx.doi.org/10.1016/s0894-1130\(12\)80037-8](http://dx.doi.org/10.1016/s0894-1130(12)80037-8).
5. Gülke J, Leopold B, Grözinger D, Drews B, Paschke S, Wachter NJ. Postoperative treatment of metacarpal fractures—Classical physical therapy compared with a home exercise program. *Journal of Hand Therapy*, 2018; Jan 1: 31(1): 20–28. <https://doi.org/10.1016/j.jht.2017.02.005>.
6. Valdés K, Naughton N, Algar L. Usefulness of a hand therapy application. *Journal of Hand Therapy*, 2022; 35(4): 569-574. <http://dx.doi.org/10.1016/j.jht.2021.03.007>.
7. Kimmerle M, Mainwaring L, Borenstein M. The functional repertoire of the hand and its application to assessment. *American Journal of Occupational Therapy*, 2003; 57: 489–98. <http://dx.doi.org/10.5014/ajot.57.5.489>.
8. Valdés K, Naughton N, Cantero-Téllez R, Szekeres M. The use of occupation-based interventions and assessments in hand therapy: A cross-sectional survey. *Journal of Hand Therapy*, 2023; Jan1;36(1):214–220. <https://doi.org/10.1016/j.jht.2021.10.008>.
9. Bullock IM, Zheng JZ, De La Rosa S, Guertler C, Dollar AM. Grasp frequency and usage in daily household and machine shop tasks. *IEEE Trans Haptics*, 2013; 6(3): 296–308. <http://dx.doi.org/10.1109/TOH.2013.6>.
10. Sperling L, Jacobson-Sollerman C. The grip pattern of the healthy hand during eating. *Scandinavian Journal of Rehabilitative Medicine*, 1977; 9(3): 115–21.
11. Feix T, Romero J, Schmiedmayer HB, Dollar AM, Kragic D. The GRASP Taxonomy of Human Grasp Types. *IEEE Trans Human-Machine Systems*, 2016; 46(1):66-77. <http://dx.doi.org/THMS.2015.2470657>.
12. Riddle M, MacDermid J, Robinson S, Szekeres M, Ferreira L, Lalone E. Evaluation of individual finger forces during activities of daily living in healthy individuals and those with hand arthritis. *Journal of Hand Therapy*, 2020; 33(2): 188-197. <http://dx.doi.org/10.1016/j.jht.2020.04.002>.
13. Rice MS, Leonard C, Carter M. Grip Strengths and Required Forces in Accessing Everyday Containers in a Normal Population. *American Journal of Occupational Therapy*, 1998; 52(8):621-626. <http://dx.doi.org/10.5014/ajot.52.8.621>.
14. Castro MCF, Cliquet A. J. A low-cost instrumented glove for monitoring forces during object manipulation. *IEEE Trans Rehabilitative Engineering*, 1997; 5(2): 140-147. <http://dx.doi.org/10.1109/86.593280>.
15. Romeo RA, Cordella F, Zollo L, Formica D, Saccomandi P, Schena E, et al. Development and preliminary testing of an instrumented object for force analysis during grasping. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 2015; 2015: 6720-6723. <http://dx.doi.org/10.1109/EMBC.2015.7319935>.
16. LaStayo PC, Winters KM, Hardy M. Fracture healing: Bone healing, fracture management, and current concepts related to the hand. *Journal of Hand Therapy*, 2003; 16(2): 81–93. [http://dx.doi.org/10.1016/s0894-1130\(03\)80003-0](http://dx.doi.org/10.1016/s0894-1130(03)80003-0).
17. Keller MM, Barnes R, Brandt C. Evaluation of grip strength and finger forces while performing activities of daily living. *Occupational Health Southern Africa*, 2022; 28(5): 187-190. https://journals.co.za/doi/abs/10.10520/ejc-ohsa_v28_n5_a6.
18. Hudak PL, Amadio PC, Bombardier C. Development of an upper extremity outcome measure: the DASH (disabilities of the arm, shoulder and hand) [corrected]. The Upper Extremity Collaborative Group (UECG). *American Journal of Industrial Medicine*. 1996; 29(6): 602-608. Erratum in: *American Journal of Industrial Medicine*, 1996; 30(3): 372. PMID: 8773720. [http://dx.doi.org/10.1002/\(SICI\)1097-0274\(199606\)29:6<602::AID-AJIM4>3.0.CO;2-L](http://dx.doi.org/10.1002/(SICI)1097-0274(199606)29:6<602::AID-AJIM4>3.0.CO;2-L).
19. Han W, He W, Yang W, Li J, Yang Z, Lu X, et al. The osteogenic potential of human bone callus. *Scientific reports*. Nature Publishing Group, 2016; 6: 36330. <http://dx.doi.org/10.1038/srep36330>.
20. De Sanctis V, Di Maio S, Soliman A, Raiola G, Elalaily R, Millimaggi G. Hand X-ray in pediatric endocrinology: Skeletal age assessment and beyond. *Indian Journal of Endocrinology and Metabolism*, 2014; 18: S63 –71. <http://dx.doi.org/10.4103/2230-8210.145076>.
21. Nakashian MN, Pointer L, Owens BD, Wolf JM. Incidence of metacarpal fractures in the US population. *Hand*, 2012; 7(4): 426–430. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3508027/pdf/11552_2012_Article_9442.pdf. <http://dx.doi.org/10.1007/s11552-012-9442-0>.
22. Sadun AS, Jalani J, Sukor JA. Force Sensing Resistor (FSR): a brief overview and the low-cost sensor for active compliance control. *Proceedings of SPIE*, 2016, Jul 11. <https://doi.org/10.1117/12.2242950>.
23. Mathiowetz V. Comparison of Rolyan and Jamar dynamometers for measuring grip strength. *Occupational Therapy International*, 2002: Aug 1; 9(3): 201–209. <https://doi.org/10.1002/oti.165>.

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KEYWORDS

informal sector, structural factors, contextual factors, occupational outcomes, Alexandra Township

HOW TO CITE THIS ARTICLE

Monareng LL, Casteleijn D, Franzsen D. *The occupation of self-employment in South African informal microenterprises*. South African Journal of Occupational Therapy. Vol 54 No 1, April 2024. DOI: <https://orcid.org/10.17195/2310-3383/2024/vol54no1a4>

ARTICLE HISTORY

Submitted: 28 April 2023
Reviewed: 14 August 2023
Revised: 8 September 2023
Accepted: 11 September 2023

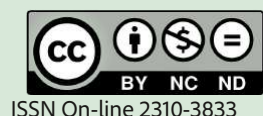
EDITOR

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FUNDING

This work was supported by the University of the Witwatersrand's Faculty of Health Sciences' Claude Leon Merit Award Grant; and Faculty Research Committee individual grant.

Published under an International Creative Common Liscense 4.0



ISSN On-line 2310-3833

The occupation of self-employment in South African informal microenterprises

ABSTRACT

Introduction: Self-employment, in which individuals work for themselves in a small business or microenterprise to earn an income or generate a salary, has been encouraged to facilitate employment opportunities in South Africa. However, participation in self-employment within the community served by professionals such as occupational therapists is limited by many factors, including effective government initiatives, such as implementing the Small Enterprise Development Agency (SEDA) policies. To enable individuals and community participation in this type of work for those with occupational dysfunction, mainly persons with disabilities, professionals such as occupational therapists need to understand the structural, contextual and occupational outcomes related to self-employment. Based on the Framework for Occupational Justice, this study explored the occupation of self-employment in microenterprises in the low-resourced urban community of Alexandra Township.

Method: A quantitative descriptive non-experimental design study was used to identify informal microenterprises in the community using a transect walk and community mapping. Structured interviews were conducted to complete a questionnaire with key informants (service providers and business owners) who provided perceptions on factors that impacted the occupational outcomes of microenterprises.

Results: Structural and contextual factors from the participants' experience resulted in unjust occupational outcomes, which indicates that occupational rights, particularly participation, choice and balance, were negatively affected by the lack of opportunities, such as jobs. Occupational marginalisation and imbalance were reported since many businesses lacked adequate and appropriate space for trade. Some business owners, however, reported just occupational outcomes related to the occupational right for meaningful occupation in providing a service to the community and financial income to support themselves and their families.

Conclusion: Occupational therapists need to play various active roles in raising the consciousness of unjust occupational outcomes and support for just occupational outcomes that are achieved in engagement in self-employment in informal microenterprises.

Implications for practice

Occupational therapists should take note of the factors and occupational outcomes of being self-employed identified in this study and consider the roles they could play in expediting success in this occupation for clients. Occupational therapists could assume:

- A collaborative role, such as referring and working with various key role players or sectors in the interest of sourcing and providing opportunities for skills development for those entering self-employment, particularly in entrepreneurial training. This may include working with the government (e.g., Department of Labour and Small Enterprise Development Agency), private sector (e.g., yes4youth), other professions (social workers and industrial psychologists) and organisations for persons with disabilities (e.g., Disabled People South Africa).

- A researcher role by conducting further research in this field, e.g., the development of an evidence-based framework on self-employment for occupational therapists. More research is still needed on, e.g., domains such as performance patterns, performance skills and client factors related to self-employment for persons with disabilities.
- An educator's role by incorporating and teaching content on self-employment as an occupation when training occupational therapy students.
- A clinical role, where they could assist with adaptations to the skills, tasks or environment to facilitate engagement in self-employment. Essential aspects to consider by the occupational therapist together with their clients during the collaborative occupational therapy process include, but are not limited to,
 - o The client's motivation, dedication and whether self-employment is the client's primary choice.
 - o The client's potential to be self-employed and their level of resilience in dealing with factors affecting self-employment in the informal labour sector.

INTRODUCTION

As part of professional practice, occupational therapists should be aware of and be involved in collaborative processes which enable individual and community participation in typical occupations¹. Occupations, such as work, are defined as "labour or exertion related to the development, production, delivery, or management of objects or services; benefits may be financial or nonfinancial (e.g., social connectedness, contributions to society, adding structure and routine to daily life)"^{2:84}. However, paid work or "the socioeconomic relationship between a worker and an employer in which the worker sells their labour power under a formal or informal employment contract"^{3:267} is unavailable to many. Unemployment was a known challenge facing low-middle income countries such as South Africa even before the COVID-19 pandemic, with the unemployment rate being 34.5% in quarter 1 of 2022⁴. In South Africa, unemployment has been exacerbated since many citizens were denied equal access to formal employment, building the economy, and receiving education and training during and after Apartheid.

To improve employment rates, stimulate the economy, and counteract poverty, the National Integrated Small Enterprise Development (NISED) Masterplan proposed by the South African government encourages citizens to explore entrepreneurship in small self-owned microenterprises or small businesses⁵ where they can be considered as self-employed and "earning their living from the independent pursuit of economic activity, as opposed to earning a living working for a company or another individual (an employer)"^{6:1}.

These small businesses contribute positively to the economy of a country⁷. Still, there seems to be limited coordination with less than adequate and inadequate

assistance provided to those embarking on informal self-employment⁸ since the National Development Plan (NDP) focuses on registered small and medium enterprises (SMMEs) only. For most considering self-employment, involvement in an informal and unregistered microenterprise is the only option available. Valodia et al.⁹ indicate that these informal microenterprises are typical of a developing economy with high unemployment, where individuals' choice for employment is limited¹⁰. These microenterprises are created by survivalists from the poorest population, who cannot become part of the mainstream economy and for whom self-employment may be an imposition rather than a choice¹¹.

Informal microenterprises include services and skills, retail (buying and selling of products), and manufacturing/production of products on a small scale¹², which include vendors, small shops, and household industries that employ no more than five people¹³. These businesses lack formality in registration and do not have access to the conventional commercial banking sector. Thus, in South Africa, the owners of these small businesses operate on the margins of the economy¹³, even though government initiatives such as the Department of Small Business Development (DSBD) and Small Enterprise Development Agency (SEDA) have been put in place since 2004 to assist them. The government's lack of concerted effort could contribute to the high failure rate for these microenterprises within the first three years of operation¹⁴.

To understand the just and unjust occupational outcomes of self-employment in informal microenterprises, structural and contextual factors related to self-employment in the informal labour sector need to be researched and documented from the occupational therapist's perspective. Locally and internationally, however, there also seem to be limited to no evidence-based frameworks for self-employment for persons with occupational dysfunction, including those with disabilities. To respond to the South African government's call on entrepreneurship, occupational therapists must better understand the why, when, and how of self-employment in the informal labour sector. This would enable occupational therapists to actively facilitate the occupational outcomes possible for those who have the potential for and are involved in self-employment in microenterprises.

This study aimed to explore occupational outcomes¹⁵ for self-employment in microenterprises in the low-resourced urban community of Alexandra Township based on the Framework of Occupational Justice from the perspective of key informants.

Literature review

The Framework of Occupational Justice presents a perspective of occupational outcomes concerning occupational rights (meaning, participation, choice, and balance), dis-ease or social disruption, and occupational justice or injustice (occupational alienation, occupational deprivation, occupational imbalance or occupational marginalisation)¹⁵ (Refer to Figure 1, page 24).

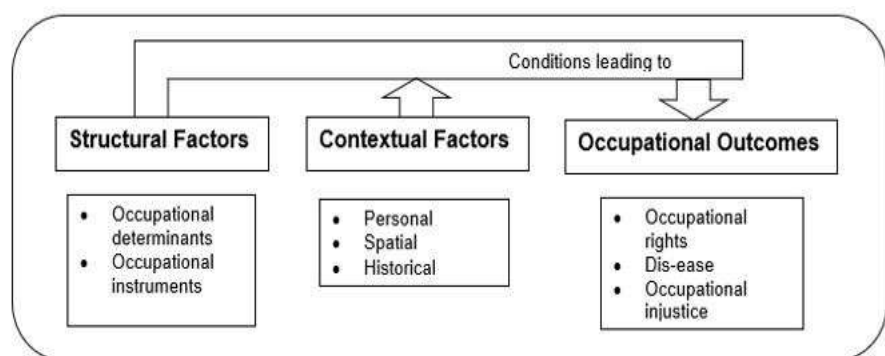


Figure 1: The Framework of Occupational Justice

The framework highlights participation in an occupationally just way based on structural factors and contextual factors which support or restrict occupational outcomes. Structural factors include occupational determinants such as local and national policies and occupational instruments, which include occupations affected by policies, including education and employment. These interact with personal, spatial and historical contextual factors, all contributing to occupational outcomes¹⁵. Like many other nations across the globe, South Africa was and still is not immune to negative structural and contextual factors associated with manufactured acts such as imperialism and colonialism, dating from centuries ago¹⁶. Unjust occupational outcomes for employment in South Africa are impacted by social issues, including injustice of exclusion from everyday occupations, such as employment. Even though Apartheid officially ended in 1994, its legacy continues to hurt most of the population through social ills, poverty, corruption, crime, and violence, contributing to inequality in South Africa¹⁶. The country is nearly three decades into democracy, but most ordinary blacks are yet to benefit socially and economically.

Although occupational determinants in the form of legislation such as the Employment Equity Act and Black Economic Empowerment (BEE) have been put in place¹⁷, the lack of occupational instruments, such as adequate education and opportunities for skills development amongst previously disadvantaged groups in South Africa has manifested in even higher unemployment. Malefane¹⁸ observed that those in microenterprises are disconnected from the mainstream economy as they are marginalised by local and national policies related to structural factors that affect growth potential. These may suggest that business owners of many informal microenterprises receive limited support. Occupational instruments are instituted in SEDA programmes to support self-employment in small businesses, including 2.3 million business owners operating in the informal sector and providing 23% of total self-employment in the country¹⁹. The DSB programme failed to achieve support goals and inclusion of women, youth and persons with disabilities in informal small businesses in 2021¹⁹ to promote economic development and alleviate poverty in local municipalities¹⁸.

Even specific policies developed to support microenterprises, such as the Township and Rural Entrepreneurship Programme (TREP) and the Local Economic Development (LED) strategy²⁰, focus on integrating business ventures into regulatory environments before they can access funding. The services for business skills training and product

development support require online access and application, which is unavailable for many. Thus, Hadebe²¹ indicated that informal businesses in low-resourced areas in townships in South Africa rarely try to access financial assistance from the government since none were successful. Support from non-governmental organisations and corporate initiatives (as part of their social responsibility) in the form of opportunity centres^{22, 23}, industry hives, microenterprises directories, and the provision of training programmes^{21, 24} do not appear to reach those in informal microenterprises adequately. Baumann²⁵ reported that those providing this assistance do not appreciate or understand the challenges faced by owners of informal businesses. Besides lack of access to financial aid, a lack of job permanency and no paid leave or other benefits are forfeited since the businesses are not part of the regulatory framework that governs employment.

Other structural factors under occupational instruments, such as lack of access to education and personal and historical contextual factors that do not allow for skills development, impact the occupational outcomes amongst previously disadvantaged groups in South Africa, excluding them from the formal employment market. These individuals embark on or are pushed into participation in self-employment in informal microenterprises out of necessity in a resource-constrained context and where no other work is available²⁴. This is supported by the push and pull theory of entrepreneurial motivation, where push indicates no choice to start a business based on opportunities in the market but due to circumstances forcing the individual to become a self-employed business owner²⁶ irrespective of unjust occupational outcomes.

Concerning the study context, in 2021, Mpofu-Walsh²⁷ highlighted the inequality in South Africa in terms of the spatial context, with the majority of those in urban settings residing in impoverished communities such as Alexandra Township. This residential area is one of the most densely populated and poorest townships in the Gauteng province, and it presents issues of overcrowding, lack of resources in terms of municipal services and very limited work opportunities²⁸. According to Charman et al.²⁹, self-employment in urban townships in South Africa exists mainly in shops within someone's house (spaza shop), street trade, taverns (shebeens), grocery retail and hair care services. Spaza shops are where individuals sell airtime, snacks, fruits and vegetables, cigarettes, and groceries from a window or door in their own home. Cigarettes and groceries comprise 17% to 25% of self-owned informal businesses. Self-employment options include in-service and skill-based businesses such as hair care, repair, mechanical, religious, educational, and transport services operated from the business owners' homes and on the street. The sale of food, liquor and takeaways equates to over 50% of all business activities. Only 5% of businesses are involved in micro-manufacturing, which relates to production on-site by the business owner of items such as furniture, clothes and metal gates^{12, 29}. Limited suitable locations and access to suppliers and advertising negatively impact the occupational outcomes of these business owners³⁰.

Although self-employment is not new to the occupational therapy profession¹², there is limited literature on occupational therapy supporting engagement in self-employment, especially in informal businesses. Thus, by understanding the structural and contextual factors affecting the occupational outcomes for business owners of microenterprises, an occupational therapist should be able to apply the fundamentals of the profession's philosophy that "people have the right to participate in a range of occupations that enable them to flourish, fulfil their potential and experience satisfaction"^{31:1}. However, occupational therapists would still benefit from a guideline with transparent processes and steps to follow if they are to facilitate self-employment effectively. These may assist occupational therapists in mitigating unjust occupational outcomes and encouraging engagement in self-employment in these microenterprises, especially for persons with disabilities².

METHODOLOGY

A quantitative descriptive non-experimental cross-sectional design study was used where data were collected during a once-off visit. More insight was gained on activities and factors related to running existing microenterprises, i.e., no manipulation of variables³², in the community of Alexandra Township, a low-resourced urban community.

Research site

This study took place in the low-resourced urban community of Alexandra Township. This township was established in 1912 as freehold plots for Black citizens²⁸ in the North-Eastern suburbs of Johannesburg in the province of Gauteng in South Africa. Under Apartheid, all rights were removed, and the people living in Alexandra Township were restricted in terms of mobility, land ownership, education and the right to vote, amongst others. Post 1994, when South African citizens could move freely within the country, physical space became more limited due to an influx of people moving to the cities, including Alexandra Township, to find work. Housing in Alexandra Township consists of old formal dwellings and shacks, with the overall infrastructure around this area being poor²⁸ regarding water, sanitation, electricity and roads.

Population and sampling

The perspectives, quantitative descriptive data, of a limited number of key informants (service providers and business owners) were elicited using structured interviews. Purposive sampling was used to sample service providers who offered services to the community in Alexandra Township. Both convenience and snowball sampling were used to sample business owners of profitable microenterprises.

Included service providers met these criteria: a) occupied a position of authority, that is, working for the government or running an organisation of their own, and b) worked or operated in Alexandra Township for at least three years. These were: i) a staff member from the ward counsellor's office with knowledge of policies related to informal business operation, ii) an occupational therapy technician (OTT) working at a primary health care clinic, and iii) a private business owner promoting self-employment in this community. The service providers assisted the researcher with three different transect walks and the identification of informal microenterprises in

the community. Based on the community mapping, drawn on a piece of paper by the service providers and the researcher, one main street in Alexandra Township was selected as representing a typical street of this community, e.g., there were shack houses, infrastructure was neglected, and many microenterprises were operating. Forty-six businesses on the street were mapped in a one-kilometer area.

Business owners were selected from the 46 microenterprises to participate in the study if they met the following criteria: i) had run a profitable microenterprise for at least three years⁴, ii) lived in Alexandra Township and/or had a business located in Alexandra Township, iii) were of working ages of between 18 to 65 years⁴ and iv) generated an income greater than that of the monthly South African disability grant amount of R 2 080³³. A sample size of 40% of the owners of the microenterprises (n=16) met these criteria.

Research Instruments

A questionnaire was used to guide structured interviews with service providers. The service providers' questionnaire was piloted for content validity by experts in vocational rehabilitation in occupational therapy. They were considered experts as they had worked in vocational rehabilitation for at least three years and had postgraduate qualifications. The Content Validity Index (CVI) score for this questionnaire was 3,3 over 4 overall, with the breakdown as follows: relevance (3,8), clarity (3,2), simplicity (3,3) and ambiguity (2,9)³⁴. To establish the physical location of the different microenterprises, their spatial context and their categories in Alexandra Township, the service providers and the researcher conducted a transect walk and community mapping³⁵.

Quantitative data from business owners of microenterprises were collected using a separate questionnaire in the form of guided, structured individual interviews with closed-ended questions. Open-ended questions were used to confirm the details of the answers provided. For convenience, the business owners' questionnaire was piloted for face validity with subject matter experts and microenterprise owners in Diepsloot (another low-resourced urban Township), located north of Johannesburg.

Data Collection

Interviews with the service providers and business owners were initiated after ethical clearance was obtained for this research from the Human Research Ethics Committee of the University of the Witwatersrand. The ethics certificate number is M170820. Each service provider and business owner was informed of the aim of the study using information sheets and signed an informed consent to participate, which had information such as, but not limited to, participants agreeing to participate voluntarily and acknowledging that they will not benefit directly from this research.

The service providers assisted with three different transect walks with the researcher and the identification of informal microenterprises in the community. Once all businesses on the street had been mapped, owners of the microenterprises who met the inclusion criteria were informed about the study and invited to participate. A total of 17 business owners were recruited, and appointments were

made with each to complete the interview at a time that suited them. One business owner could not continue with the interview due to illogical thoughts on the day of the interview, i.e., only n=16 participants were included in this research.

Data analysis

Frequencies of the types and the location of each microenterprise were determined and presented descriptively. The questions on the questionnaires were analysed using summative content analysis according to the Framework for

Occupational Justice¹⁵. The analysis considered the structural and contextual factors and occupational outcomes related to the operation of microenterprises in the community from the perspective of the service providers and the business owners.

RESULTS AND DISCUSSION

The perspectives of the key informants based on the Framework of Occupational Justice are presented in terms of structural factors and contextual factors related to occupational outcomes of self-employment in microenterprises (Refer to Table I, below).

Table I: Analysis of perspectives of key informants based on the Framework of Occupational Justice

Structural factors	Underlying occupational determinants	Type of economy	Regional/national/local policies		Values	Cultural/community values	
		-Informal businesses were not registered	-Laws (e.g., adhere to by-laws to avoid police harassment or confiscation of goods) -Lack of formal funding policies. Difficult to access as it requires businesses to be registered and/or mostly online-based applications		-Income greater than R2500,higher than social grants -Service to the community -Contribution to the economy	-Donations to worthy causes -Cost-effectiveness products or services -Services offered on credit	
	Occupational instruments	Education and training	Employment	Support programmes	Technology	Communications and media	
		-Provided by government, private or non-government organisations (NGO) and organisations for persons with disabilities -Education (level) ranges from none to tertiary. Median is <Grade 12 -Business training -In-service training (61%) -Formal vocational rehabilitation for self-employment -Skills development	Business categories: -Retail (buying and selling of products) (61%) -Service and skills (37%) - Manufacturing or production (2%)	Need structured support or programmes: -Legal -Financial -Municipal hubs	-Availability of technology and connectivity to, e.g., enhance business systems (financial management)	-Communication with, e.g., suppliers -Advertising	
Contextual factors	Personal contexts	Age	Gender	National origin	Family	Disability	
		20-60 years (working age), median = 35 years	-Male (81%) -Female (19%)	-South African (56%) -Foreign national (44%)	-Involvement in the business (100%) -Number of dependants (mean 7.5)	-Stroke (n=1) -Shoulder and back injuries from a motorbike accident (n=1) -Gunshot (n=1)	
	Historical contexts	Financial source		Area	Transport methods used when replacing or replenishing the stock		
		-Family or friend -Self-based or funded		-Low resourced -Customers availability	-Walking for less than 5km (6%) -Usage of own transport (13%) -Use of public transport (50%) -Getting stock delivered to them (19%) -Using a friend's car (6%) -Not applicable (6%)		
	Spatial/ environmental contexts	Urban/rural location	Universal design and accessibility		Business location		Security and storage
	-Urban -Overcrowded	-Accessibility of business location is poor -Poor infrastructure, road and pavement maintenance		-Surrounded by similar businesses -Pavement under the shelter of an umbrella or awning (permanent or temporary) (63%) -Yard of a house or rented room (31%)		-Burglar bars and security doors -Sleeping at the business site -Dogs -Lack of space	
Occupational outcomes	Occupational rights	Meaning (why self-employment) (56%)		Balance		Choice (50%)	Participation
		-Flexibility, freedom and working for self -Provide a service -Income generation -Sense of belonging and self-identity		-Operating hours: 8 to 16 hours per day, average is 10 hours -Operating days: mainly over Easter and Christmas holidays. Some businesses (31%) had no official closure day/s		-Rather have paid employment -Pushed into self-employment	-Doing in this occupation is difficult
	Dis-ease	-Xenophobic attacks -Discrimination					
	Occupational injustice	Occupational marginalisation				Occupational imbalance	
Lack of access to finance, training and formal employment				-Long working hours affect a balanced lifestyle			

Structural factors

The service providers mainly described the structural factors impacting self-employment in informal microenterprises in Alexandra Township. The three service providers who were purposively sampled were firstly a staff member from the office of the ward councillor who oversees services related to the township and is responsible for implementing the LED strategy. The occupational therapy technician was the second service provider. She lived in Alexandra Township and was based at a local primary health care clinic. She rendered home visit services to this community, including facilitating occupations among disabled community members. The third stakeholder was part of a private organisation with a division that entails self-employment and entrepreneurship training (at a fee) in Alexandra Township for individuals aged between 7 and 18 years (Refer to Table II below).

Table II: Demographics of Service Providers

Service Providers (n=3)	Age	Gender	Office location	Institution or organisation	Work area and residential area
Alexandra ward councillor's office	Mid 30s	Female	South of Alexandra Township	Government	Works and lives in Alexandra Township
OTT	Late 40s	Female	South of Alexandra Township	Government	Works and lives in Alexandra Township
Young Minds Group (YMG)	Early 20s	Male	East of Alexandra Township	Private	Works in Alexandra Township

Occupational determinants

The service providers reported a lack of clarity about the roles of governance and the value of informal microenterprises to the community. However, they reported a positive occupational determinant as the mutual relationship between the business owners and customers who reside in the same neighbourhood, bringing about convenience to the community of Alexandra. According to the business owners, they sometimes operate on a credit basis (known to locals as "nkoloteng", a Setswana/Sesotho word) and provide services at cost-effective prices. Some business owners were reported to give back to the Alexandra community through donations. For instance, a donation will go towards community campaigns or events at old age homes in the community of Alexandra.

Another positive determinant, as reported by the business owners, was a monthly income, which ranged from ZAR2 500 to ZAR5 000 per month. Even if this income was lower during some months, over holidays and when the weather was bad, the monthly earnings generated were more than the income provided by the South African government in the form of grants, such as social relief of distress (SRD) grant and for persons with disabilities³³.

The key informants reported the negative occupational determinants, which included the lack of formal financial support and access to funding (capital) to assist microenterprise owners. Additionally, the processes required to apply for funding are complicated and time-consuming¹⁸. The staff member from the office of the ward councillor indicated that since 2013, by-laws in the Joburg Metro

also require informal traders to apply to the Council for a formal lease or allocation of a stand on a public road or any other property under the control of the Council. Informal traders in Alexandra Township are managed by the Johannesburg Property Company (JPC) in charge of municipal assets (land, property and, in this case, markets); thus, informal businesses are not officially recognised by the city³⁶. Since most of these business owners do not have a certificate to trade, they are exposed to ongoing harassment from the Johannesburg Metro Police Department (JMPD). Police officers charge owners of informal microenterprises for trading infringements (such as not observing health regulations and obstructing public thoroughfares) and confiscate their stock. The municipality's attitude to informal small businesses seems punitive rather than supportive. This is supported by Igwe and Icha-Ituma³⁷, who indicated governments in developing countries have a culture of formalising and regulating business with restrictive policies creating barriers to informal microenterprises.

Occupational Instruments

The service providers were aware of political and legal organisations that provide assistance programmes to small businesses, and those organisations included public and private initiatives, which entail, amongst others, pro-bono services from reputable law firms such as Edward Nathan Sonnenberg (ENS) Africa. Services provided to the microenterprise owners as reported by service providers and supported by literature include but are not limited to business legal advice, workshops and venture capital funds³⁸. Local government initiatives include the community centres, opportunity centres^{22, 23}, and an Automotive Hub³⁸ in the community of Alexandra and a small and medium enterprise database at City of Johannesburg Region E offices. These initiatives are provided to afford microenterprise business owners a platform to bid for sub-contracts or tenders intended for Region E and support emerging microenterprises with assistance and advice on self-employment and business support, which includes training²². However, it seems many business owners are unaware of or cannot access these services since some require technology and are on online platforms, which are unavailable to everyone. This may suggest that these services are geared towards formally registered small businesses.

Concerning communication and media, most business owners reported that they rely on advertising based on word of mouth in this sector³⁹, although 10% reported they did have finances for formal advertising.

Being exposed to persons with disabilities, the OTT service provider felt it was more challenging for persons with disabilities to become self-employed. There are no formal vocational rehabilitation services, particularly supporting self-employment, available in Alexandra Township. Issues such as using an assistive device (e.g., a wheelchair) were reported to affect microenterprise efficiency. This is supported by Maziriri and Madinga⁴⁰ in their study in Sebokeng Township in Gauteng, where persons with disabilities reported a lack of support and discrimination from the community in which they lived, which affected their ability to be self-employed.

For the occupational therapist to promote engagement in self-employment in microenterprises, collaboration with local service providers is crucial. Prospective collaborators could include, but are not limited to, government departments, non-government organisations (NGOs), private organisations and organisations for persons with disabilities. This is necessary to facilitate the client's awareness of possible positive and negative determinants of occupation, which may impact the operation of their microenterprise, as well as access to occupational instruments or programmes that can support a successful engagement in self-employment and achieve a more positive occupational outcome.

Contextual factors

Personal context

Most business owners in this study were over the age of 35 years, which is supported by research indicating that older individuals preferred being self-employed if they cannot easily get paid employment^{1,9,41} (refer Table III, below). Most business owners were in their early thirties when starting their businesses since saving enough money and gaining experience and confidence to start a business independently took time.

Most business owners were males, which aligns with research indicating that females are less likely to be involved in self-employment due to being more family-orientated and involved in piecework^{39,42}. Most business owners were married, had not completed high school and had been doing business for a period ranging from 3 to 28 years, with a mean of 17 years, as supported by Noorderhaven et al.⁴² Regarding nationality, 56% (n=9) of the business owners were South Africans, and 44% (n=7) were foreign nationals.

Table III: Demographics of business owners (n=16)

Description		n	%
Gender	Male	13	81.25
	Female	3	18.75
Age	25 – 35 years	5	31.25
	36 – 45 years	8	50.00
	46 – 50 years	3	18.75
Marital status	Married	8	50
	Single	6	37.5
	Cohabitating	2	12.5
Education	None	1	6.25
	Primary School	3	18.75
	< Grade 12	6	37.5
	Grade 12	3	18.75
	Tertiary	3	18.75

The number of dependents cared for by the business owners ranged from 2 to 30, with an average of 7.5 dependents. The high number of dependants could have been the pushing factor for these business owners to resort to self-employment so that they could support their families. All business owners indicated that family support was essential for their business's success, as Petersen and Charman⁴³ confirmed that

many such businesses employ family members. Therefore, informal microenterprises provide for families and offer employment and work experience.

The business owners indicated their ability and skills influenced the type of business they engaged in, which had to be enhanced by commitment and resilience. Business-owner success was perceived by the business owners to be linked to the quality of the service or product they provided and their attributes or work ethic, such as dedication and patience "ku tiyimisel" (in xiTsonga, meaning determination). It was observed that less complex business logistics were required to run a retail business, i.e., buying and selling sweets and snacks entails sourcing the products and selling. In contrast, the service category business, such as a hair salon, requires having a skill set.

Three business owners reported disabilities due to i) stroke, ii) shoulder and back injuries from a motorbike accident and iii) a gunshot. For these participants, pain and relying on others to obtain stock (which was sometimes stolen from them) affected the hours they could work and the profitability of their businesses. Disability and discomfort did not deter these participants from engaging in self-employment, which may suggest that successful small business opportunities may be considered as a placement option for persons with disabilities. A client profile (e.g., their priorities and the reason they intend to explore or why they would be suitable for self-employment)⁴⁴ should be developed when assisting those with disabilities to consider self-employment. Their education and training needs (occupational instruments under structural factors) are to be considered, as well as family support and how any occupational dysfunction can be accommodated².

Historical context

Participant's lack of access to formal training or education, which allows access to the formal employment market, impacted the outcomes of self-employment in microenterprises in a South African context. Although education has been slightly improved since democracy, South Africans in public schools in low-resourced areas have a high dropout rate and little access to technology⁴⁵. These schools lack accountability, management, a culture of learning and teacher competence, resulting in poor curriculum coverage, homework monitoring and performance on national tests⁴⁵. Only less than a third of the business owner participants had an opportunity to finish school or attend business training. This may apply particularly to persons who become disabled when young and have limited access to basic education⁴⁶. Most business owners (61%; n=11) received in-service training on-site while working or volunteering at a business owned by a neighbour, friend, or acquaintance since costs excluded them from formal business training. According to Mahadea and Khumalo⁴⁷, these historical constraints affect competence, capabilities and knowledge and significantly impact the growth and success of microenterprises.

Another contextual factor that historically restricts business owners' access to finance is a lack of generational wealth and fixed assets in accessing financing available from institutions that generally provide loans for businesses¹⁸. In a

South African context, there is a direct link between these unjust practices and the discriminatory apartheid ruling system. To start their businesses, various business owners reported using amounts ranging from ZAR450 to ZAR30,000 with the capital raised from family and friends. Most business owners indicated that they saved money, bought necessary tools and materials for their business, and then started their business on a small scale.

The historical restrictions further impacted business owners on formal economic activity and limitations defining township population before democracy¹⁶. The stock, therefore, had to be sourced at sites outside of Alexandra Township. Transportation methods used when replacing or replenishing stock by the business owners were walking for less than 5km (6%), using their own transport (13%), public transport (50%), getting stock delivered to them (19%) or using a friend's car (6%). Six percent indicated that transportation does not apply to their business. Stocking up was time-consuming and took hours out of participant's working days. High transport costs were reported by 53%-60% of business owners in similar studies regarding accessing stock from locations far from where the business owners operate⁴⁷.

While the location of the business in the township, close to customers, increased the probability of building a clientele base within their area⁴⁸, customer-orientated practices were needed to retain existing customers since this is essential for the business to succeed. Due to the limited finances available to customers in the township context, strategies to keep such

customers included providing appropriately priced low-cost items and maintaining hygiene in the business, although difficult when selling, e.g. food on hot days. As highlighted earlier, another strategy to keep a customer base is for business owners operating on a credit basis. However, another study reported late payments from debtors by over 80% and impacted the sustainability of businesses with little cashflow reserves⁴⁷. One business owner highlighted that he only added a 20% markup, which his customers preferred. In line with the above, Ngubeni et al.⁴⁹ indicated that it is challenging for small informal businesses in Alexandra Township to access customer bases and markets in more lucrative nearby areas such as Sandton, an affluent area.

Occupational therapists can play an advocacy role in assisting those engaging in self-employment by contributing to organisations campaigning for the rights of these business owners to trade in, e.g., Johannesburg, and extending access to other customer bases and markets. Referrals for formal or informal training in business skills and development or consolidation skills needed to operate service microenterprises should be made according to the client's capacity as assessed by the occupational therapist. These align with education and training needs (occupational instruments under structural factors)⁴⁴.

Spatial (environmental) context

The number and type of microenterprises were identified in a small one-kilometre area in Alexandra Township through mapping and the transect walk (Refer to Image 1, below)

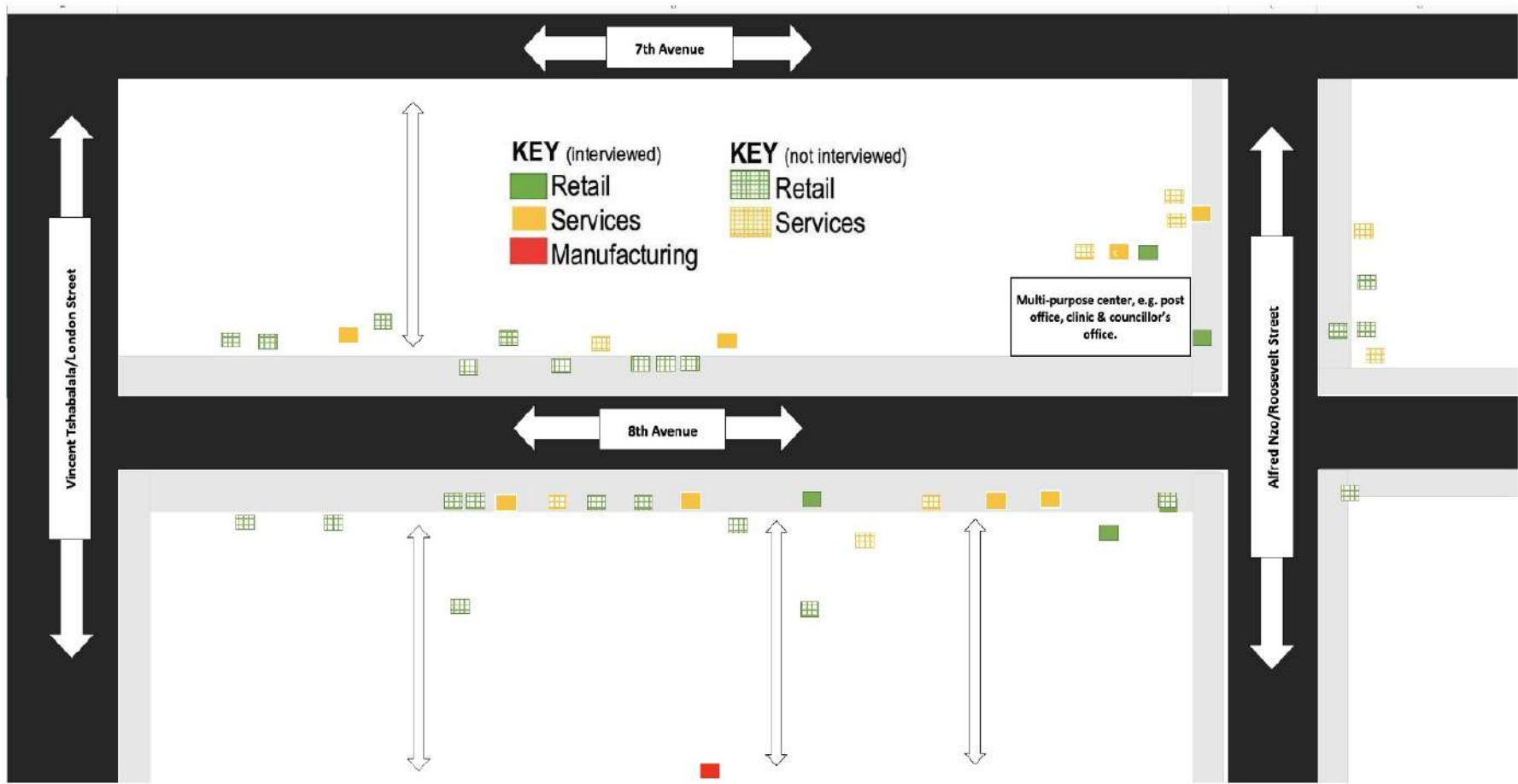


Image 1: Alexandra Township community map (8th Avenue)

There was an abundance of similar microenterprises on the road in this small area where 46 businesses were located. Businesses in the categories of i) retail (61%), ii) services & skills (37%) and iii) manufacturing or production (2%) were identified. The findings in this study are similar to those of other studies in urban Townships in South Africa, i.e., Ivory Park, Tembisa and Diepsloot²⁹. The clustering of many businesses in one area impacted the diversity of businesses and created competition amongst similar businesses, affecting their sustainability³⁹. Mahadea and Khumalo⁴⁷ report that 94% of owners of microenterprises agree that excessive competition restrained their business growth. The proximity of other businesses negatively affected the ability to attract new customers⁵⁰.

Other spatial contextual factors facing and impacting negatively on the businesses in this study included a lack of space⁵⁰ and high rental rates on available space. It is documented that a lack of space to operate businesses legally is an ongoing issue³⁹ with no indication of any solution regarding allocated market space in low-resourced urban communities⁵¹. Businesses are forced to operate on pavements and in temporary structures. Approximately two-thirds of the businesses were located on the pavement (63%), sometimes under the shelter of an umbrella or awning or in the yard of a house or rented room (31%), whereas 6% had a mobile business and did not need shelter (Refer to Image 2, below and adjacent).

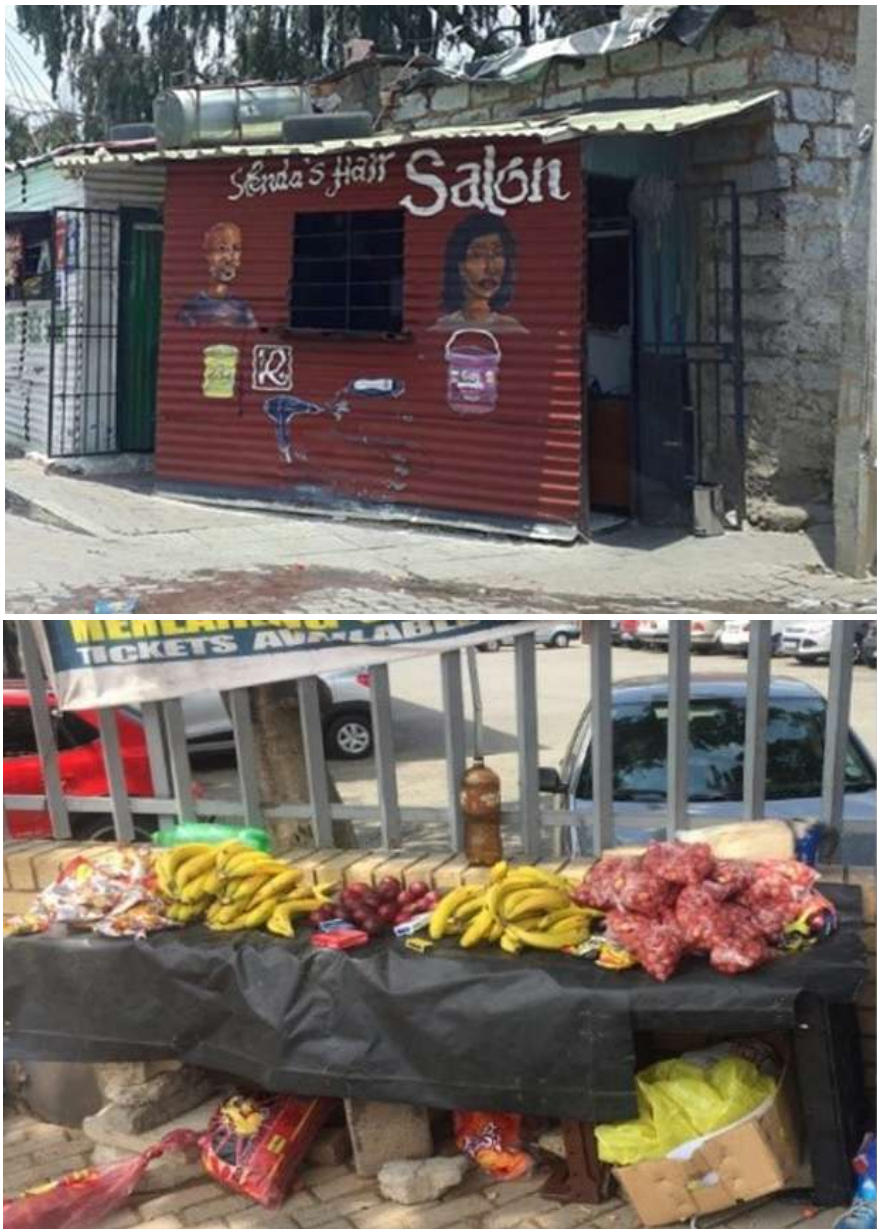


Image 2: Location of businesses

Natural factors, such as rain, were reported to affect the running of a business, as many of the participants' business structures could not cater for this type of weather. Business owners being exposed to weather and toxic environments such as car fumes when working on the side of a busy road were realities affecting their health, adding to their vulnerability⁵². This vulnerability is worsened for those with an impairment and disability, according to the Department of Health⁵³ and the World Health Organization⁵⁴.

For those with pavement-based businesses, all equipment, tools and materials were packed away and taken home when the business closed for the day⁴⁷. This was compounded by limited storage space affecting the profitability of the businesses due to goods spoilage, for instance. Local crime levels also impacted stock management, as security was a significant concern. Solutions that they used included burglar bars and security doors to secure their stock, sleeping at the business site and having dogs on standby to safeguard their businesses. However, Grabrucker and Grimm⁵⁵ report that no substantial adverse effects of actual crime rates on informal businesses in South Africa were found in comparison to the perceptions of the business owners and other external factors.

Occupational therapists require a complete understanding of the client's home and everyday environment before encouraging clients to explore self-employment. This is essential in planning the steps that can be taken to engage in this form of employment successfully within the constraints related to spatial contexts. When facilitating or encouraging self-employment with clients with the potential and showing interest in being self-employed, these factors should be made overt. The need for clients to prioritise and place customer's needs at the centre of their businesses should also be emphasised, with occupational therapists playing a role in environmental adaptations to facilitate engagement in self-employment.

Occupational Outcomes

Those self-employed business owners in informal microenterprises faced many unjust occupational outcomes within the confines of the structural and contextual factors mentioned above¹⁵. However, due to their ability to adapt to

adverse factors and their emphasis on customer service and provision of good service, they have stayed in business, supporting findings made by Chatterjee and Das⁵⁶ on successful microenterprises in their study in India.

Occupational rights

The right to choice was limited. Half of the business owners indicated they were involved in self-employment as this was their only option due to the lack of jobs in the formal sector. The right to participation was also limited, which made doing in this occupation difficult since these business owners had limited finances regarding what business they could afford to start and what locations were available to operate businesses. They could not develop their business potential and capabilities⁵⁷ as no business owners planned to try to grow their businesses. However, the business owners interviewed have consolidated the right to participate using planning to set up businesses that could succeed and had used their previous exposure to business and skills training.

Just occupational outcomes were reported by over half (56%) of the business owners since self-employment did meet their right to be involved in a meaningful occupation. This was achieved by contributing to the economy and leading fulfilling lives as they did not wish to be employed by another person. For them, being self-employed came with freedom, such as being their own boss, flexible working hours and the opportunity for self-driven personal growth without limitations. These microenterprises offer business owners the ability to provide for themselves and their families, which can contribute to alleviating the effects of poverty in low-resourced contexts. Furthermore, services and products were made available to the community at affordable prices, often within walking distance from their homes, adding convenience and savings on, e.g., travel costs⁵⁸. These informal commercial activities are also embedded in the social context, allowing for relationships and support, reinforcing the business owners' place in the community, sense of belonging, and self-identity⁵⁹.

Right to a balanced lifestyle was impacted by lengthy trading hours, which ranged from 8 to 16 hours per day with an average of 10 hours. Closure of the businesses in a year was reported on days over the Easter and Christmas holidays. However, 31% of the businesses operated every day of the year with no official closure time. For business owners, work occupied most of their waking hours, limiting participation in other activities. The impact of these working hours on the well-being of the participants and the stress related to self-employment in these businesses require further research to understand their actual impact⁶⁰.

Dis-ease

Social disruptions affected the foreign nationals because their businesses had experienced or were at risk of looting and damage due to xenophobic incidents⁶¹, resulting in unjust occupational outcomes. Clients seen by occupational therapists may experience dis-ease, especially in the formal sector, in the form of discrimination.

Occupational injustice

Business owners experienced occupational marginalisation regarding access to education, training, formal employment and finance. Further occupational marginalisation and imbalance were evident due to efforts towards legalisation of informal trading in Johannesburg, limited access to customer bases, a lack of job permanency, no paid leave and other benefits since their businesses are not part of the regulatory framework that governs employment in South Africa³⁹. Sixty-nine per cent of the participants reported that they do not have sick pay and that if they became ill, being unable to work could result in the failure of the business.

CONCLUSION

The small sample size and the limited area in which the research occurred affect generalisation, consequently, the conclusion is limited to the findings of this research. The unjust occupational outcomes of self-employment in Alexandra Township are impacted by structural and contextual factors. Results indicate that business owners of microenterprises in Alexandra Township have limited rights in terms of choice and suffer occupational marginalisation and imbalance. Rights associated with meaning in an occupation associated with self-employment are being fulfilled. Occupational rights regarding choice, a balanced lifestyle and participation were compromised due to their involvement in self-employment in microenterprises, which is associated with challenges. Such challenging factors for the microenterprise owners were a lack of access to finance, education, training, and suppliers, and limited business locations and customers while working long hours for a small profit. However, the participants in this study had achieved success in self-employment. They reported just occupational outcomes for meaning in occupation in terms of freedom and flexibility at work, providing a service and being part of the community while financially supporting themselves and their families.

In line with the aim of this research, the findings on profitable self-employment occupations in Alexandra Township seem to suggest that occupational therapists should get involved and play an active role in understanding and addressing occupational injustices when facilitating self-employment for those with occupational dysfunction and clients with disabilities. Occupational therapists should raise awareness and form partnerships to advocate for change within this employment sector to support self-employment in microenterprises.

Author Contributions

Luther Monareng (a postgraduate master's student at the time of the study) was responsible for heading the research project, conceptualising it, and co-writing the article. Denise Franzsen and Daleen Casteleijn co-supervised the study, assisted in the conceptualisation and development of the research, and contributed to writing the article.

Conflicts of interest declaration

There is no conflict of interest to declare.

Acknowledgements

Thank you to all the following departments and people who made this research a success:

- * University of the Witwatersrand's Faculty of Health Sciences,
- * University of the Witwatersrand's eLearning team and
- * Colleagues in vocational rehabilitation (Dr. Hester van Biljon, Mrs. Jennie McAdam, Mr. July Masango and Mr. Simon Rabothata) and those with experience in occupational science (Professor Roshan Galvaan).

REFERENCES

1. Kronenberg F, Pollard N, Sakellariou D. Occupational Therapies without Borders-Volume 2 : Towards an ecology of occupation-based practices: Elsevier Health Sciences; 2011.
2. American Occupational Therapy Association. Occupational therapy practice framework: Domain and process (4th ed.). American Journal of Occupational Therapy. 2020;74(Suppl. 2):7412410010.doi:<https://doi.org/10.5014/ajot.2020.74S2001>.
3. Steinfeld R. Suffrage and the Terms of Labor in Human Capital and Institutions In: Eltis D, Lewis F, Sokoloff K, editors. A Long Run View. Buffalo School of Law: Cambridge University Press; 2009.
4. Statistics South Africa. Quarterly Labour Force Survey Quarter 1: 2022 [cited 2021 5.12.2022]. Available from: <https://www.statssa.gov.za/publications/P0211/P0211stQuarter2022.pdf>.
5. Gamielidien F, Van Niekerk L. Street vending in South Africa: An entrepreneurial occupation. South African Journal of Occupational Therapy. 2017;47(1):24-9. doi: <http://dx.doi.org/10.17159/2310-3833/2017/vol47n1a5>
6. Dollarhide M. Self Employment: Definition, Types and Benefits: Investopedia; 2022 [8.4.2023]. Available from: <https://www.investopedia.com/terms/s/self-employed.asp#:~:text=Self%2DEmployment%20FAQs-,What%20is%20Self%2DEmployment%3F,a%20trade%20or%20business%20directly>.
7. Zondi WB. Challenges Facing Small Business Development in South Africa. Journal of Economic & Management Perspectives.2019;11(2):621-8.
8. Tsoabisi S. Small-Medium Micro-Enterprises in South Africa. Journal of African & Asian Local Government Studies. 2014;3(3):72-93.
9. Valodia I, Davies R, Altman M, Thurlow J. Economic behaviour in South Africa's informal economy'. Report to the conflict and governance facility (CAGE) Pretoria: Human Sciences Research Council.2007.
10. Krasniqi BA. Characteristics of self-employment: A refuge from unemployment or road to entrepreneurship. Small Enterprise Research.2014;21(1):33-53.doi:<https://doi.org/10.1080/13215906.2014.11082075>.
11. Townsend E, Wilcock A. Occupational justice and client-centred practice: a dialogue in progress. Canadian journal of occupational therapy.2004;71(2):75-87.
12. Monareng LL, Franzsen D, van Biljon H. A survey of occupational therapists' involvement in facilitating self-employment for people with disabilities. South African Journal of Occupational Therapy. 2018;48(3):52-7. doi: <http://dx.doi.org/10.17159/2310-3833/2017/vol48n3a8>.
13. International Leadership Development Programme. Informal Small Medium and Micro Enterprises (SMME) Retailers in South Africa. Wholesale and Retail SETA and Henley Business School,2014.
14. Pretorius M. Defining business decline, failure and turnaround: A content analysis. The Southern African Journal of Entrepreneurship and Small Business Management. 2009;2(1):1-16. doi:<https://doi.org/10.4102/sajesbm.v2i1.15>.
15. Stadnyk R, Townsend EA, Wilcock AA. Occupational justice. In: Christiansen C, Townsend EA, editors. Introduction to Occupation: The Art and Science of Living. London: Pearsons; 2010.p.329-58.
16. Ndlovu-Gatsheni S. The entrapment of Africa within the global colonial matrices of power: Eurocentrism, coloniality, and deimperialization in the twenty-first century. Journal of Developing Societies.2013;29(4):331-53.doi:<https://doi.org/10.1177/0169796X13503195>.
17. Legislation: Employment Equity and Labour Relations [Internet]. 2015 [cited June 2018]. Available from: <http://www.labour.gov.za/DOL/legislation>.
18. Malefane S. Small Medium, and Micro Enterprise and local economic-base restructuring-a South African local government perspective. Journal of Public Administration. 2013;48(4):671-90.
19. Small Enterprise Development Agency. SMME Quarterly 2021 Q1. Pretoria: Small Business Development Agency, 2021.
20. Bernstein A, Johnston S. The next decade: perspectives on South Africa's growth and development: Centre for Development and Enterprise;2005.
21. Hadebe T. Township home-based enterprises: the case of Pimville: University of the Witwatersrand Johannesburg; 2010.
22. City of Joburg. Opportunity Centres 2020 [cited 2020 17 April]. Available from: <https://www.joburg.org.za/departments/Pages/City%20directorates%20including%20departmental%20sub-directorates/economic%20dev/Joburg%20Opportunity%20Centers.aspx>.
23. yes2youth. Yes Hub launched in Alexandra to tackle youth unemployment 2021. Available from: <https://yes4youth.co.za/yes-hub-launched-in-alexandra-to-tackle-youth-unemployment/>.
24. Woodward D, Rolfe R, Ligthelm A, Guimaraes P. The viability of informal micro-enterprise in South Africa Journal of Developmental Entrepreneurship 16, no 01 (2011): . 2010;16(1):65-86. doi:<https://doi.org/10.1142/S1084946711001719>.
25. Baumann T. Pro-poor microcredit in South Africa: cost-efficiency and productivity of South African pro-poor microfinance institutions. Development Southern Africa. 2004;21(5):785-98.
26. Smallbone D, Welter F. Entrepreneurship and small business development in post-socialist economies: Routledge; 2008.
27. Mpofo-Walsh S. The New Apartheid. Cape Town: Tafelberg; 2021.
28. Bonner P, Nieftagodien N,. . Alexandra: A history. Johannesburg:WitsUniversityPress;2008.
29. Charman AJE, Petersen LM, Piper LE, Liedeman R, Legg T. Small area census approach to measure the township informal economy in South Africa. Journal of Mixed Methods Research. 2017;11(1):36-58. doi: <https://doi.org/10.1177/1558689815572024>.
30. Robinson PB, Sexton EA. The effect of education and experience on self-employment success. Journal of Business Venturing. 1994;9(2):141-56. doi: [https://doi.org/10.1016/0883-9026\(94\)90006-X](https://doi.org/10.1016/0883-9026(94)90006-X).

31. World Federation of Occupational Therapists. Position Statement on Human Rights. 2006.
32. Kielhofner G. Research in Occupational Therapy: Methods of Inquiry for Enhancing Practice. Waltner P, Frattantoro CA, editors. Philadelphia: F. A. Davis; 2006.
33. South African Social Security Agency. Social Grants 2023 [cited 2023 June 09]. Available from: <http://www.socdev.fs.gov.za/index.php/social-grants/>.
34. Gill P, Stewart K, Treasure E, Chadwick B. Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*. 2008;204(6):291-5. doi: <https://doi.org/10.1038/bdj.2008.192>.
35. Freudenberger KS. Rapid rural appraisal (RRA) and participatory rural appraisal (PRA): a manual for CRS field workers and partners. Baltimore: Catholic Relief Services. 1999.
36. Bénit-Gbaffou C. Beyond the policy-implementation gap: How the city of Johannesburg manufactured the ungovernability of street trading. *The Journal of Development Studies*. 2018;54(12):2149-67.
37. Igwe PA, Icha-Ituma A. A review of ten years of African entrepreneurship research. In: Gibb J, Scott J, Sinha P, editors. *Research handbook on entrepreneurship in emerging economies: A contextualized approach*. Cheltenham: Edward Elgar; 2020.
38. City of Joburg. Enabling Economic Recovery 2022. Available from: https://issuu.com/glen.t/docs/city_of_joburg_2022.
39. Asare R, Akuffo-Bea M, Quaye W, Atta-Antwi K. Characteristics of micro, small and medium enterprises in Ghana: gender and implications for economic growth. *African Journal of Science, Technology, Innovation and Development*. 2015;7(1):26-35. doi: <https://doi.org/10.1080/20421338.2014.979651>.
40. Maziriri ET, Madinga NW. A qualitative study on the challenges faced by entrepreneurs living with physical disabilities within the Sebokeng Township of South Africa. *International Journal*. 2016;1. doi: <https://doi.org/10.4102/sajesbm.v10i1.180>.
41. Brown S, Farrell L, Harris M, editors. Who are the self-employed? A new empirical approach. *Work and Pensions Economics Group seminar*, October; 2004.
42. Noorderhaven N, Wennekers A, van Stel A, Thurik A. The role of dissatisfaction and per capita income in explaining self-employment across 15 European countries. 2004. doi: <http://dx.doi.org/10.1111/j.1540-6520.2004.00057.x>.
43. Petersen L, Charman A. The role of family in the township informal economy of food and drink in KwaMashu, South Africa. *International Journal of Sociology and Social Policy*. 2018. doi: [10.1108/IJSSP-06-2017-0068](https://doi.org/10.1108/IJSSP-06-2017-0068).
44. Monareng LL, Franzsen D, Casteleijn D, van Biljon HM. The application of the Vona du Toit Model of Creative Ability to self-employment in South African informal microenterprises. *South African Journal of Occupational Therapy*. 2021;51(2):74-81. doi: [10.17159/2310-3833/2021/vol51n2a10](https://doi.org/10.17159/2310-3833/2021/vol51n2a10).
45. Spaul N. Equity & efficiency in South African primary schools: A preliminary analysis of SACMEQ III South Africa: Stellenbosch: Stellenbosch University; 2012.
46. Steenekamp AG, van der Merwe SP, Athayde R. An investigation into youth entrepreneurship in selected South African secondary schools: An exploratory study 2011 [cited 2019 3 July]. 46-75]. Available from: <http://hdl.handle.net/10394/7945>.
47. Mahadea D, Khumalo S. Understanding the Internal and External Constraints to Growth of Microenterprise Entrepreneurship in a South African Provincial Context: A Case of Mpumalanga-Mkhondo. *Journal of Developmental Entrepreneurship*. 2020;25(02):2050013. doi: <https://doi.org/10.1142/S1084946720500132>.
48. Audretsch D, Thurik R, Verheul I, Wennekers S. Understanding entrepreneurship across countries and over time. *Entrepreneurship: Determinants and policy in a European-US comparison*: Springer; 2002. p. 1-10.
49. Ngubeni TC, Ivanovic M, Adinolfi MBDCC. Entrepreneurial Challenges of Marginalised Women Making Souvenirs in Alexandra Township in Johannesburg. *African Journal of Hospitality, Tourism and Leisure*. 2022;(116):814-2223. doi: <https://doi.org/10.46222/ajhtl.19770720.328>.
50. Western Cape Provincial Treasury. Provincial Economic Review and Outlook. Chapter 6: Small, Medium and Micro Enterprises and the Informal Sector Cape Town: 2007.
51. City of Joburg. Informal Trading Policy for the City of Johannesburg. Johannesburg: 2007.
52. Bhorat H, Lilenstein K, Oosthuizen M, Thornton A. Vulnerability in Employment: Evidence from South Africa. DPRU University of Cape Town, 2016.
53. National Health Insurance [Internet]. 2018 [cited June 2018]. Available from: <http://www.health.gov.za/index.php/component/phocadownload/category/383>.
54. World Health Organization. WHO global disability action plan 2014-2021: Better health for all people with disability: World Health Organization; 2015.
55. Grabrucker K, Grimm M. Does crime deter South Africans from self-employment? *Journal of Comparative Economics*. 2018;46(2):413-35. doi: <https://doi.org/10.1016/j.jce.2017.11.003>.
56. Chatterjee N, Das N. A study on the impact of key entrepreneurial skills on business success of Indian micro-entrepreneurs: A case of Jharkhand region. *Global Business Review*. 2016;17(1):226-37. doi: <https://doi.org/10.1177/0972150915610729>.
57. Jakobsen K. If work doesn't work: How to enable occupational justice. *Journal of Occupational Science*. 2004;11(3):125-34. doi: <https://psycnet.apa.org/doi/10.1080/14427591.2004.9686540>.
58. Gree A, Thurnik C. Firm selection and industry evolution: the post country performance of new firm. *Journal of Evolutionary Economics*. 2003;4(4):243-64.
59. Neves D, Du Toit A. Money and sociality in South Africa's informal economy. *Africa: The Journal of the International African Institute*. 2012;82(1):131-49. doi: <http://dx.doi.org/10.1017/S0001972011000763>.
60. Anaby D, Jarus T, Backman CL, Zumbo BD. The role of occupational characteristics and occupational imbalance in explaining well-being. *Applied Research in Quality of Life*. 2010;5(2):81-104. doi: <https://psycnet.apa.org/doi/10.1007/s11482-010-9094-6>.
61. Liedeman R, Charman A, Piper L, Petersen L. Why are foreign-run spaza shops more successful? The rapidly changing spaza sector in South Africa. Sustainable Livelihoods Foundation. 2013.

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mental health; mental illness; Zulu culture; cultural perspectives; culturally appropriate healthcare.

HOW TO CITE THIS ARTICLE

Moonsamy A, Gurayah T. *Cultural perspectives and experiences of mental healthcare and occupational therapy in Kwa-Zulu Natal, South Africa*. South African Journal of Occupational Therapy. Vol 54 No 1 April 2024. DOI: <https://doi.org/10.17159/2310-3883/2024/vol54n1a5>

ARTICLE HISTORY**Submitted:** 15 December 2022**Reviewed:** 29 July 2023**Revised:** 6 September 2023**Accepted:** 7 January 2024**EDITOR**

Pamela Gretschel

<https://orcid.org/0000-002-7890-3635>**DATA AVAILABILITY**

Upon reasonable request, from corresponding author.

FUNDING

No funding was received for this study.

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ISSN On-line 2310-3833

Cultural perspectives and experiences of mental healthcare in Kwa-Zulu Natal, South Africa

ABSTRACT

Background: Healthcare systems reflect worldviews, specifically in mental health, where norms dictate what is normal and abnormal. The era of coloniality promoted Western dogma over collectivist cultures, which were marginalised. This study explored the perspectives and experiences of Black, isiZulu-speaking, South Africans who utilised multidisciplinary services, based on a Western-based therapy model at a private psychiatric facility in KwaZulu Natal.

Methods: A qualitative descriptive design was utilised. Purposive sampling was utilised to recruit 10 participants. Data was collected through semi-structured interviews. Braun and Clarke's six phases of thematic analysis were used to guide the data analysis.

Findings: Three themes with sub-themes emerged from the data: personal perceptions, which explored how isiZulu-speaking people made sense of mental health and mental illnesses. *Cultural perceptions* were the collectivist method of problem-solving, which stressed the importance of spiritual beliefs. *Health-seeking behaviour* considered the experience of the isiZulu-speaking mental health care user. Cognitive dissonance prevailed due to the difference between westernised mental health treatment and traditional healing systems.

Conclusion: The family and community are intertwined in participation, reputation, and healing. There is an emphasis on enduring hardship and following traditions, which are preserved by valued elders. Disregarding these norms can outcast the Zulu individual who strives toward inclusion within the community.

Implications for practice:

- Intervention cannot only be at individual level but also community level.
- Including the family in psychoeducation and therapeutic goal setting would be beneficial to the Zulu MHCU.
- Group programmes should address gender-specific issues.
- Occupational therapists must recognise the importance of participating in spirituality for the healing of the Zulu MHCU and appropriately include it in intervention.
- Mental health resources and awareness programmes need to be disseminated at community level.
- Competency in the isiZulu language is recommended.

INTRODUCTION

Healthcare systems reflect worldviews, beliefs, customs and strategies for good health, appropriate diagnosis, and the prevention and cure of illness¹. Systems such as these were created during the colonial era when power and privilege were afforded to Western culture and created a Western hegemonic discourse². The hegemonic discourse surrounding culture and its use in guiding practice has become critical to explore³ in a diverse country such as South Africa.

Worldviews are deeply connected to how people perform and the meaning they ascribe to their occupations; hence, culture is of great interest to the client-centred occupational therapy profession³.

Considering mental health interventions specifically, these have been based upon attitudes and beliefs that govern or define what is normal and abnormal, or that which requires intervention. These norms and ideals are essential to the development of theoretical models and frameworks that guide psychiatric intervention both globally, as well as locally in South Africa.

Culture refers to perspectives, beliefs, knowledge, values, attitudes, assumptions, norms, and customs associated with belonging to a specific group of people, which, in turn, guides thinking, understanding, and behaviour^{4,5}. Cultural dimensions need not be restricted to ethnicity or race but could include other factors of diversity such as class, gender, sexuality, and ability⁴. These dimensions which influence meaning attributed to occupation, also, unfortunately, render people unequal in society and affect the privilege, power, and opportunities they are afforded⁴.

Analysing occupational therapy theories in multicultural societies has become necessary for decolonizing occupational therapy theory and practice to incorporate diverse worldviews, mainly from the global South⁶. Decolonisation calls for disrupting the norm and questioning the appropriateness and utility of practices. Occupational consciousness becomes a central concept for disrupting the cycle of oppression through occupation². It entails building an awareness of the dynamics of hegemony and recognising how this might be sustained in everyday occupational performance⁷.

Unfortunately, a wide variety of research thus far focused on the occupational therapist's challenge of working in diverse societies, rather than understanding the client's culture and how it influences their understanding of health, health-related behaviour and experiences⁵.

Furthermore, much research that looked at Traditional theories of ill health are outdated. One such study from Durban South Africa, was done by Edwards et al.⁸ in 1983. It highlighted the various theories underpinning mental illness of African clients compared to those of their Western counterparts. They found differences between Traditional and Western theories but also congruency in the differentiation between psychotic and non-psychotic disorders⁸. The Crawford & Lipsedge⁹ study of 2004 highlighted information about isiZulu cultural definitions of illness and the role that ancestors are believed to play in the construction of illness among Zulu people.

When researchers engage in research with the utmost respect for the perspectives and experiences of diverse cultures, they will move toward culturally safe theories that are inclusive of the truths that clients hold⁴. This study explored the mental health perspectives and experiences of mental health interventions among isiZulu-speaking, Black South African mental health service users (MHCUs), who participated in Western-based occupational therapy programmes. Thus, critical reflection will be engaged regarding the question: *are mental health occupational therapy services appropriate for this dominant cultural group?*

LITERATURE REVIEW

The existing literature related to this research has been divided into four sections as shown in Figure 1 below:

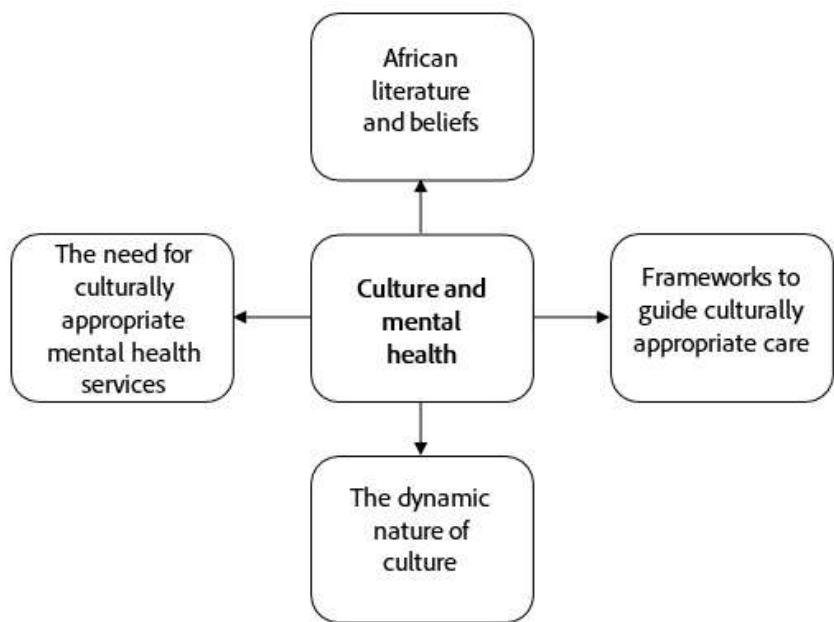


Figure 1: Architecture of the Literature Review

The dynamic nature of culture

Culture is dynamic, evolving and developing as the world evolves and develops, and as different cultures tend to coexist in shared spaces over some time⁴, thus necessitating consistent re-thinking and re-exploration. Factors such as language, personal experiences, and the environment among others, contributes to the construction of culture. As these factors shift and morph over time, so too will the culture. Cultural groups interact and these interactions will also contribute to a reconstruction of culture over time¹⁰. To comprehend what is of importance and relevance to the people, as well as to evaluate cultural safety and the appropriateness of occupational therapy practices, information must come from the sources themselves⁴. This study therefore aimed to gain insights into the suitability of current services for MHCUs from the Zulu culture in urban areas in KwaZulu Natal.

The need for culturally appropriate mental health services

Studies conducted globally have identified evidence of culturally inappropriate mental health services and their adverse effects on the people they were meant to serve^{11, 12, 13}. These studies depicted the potential damage caused by well-intentioned services that neglected the clients' perspectives. Collectivist cultures view individuals as interconnected within their communities and place less emphasis on autonomy or independence¹⁴. Critical reflection and research are therefore imperative before providing services for people from collectivist cultures, or they risk undermining traditional and meaningful cultural beliefs and practices.

In pre-1994 South Africa, the apartheid government strongly disseminated the Western worldview as the ideal¹⁵. This "epistemicide", or near destruction of indigenous knowledge¹² did not result in the abandonment of traditional

and westernised health systems¹⁵, perhaps as a reflection of the meaning they still found in traditional practice.

In efforts to understand this diversity manifesting within mental health, five critical components from collectivist cultures were found:

- A reluctance to use talk therapy in the case that it would lead to more suffering;
- The shame of having a mental illness causing further reluctance to seek professional help;
- The power differentials between therapist and client;
- Collectivism as the preferred method of support; and
- Religion or spirituality as the root cause or utilised as a coping mechanism^{16,17}.

Regardless of this knowledge of cultural diversity and mental health, most of the approaches toward intervention and counselling remain Eurocentric on a global level.

African literature and beliefs

A discourse analysis¹⁸ solidified the necessity of African research into cultural perspectives. Findings indicated a contradiction between traditional Zulu and Western theories of mental illness, leaving African individuals with the complex decision between two healthcare systems.

Stigma towards mental health care users (MHCUs) developed through cultural beliefs and attitudes, and also significantly influenced how they were perceived and reacted to within their communities. Moreover, this stigma contributed to individuals with mental illness reducing their treatment adherence and health-seeking behaviours which increased their risk of relapse¹⁹. A study from 2004 in rural KZN identified that Zulu beliefs concerning ill health and suffering were closely linked to their religious beliefs, history, social relationships, and cosmology⁹. Beliefs around medical doctors were that they could understand and treat disorders known as “*umkhuhlane*” (illness by natural causes), but other disorders known as “*ukufa kwabantu*” (illness by supernatural causes), could only be recognised and treated by traditional healers.

This ideology still existed as recently as 2017 when Molot²⁰ compared Western versus traditional treatment of mental illness in KZN. Explanations for the root causes of mental illness by traditional healers often included ancestral beliefs. Traditional healers also reported that they exclusively treated those bewitched or in trouble with their ancestors through methods such as burning “*imphepho*” (incense), cleansing, or traditional medicines. Ancestors are highly regarded and often linked to the wellbeing of the Black African individual and family^{9,20,21}. Ancestors are the souls of the deceased elders who guide the living. When ancestors express displeasure or communicate with the family, they usually do so in the form of illness, suffering, dreams, or nightmares that must be appeased by specific rituals²¹

African culture reveres fundamental moral values such as patience, perseverance, modesty, industriousness, obedience, and respect for elders²². An individual creates their sense of self through others. The proverb “*umuntu ngumuntu ngabantu*”, which translates to “a person is a person through other persons”, fully encapsulates this belief²². Hence sources of motivation for the African individual include bringing honour to their name or clan, overcoming the limitations of their background, competing with others in their age group to

achieve worth, appeasing the ancestors, and having the desire to be part of a community and receive social support²².

Frameworks to guide culturally appropriate care

Frameworks utilised in occupational therapy practice possibly achieved dominant status due to the influence and power accrued by the Western culture⁴. Initially, cultural competence was utilised as a framework for mental health professionals to practise efficiently within culturally diverse settings. It required practitioners to become familiar with the cultural values, customs, and traditions of the people they served. However, research has indicated that these cultural competence models are insufficient and can be problematic due to their ignorance of the dynamics of power and oppression^{4,16,23}. Cultural humility has been proposed as more appropriate as it requires therapists to become critical thinkers. It is an awareness of one’s own positionality and understanding of how this influences perspectives which may differ from others, and posits that cultural differences lie within the therapist-client relationship and not only from the clients’ perspective only⁴. Developing this entails evaluating intersecting identities and the scrutiny of common knowledge that is defined as truth. This redresses the power imbalance within the client-therapist relationship and enhances the therapy process^{4,23}.

METHODOLOGY

Study design

This study employed a descriptive qualitative approach. This approach was useful in the exploration of the perspectives and experiences of Black, isiZulu-speaking South Africans who had utilised multidisciplinary services at a private psychiatric facility, underpinned by a western-based therapy model in KwaZulu Natal. A qualitative design was best suited to this study that explicated the concepts of meaning and experience from the clients’ point of view regarding the healthcare system in KZN²⁴.

Selection and sampling strategy

Purposive sampling was used, where a group of people is intentionally selected to best answer the research question posed^{25,26}. There were 10 participants in this study and data saturation was reached. All participants were ex-patients of the facility. Participants were required to be Black South African individuals of Zulu cultural heritage, i.e., an isiZulu-speaking person who grew up embedded within the culture. Participants had to have attended their group therapy programme provided by the facility which included occupational therapy services. Participants were above the age of 18, and had access to a video-call compatible device such as a laptop, computer, or cell phone. See participants’ demographic details in Table I (below):

Table I: Participant Demographics

Participant	Gender	Age	Occupation	Pseudonym
1	M	30	Lifeguard	Thabani
2	F	44	Educator	Gugu
3	M	34	Police Officer	Muzi

Participant	Gender	Age	Occupation	Pseudonym
4	F	57	Former Crèche Owner	Mbali
5	F	28	Educator	Ntokozo
6	F	36	Administrative Clerk	Zandile
7	M	38	Student Advisor	Bheki
8	F	50	Receptionist	Thokozile
9	M	42	Police Officer	Menzi
10	M	33	Plumber	Sifiso

Research setting

This study occurred in the KwaZulu Natal province of South Africa, specifically in the city of Durban. The predominant cultural group residing in KZN are the Zulu people. The study focused on MHCUs from the Zulu culture who were previously admitted to a private psychiatric facility based in one of the more upmarket areas of Durban. However, the client population comes from all over the city and country. MHCUs seeking assistance at the clinic present with depression, anxiety disorders, post-traumatic stress disorder and other psychotic disorders. Participants were informed about the study prior to discharge and allowed to participate by leaving their contact details with the therapist during the discharge group.

Data collection procedure

A pilot study was conducted with two participants to ensure that questions would be understandable to participants and that they would elicit the responses required to answer the research question. The pilot study revealed that the questions were appropriate. An interviewer matching the description of a Black, isiZulu-speaking South African was contracted to conduct the interviews, while the first author acted as a moderator during the interview, noting observations of the participants. This created a more comfortable interview space for the participants and allowed them to express themselves in isiZulu.

A semi-structured interview schedule drawn up by the researcher was used to guide the conversation during a virtual interview. Open-ended questions were designed to elicit responses relevant to the research question and allowed participants to diverge into new concepts that arose during the conversation. Interview questions explored attitudes and beliefs surrounding mental health, mental-health-related practices, and experiences of the mental health programmes at a private psychiatric facility.

Trustworthiness

The semi-structured interview schedule questions were utilised to redirect participants who strayed off the topic. Questions were rephrased to confirm or enhance the understanding of either the interviewer or the participant. Participants reserved the right to withdraw their participation

at any time before disseminating the results. The researcher worked through transcriptions and interpretations multiple times, and debriefed with the supervisors of the study. The researcher engaged in reflection through journaling to evaluate her positionality as an Indian female who was an outsider to the Zulu culture, to uncover preconceived personal ideologies and to identify how it may impact interpretations of the data. An audit trail of the recordings and transcriptions was kept for record purposes.

Ethical Considerations

This research study was approved by the Biomedical Research Ethics Committee (BREC) at the University of Kwa-Zulu Natal (Ref. no. BREC/00002882/2021). The research process was carried out according to the research guidelines to ensure scientific integrity. Gatekeepers' permission was obtained from the facility, and participation in the research study was voluntary. Telephonic or virtual interviews were more cost-effective. Participants were blind to each other as individual interviews were used. This offered them confidentiality. Participants' stress was minimised by fully informing them about the study during a discharge group and then again during the interview. Participant information sheets were issued to and discussed with them. Participant names and all other identifying features were not included in reporting the data. Participants were treated with respect and sensitivity, and their cultural viewpoints were respected.

Data Analysis and Findings

Data Analysis

A thematic analysis (Table II, below), of the data were conducted. Thematic analysis has the potential to reflect the current reality and uncover what underlies it, which is in line with the aim of this research. The six steps of thematic analysis were followed as outlined by Braun & Clarke²⁷. Thereafter a deductive analysis was conducted using the Ecology of Human Performance Model²⁸.

Table II: Thematic Analysis

Thematic Analysis	
Step 1 Familiarising yourself with data	Raw data were collected in the form of audio recordings of the interviews. During the interviews, notes were also taken by the researcher to supplement the audio recordings. These audio recordings were then transcribed into a document by the researcher, which allowed the researcher to immerse herself in the data from the first phase. Transcriptions were a verbatim account of the conversation. They were combined with non-verbal cues noted down by the researcher, such as tone of voice or expression if the participant opted for a video call
Step 2 Generating initial codes	Thereafter coding was done so that significant parts of the data could be extracted and organised. The number of codes was not restricted and equal attention was given to each data item.
Step 3 Searching for themes	The coding was completed manually by the researcher. Similar codes were clustered into categories, and then into sub-themes, and themes.

Step 4 Reviewing themes	A thematic map was constructed and analysed to verify if it was an accurate representation of the data set. Member checking occurred to ensure the data was interpreted correctly.
Step 5 Defining and naming themes	Immersion continued as the researcher re-read through the data actively and searched for meaning while noting down what was initially considered significant.
Step 6 Producing the report	Themes were reviewed and refined, by re-reading through the data and the codes to verify patterns initially detected. Finally, they were written up into the final report in a way that accurately reflected the essence of each one and provided a convincing and meaningful account of the data. Direct quotes from the participants were included to support the themes.

FINDINGS

This section presents the themes derived from the results this study. The findings of this study were viewed through the lens of the Ecology of Human Performance Model. The basic tenets of the model include the person, the context and the task²⁸. Findings relating to these concepts are presented, integrated and discussed. Three themes were derived, namely *Personal perspectives*, *Cultural perspectives*, and *Health-seeking behaviours*. Each theme and its sub-themes are depicted in Figure 2 (below).

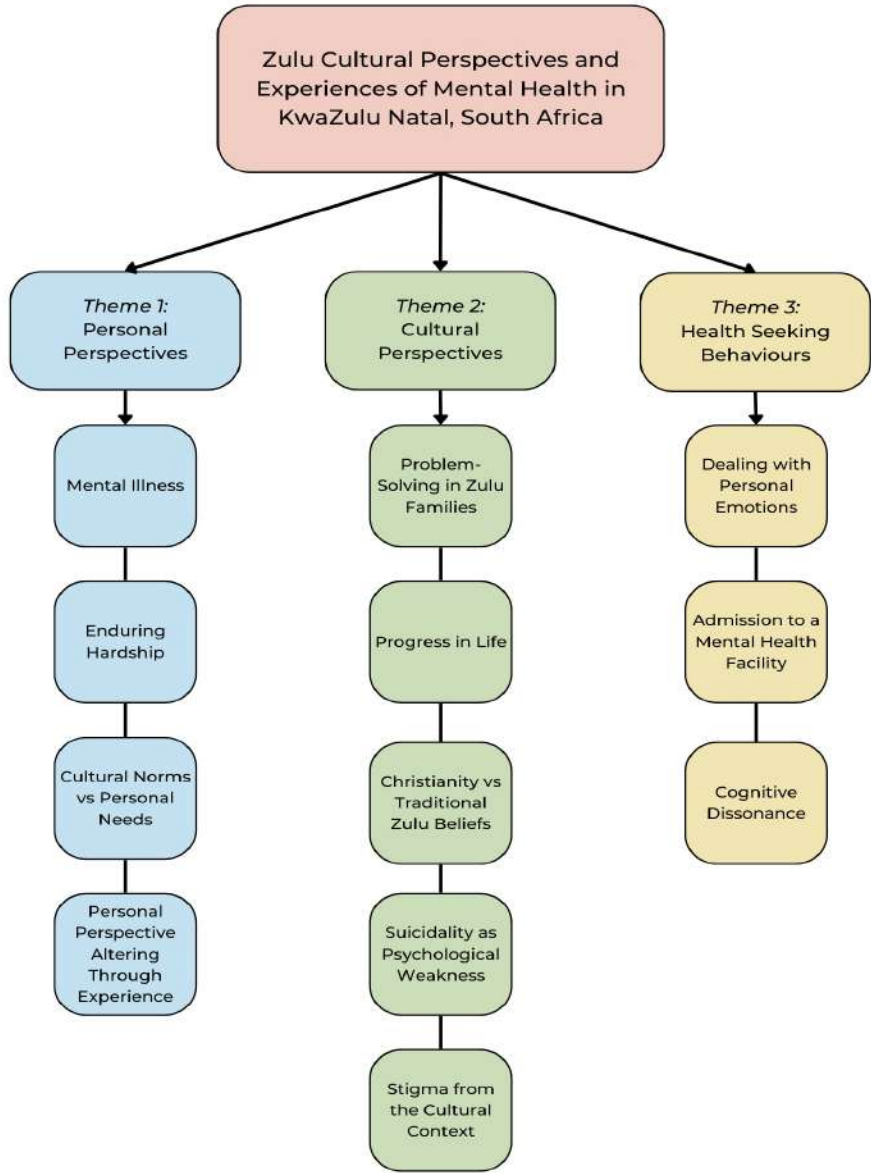


Figure 2: Thematic map

Theme 1: Personal Perspectives

This theme considered the aspects of the Zulu individuals' perspectives concerning mental illness and some of the causal factors described by the participants. The sub-themes that emerged under this theme were *mental illness*, *enduring hardship*, *cultural norms versus personal needs*, and *personal perspective altered through experience*. The personal perspectives of Zulu people are created in relation to societal perspectives.

Mental illness

Participants expressed that the concept of mental illness does not naturally emerge in Zulu culture and is regarded as a Western concept. This makes it difficult for MHCUs to be understood and supported as needed. Healthcare for physical ailments is recognised, but mental health services are not. Participants expressed that, prior to being referred to the facility, they were not aware of these services being available under Western healthcare. Mental illness, when recognised, is seen as a "white person's problem".

"Then when it comes to mental health, according to our culture there is no such a thing called stress or depression... if you said you are stressed or you are having a depression, they think that you are having a drama, you are westernised, you are colonised, they think all of those things, they think maybe you think you are a better person than them." (Thokozile)

Enduring hardship

Enduring hardship is presented as a core characteristic required of the Zulu individual. It is expected to be displayed in different ways by each gender. In traditional Zulu families, the eldest male is regarded as the family's provider, decision maker and leader. Male participants expressed that this role required them to present as emotionally strong and worthy of respect. A man must not disclose incapacity in order to lead the family, or handle situations that arise, lest he loses respect, as seen in Bheki's narrative which follows:

"...in difficult moments as a male you're not supposed to cry. People are looking up to you and must find hope in you so you must find a coping mechanism. If you're the one crying, what about the children, what about the wife, the sister or someone. So, if you cry, you go into a corner somewhere and cry alone. But in front of everyone, everything should be ok." (Bheki)

Leaving a marital relationship would be construed as a sign of weakness for a female. Even in times of injustice, Zulu females were expected to remain as caregivers and submissive wives. While this ideology is still present, they are currently afforded opportunities to education and work, supporting themselves and their families. With these shifts, the expectation of financial provision is no longer restricted to males, as females can now be educated, employed, and are expected to provide for their families financially. Thus, both males and females are held to the expectation of being strong and not expressing hardship.

"I feel obligated, I don't know how. I feel obligated to take care of them because you are the only one who is educated you know... Hawu, why is she coming and asking us for rice, why, when there is a teacher in that house, you know" (Ntokozo)

Cultural norms versus Personal needs

Zulu culture promotes collectivism and the practice of *Ubuntu*, which can override or conflict with the needs of an individual in this interdependent culture. It was expressed that in a Zulu family, people were raised to be givers and helpers. A popular act was self-sacrificing for the well-being of others, even when one was not in a position to assist. Participants, therefore, struggled with setting healthy boundaries.

"What I can say about what led me here is firstly I wanted time out. I give and I give and I give and I give until there is no me." ... "we call it in isiZulu nika nika." (Ntokozo)

This also materialised as "Black tax", defined as an unspoken obligation to help others or an extended family when you have achieved well yourself²⁹.

"Black tax is when you, they feel you are, same word, obligated to do certain things because you are earning more or you are more educated. Black tax is like blackmail towards your mind, towards your soul and how you see things." (Ntokozo)

Due to the Zulu culture being a collectivist culture, informational support usually came from someone in the individuals' network who had experienced mental health services themselves. Alternatively, they would get referred to a traditional healer.

Personal perspective altering through experience.

Participants saw a need to adapt their mindsets after their experience of a mental health service. Participating in the programme at the facility altered their perceptions of mental illness from being non-existent within Zulu culture to being existent and treatable.

"We are not in the era where our grannies, grandfathers and ancestors were. We are in an era whereby we need to use the tools that are there, yeah. So, we need to shift our mindset, not forget our roots but shift our mindset and try to accommodate the new change that is around us." (Ntokozo)

The older generation, who had different educational opportunities or grew up in rural contexts, were not easily convinced about the benefits of seeking mental health services.

"I don't think I'd even try with him (participant's father) because that absolutely... it never existed in his mind so I think now with the younger generation the more we go to school... eh...the better we understand. But with the elderly people or with the people especially from rural areas... like real rural areas, they'll not attend a psychologist. I don't think you can convince one to attend." (Bheki)

Theme 2: Cultural perspectives

This theme considers how Zulu people are socialised to conduct themselves in their cultural context, specifically when it concerns hardship or mental illness. The sub-themes that emerged were problem-solving in Zulu families, progress in life, Christianity versus traditional Zulu beliefs, suicidality as a psychological weakness and stigma within the cultural context.

Problem-solving in Zulu families

Problems are dealt with collectively within the Zulu culture. Maintaining honour and reputation in a family are important²¹, and thus issues would not be expressed outside

of the family space. Issues experienced by the Zulu person must be taken to the elders, who will advise that they must be dealt with internally. Discussing problems with an individual external to the family is regarded as shameful. It was also expressed that, often, the elders in the family would instruct them to remain silent about what they were experiencing.

"Normally the elders they come together and then they said this thing should be for the family and must not go out".
(Thokozile)

Progress in life

Zulu individuals and their families value progress in terms of social status, finances and assets. The progress of the individual means progression for the family. Thus, there is an unspoken expectation and drive to progress. The pressure is felt through subtle societal expectations or comparisons with their peers.

"...you want to progress in life. Can you imagine you grew up... and you 35 or 40 years and you still stay at home? That's not right, by that time you need to have your own house, have your own family." (Menzi)

Christianity vs Traditional Zulu beliefs

Each participant expressed some form of spiritual belief system. Many behavioural shifts or changes in a person are initially attributed to spiritual causes in the Zulu culture.

"Oh! They think maybe you are crazy or you are a witch because they don't know anything about mental illness." (Gugu)

Spirituality is an essential concept to all Zulu people, some believing in God, some in ancestors and others having a dual belief system, combining the concept of God and ancestors. For some individuals, a conflict exists between cultural beliefs and God, which is seen as a Western concept.

"Some people chose to pray only to God and then obviously the majority uh, stayed with the ancestors and the rituals. Uhm, and then a part of the people would just mix the two, they would have like, they would pray to God, for God to help them connect with their ancestors or the other way around..." (Muzi)

Ancestors were either regarded as protectors and providers, or as negotiators between the tangible and intangible realms or God.

"We do these things to make sure they protect us from sicknesses, illnesses..." (Menzi)

"Our thing is they negotiate. They are like the negotiator between us and God. It's how we grew up." (Ntokozo)

Participants who believed in their ancestors believed that they could express dissatisfaction with them, through mental illness and specific rituals that need to be completed to appease them.

"...there were certain things that were done at home, rituals and maybe now you are the older one, or you have your own family... we are not following those proceeding stuff so whatever that is not right, that is happening to you, it might be pinned to that...if she can do this and this because it's what was required of her, then things will come back to normal." (Bheki)

Whether they described themselves as Christians or revering ancestors, most participants had expressed a sense of respect for their ancestors. Some combined the belief systems, while

others merely acknowledged their ancestors.

"I am a Christian. But praying to God, but that doesn't mean I cannot do uh our cultural things... there are things that as Zulu nation you need to do... whether you are Christian or not, you need to do it, it's a must." (Menzi)

"The only thing that I believe is that there is God, and if you pray, you will receive what you are praying for." (Thokozile)

Suicidality as psychological weakness

Poor coping skills and inadequate emotional support can lead to a sense of hopelessness and possibly suicidality which is viewed as a weakness in the Zulu culture. Due to the expectation to withstand and persevere through hardship, an individual may be reluctant to ask for help. As with other cultures, there is a major concern about suicide in the Zulu culture. Many people turn to it after feeling there is no way out of their problems. Multiple participants expressed that suicide was seen as a weakness, but the underlying causes were often overlooked:

"...some people they even commit suicide you know. Because whatever that they going through they think they can handle it, until they cannot handle it anymore and then their only solution is to take their life." (Menzi)

Participants expressed that a specific ritual of beating the dead body of a person who commits suicide must be carried out to ensure that the spirit of the person who committed suicide does not infect the other family members. This solidifies the concept of suicide being seen as a weakness instead of an act of hopelessness, an act associated with mental illness.

Stigma within the cultural context

Participants expressed that stigma within their cultural context emerged in the form of terms to describe mental illness (MI). Descriptive concepts of MI include expressions of:

"uhlanya" (Zandile) which translates to 'crazy', "islima", and "ustupito" (Zandile), which translates to 'stupid', "ziyarara", (Zandile), which is understood as a person having 'bees buzzing in their heads'.

These words convey stigma, misrepresent MI and outcast the MHCUs. MHCUs are labelled by these words and are often not taken seriously due to these labels. A consequence of this is that the participants were reluctant to disclose their mental illnesses. Adverse or dismissive reactions to emotional expressions adversely impacted the participants' mental health.

"That is why I am here, my husband wasn't supporting me, he started not speaking with me, he started ignoring me, he started telling me...he started like rejecting me because I was suffering from depression and anxiety and he told me that "No you don't have a problem, it's just that you want attention from us and you won't get it". (Zandile)

Theme 3: Health-seeking behaviours

This theme outlined the processes of dealing with mental illness for the Zulu individual when it became overwhelming and difficult to ignore. The sub-themes discussed hereafter include dealing with personal emotions, admission to a

mental health facility and cognitivedissonance.

Dealing with personal emotions

This sub-theme explores the explanations of how overwhelming emotions were dealt with by the Zulu MHCUs prior to admission. Many participants reported that they only noted a decline in their health once they experienced physical symptoms of MI or irregular behaviours such as isolating themselves. These symptoms are what often prompted health-seeking behaviour.

"...losing weight, having headaches, not feeling to talk to other people, most of the time I was sleeping, not wanting to talk to anyone...They didn't find what made me sick until they brought the psychiatrist." (Thokozile)

Admission to a mental health facility

This subtheme details the experience of Zulu MHCUs who were admitted to an inpatient programme. The participants were initially reluctant to access the mental health services they learnt about, and when they did, they described their internal conflicts.

"The first time I attended a psychologist, I felt terrible in a sense. I asked myself, am I ok? What's wrong with me? Something's wrong with me. I'm attending a psychologist and now I need to say and open up to someone and maybe that person will also see me and think "No, this guy is weak"." (Bheki)

A profound response from each participant was that they were astounded by the fact that they were not alone in what they were experiencing.

"I think I realised that it, it's like whatever that I'm going through I'm not alone in this ...and all these people are also dealing with so many things, and that's why they are here." (Muzi)

Participants felt relief at the validation they received from each other. They found that understanding the problem and solving it practically with support was helpful. Speaking to someone who can provide perspective or understanding improved their wellbeing. The facility was seen as a healthy distraction from their challenging or sometimes toxic environments, and they could think more rationally. The facility was a safe space to express their vulnerability, where someone would listen attentively, care about what was being expressed, and be non-judgemental. The facility allowed and encouraged a focus on the self, specifically allowing them to express themselves without fear of criticism or judgement for going against cultural norms. Participants found value in the diversity of available group therapies.

"...it makes me feel better. Too much. I am feeling better because of it. Those activities as well as the talking with others, but before I went to (the facility), I don't get to do all that." (Mbali)

"And I get a chance to learn about so many things that will boost my self-esteem and also that will help me find out who I was and what I really want." (Thabani)

Participants recommended that spirituality be integrated into the care they received due to it being so pivotal to most of their lives. However, this is acknowledged as challenging, due to the diversity of spiritual beliefs.

"Yes, spirituality, yes yes yes. We need that, it's lacking, but I think so...not exactly Christian but someone must be fair...you can't just bring Christianity and leave others. We need some spirituality. Yes, I would suggest that." (Zandile)

There are culturally specific issues that need to be expressed. To truly express oneself, the isiZulu language is necessary.

"Yes, language plays a huge role, you know English is not our mother tongue so there are things that we want to say or express but we can't express them in English... So, what happens now? You keep quiet... So, you come to (the facility) with a problem, you go home with the very same problem." (Menzi)

Participants felt a need for an increased length of stay in the facility to enhance their understanding, identify problems, and improve their skills and coping strategies. The duration of admission reported by the participants was up to two weeks. There was also a need for external support. This type of experience was more accessible in private rather than public facilities, estranging those without access to medical aid or funds.

Cognitive dissonance

Zulu MHCUs who had experienced a Western mental health services expressed that their experiences differed. This cognitive dissonance caused participants to express anger at their culture for not acknowledging and educating them about mental health and illness.

"Black culture! Black culture, what I can say...they are emotional abusers." (Zandile)

Participants felt that culture acknowledged the change in tangible aspects, but did not readily recognise or adapt according to intangible factors like mental illness.

"For example, like uhm having lobola, lobola used to be walking cows, it was a must that it must be walking cows. Now I live in (the city), there is no grass (laughter). I can't make it a cow; it will be like eyoh what is she doing and the cows will be gone in the morning. So, what do I do? You must give me money instead of the cows. Each cow has its own money value so we adapt... change. Why can't we adapt to that change and adapt to all changes concerning culture. When it comes to money we are like yes, yes, its fine but when it comes to uh certain things like mental health- no, no, no it's not okay." (Ntokozo)

Participants further emphasised the need for education and awareness surrounding mental health. Beyond the treatment of the Zulu MHCUs, there was a need for education with families.

"So, what I would suggest, we need to go back to the families, to teach them about depression and anxiety and about triggers" (Ntokozo)

DISCUSSION

Participants expressed that experiencing mental illness and participating in westernised treatments conflicted with their culture. Mental illness and mental health services were described as unfamiliar to most participants. Explanations for the behaviours related to mental illness were often linked to beliefs in the spiritual dimension. These spiritual dimensions differed, either revering God, ancestors or a combination of both. This confirmed their beliefs of a human and spiritual

plane within which activity occurs²¹. The rituals participated in ranged from traditional, where the use of a *sangoma** or an *inyanga*** was required, to religious rituals, where the church and prayer to God were leaned upon for wisdom. Personal spiritual beliefs were a source of strength and a coping mechanism for the Zulu individual^{16,17}. Treatment in the facility often did not include spirituality, and participants felt strongly that it should be introduced into the treatment programme.

Another critical concept of the Zulu culture was the ideology that each individual must possess strength. Participants in this study specifically referred to an individual's emotional or psychological strength. It was found that each gender was expected to display strength in different ways. Traditionally, Zulu males felt the pressure to present as symbols of strength. They believed they could not to express emotions or vulnerability in front of others as this was considered a weakness³². Males generally dealt with their emotions through substance use, which was seen as more acceptable, or displayed aggression as an emotional outlet. Female strength was measured by persevering through marriage and family. Women are traditionally required to be submissive and dependent on the Zulu patriarch, and are subjected to silence when enduring injustice for fear of loss of provision. With temporal shifts in the context, females now have access to education and work that they did not always access previously. Educated females are now subject to similar expectations of provision and strength within the household. However, educated females who provide for their families still do not receive the respect or honour afforded to a male provider.

The expectation of strength is further tied in with the need to progress and improve the family's reputation. This progress would be measured in terms of the status, financial position, or assets of the individual. However, the Zulu individual's reputation is linked to their family or community's reputation²². They are therefore required to follow customs or norms²² lest they bring shame to their collective name. The issue arose where the need to progress in life is so entrenched that it necessitates creating more hardship to maintain the image of progression. An inability to admit to experiencing adversity emerged, and consequently a sense of helplessness. With a reluctance to ask for help and an inability to cope, some might turn to suicidal acts. Suicidality was not considered an act of helplessness, but rather a personal weakness. Participants expressed that they could not explain mental illness or psychological distress to their families. The Zulu individual created their sense of self within their community²², thus silence and isolation can be counterproductive to the Zulu MHCUs' healing.

Experiencing emotional hardship is therefore not easily admitted to or spoken about. However, when admitted to the facility, talking about their issues and developing solutions were seen as an enhancement to their state of mind. If there was a need to talk about an issue, the Zulu individual must approach their close family, especially their elders.

*Traditional healer through communication with ancestors

**Traditional healer through divination and herbal medicine

Elders in the Zulu culture pass on rich cultural knowledge but an insufficient understanding of mental health. Being a historically marginalised group, the effects remain evident. Elders whose voices are central in advising or problem-solving promote strength and coping through endurance, strategies they were forced to implement under the apartheid regime and continue to pass on¹⁸. Thus, discussing issues within a mental health facility conflicted with their cultural norms.

This was concerning as family or community-related issues are often causal factors of MI for the Zulu community. Zulu people are raised to be helpers and givers, with the spirit of Ubuntu instilled within them³⁰. However, this sometimes translated into a lack of boundaries and being taken advantage of by those who do not reciprocate the concept of Ubuntu. 'Black tax' was an example of this. If an individual was advancing in their career or earning well, they were obligated to provide for the extended family²⁹. Participants expressed that this placed a significant burden on them, and they struggled to take care of their own needs versus their community's.

The importance of forming part of a community was emphasised by participants. Stigmatised names within the community context, attached to MI, caused more reluctance to reveal illness or seek help for the Zulu individual¹⁸. Due to the fear of being cast out or labelled and not valued in their communities, many would remain silent. For younger or urban participants, the perspective could alter through experience, but more entrenched cultural beliefs existed within rural communities and older generations. To avoid the loss of community, the Zulu individual may attempt to manage emotions in isolation. When negative emotions overwhelmed the Zulu individual, and no outlet for expression was available, they had to be suppressed. As previously described, unhealthy coping mechanisms were employed, such as substance use or displays of aggression.

Despite this reluctance to admit to experiencing hardship, support, in whichever form, was primarily sought from each other in the Zulu culture¹⁷. In communities, considering sickness a spiritual issue was often more acceptable than acknowledging it was a mental illness. Thus, Zulu individuals and their families would seek help from their spiritual community. For the Christian Zulu, this would be their pastor; for the traditional Zulu, it would be a *sangoma* or traditional healer. Rituals or prayers that were performed did have a positive impact on the mental state of most Zulu individuals. Referral to westernised mental health services occurred either when symptoms manifested physically, such as headaches or poor appetite, and did not improve; or when peers, familiar with mental health, noticed their symptoms. Being admitted to the facility left these isolated individuals relieved by the feeling of "I am not alone". Solidarity was advantageous to the Zulu MHCUs' healing³¹, and this was found in the facility. Moreover, the facility presented a healthy distraction and a safe space to learn, share and heal through vulnerability.

The cognitive dissonance was heightened when they realised, they were experiencing mental illness. This aroused anger towards their own culture when faced with Western versus traditional healthcare systems. Mental illness

which was initially regarded as 'a white person's problem', was found to exist in them as well. However, Zulu culture cannot be blamed for the lack of recognition of mental health, especially when it was introduced by a culture that neglected to take their worldviews into account and silenced their voices¹⁸. However, considering it a "white person's illness" built a stigma and was counterproductive to health-seeking behaviour. Understanding that MI exists within all cultures but can be treated in various ways due to the different causal factors enhances health-seeking behaviour.

Time in the facility was often reported as minimal as the process of altering perspectives and improving their mental state, for the Zulu individual, was a more complex and time-consuming task. Many Zulu individuals expressed the need for more time to learn about mental illness, understand its causes and apply it directly to themselves before learning contextually appropriate skills. Most participants verbalised that their two-week stay was insufficient. This indicated a need for outpatient or community-level mental healthcare services and resources.

Moreover, the isiZulu language was inseparable from the culture, and their experiences could, at times, only be efficiently described using their 'mother tongue'. Participants expressed that there were cultural concepts that were interrelated with their wellbeing. One such concept was that of 'black tax'.

Private mental health services were not easily available and excluded those without access to medical aid. Thus, a large proportion of the Zulu community were unable to access healthcare for issues such as depression and anxiety. It was deemed that only the individual with 'very severe' psychotic features belonged in a public mental healthcare facility. This could perpetuate the discourse that mental health was a "white persons' problem."

The Zulu culture has been subjected to adaptation with temporal shifts. However, the tangible adaptations tended to be more easily integrated, such as female and male roles, as well as Lobola. Intangible shifts, such as the understanding of mental health, tend to be viewed as out of their control, and was a stumbling block to change. To promote understanding of MI and reduce stigma, there is an urgent need for the dissemination of mental health awareness campaigns within the Zulu communities. While the causal factors and healing activities may differ for the Zulu culture, the understanding of mental health could significantly enhance the Zulu MHCUs' mental health seeking and treatment. Both systems of healing, Western and traditional, seem to be beneficial to the Zulu MHCUs.

Recommendations

- Occupational therapists intervening with people from the Zulu culture must account for the collectivist nature of the culture by designing interventions that includes the family or community. Intervention for the Zulu MHCUs must be culturally appropriate and reflect their context.
- The Zulu culture is a strongly collectivist culture where the individual, their participation and issues are inextricably linked back to their context and so is their healing. Including

the family in psychoeducation or therapeutic goals would be of benefit to the Zulu MHCUs.

- There is an ingrained idea of strength through silent endurance of hardship, which was appropriate under the apartheid regime, but is no longer beneficial to the Zulu community whose voices must be highlighted. Occupational therapists in mental health would do well to promote the development of resilience and healthy coping strategies among Zulu MHCUs.
- Understanding spirituality and diversity are essential in occupational therapy education. This ensures holistic care and respect for diversity. Occupational therapists must be equipped to respond to spiritually diverse populations and promote meaningful participation. Each individual will differ in belief, and occupational therapists can explore this as a coping mechanism for their clients.
- There are defined gender roles in the Zulu culture, and each has different issues. Group programmes that include gender-specific discussions are necessary.
- Mental health awareness and resources need to be disseminated at the community level to decrease the doctrine of isolation and helplessness when experiencing MI.
- The isiZulu language is essential to the expression of issues experienced, and resources or therapies carried out in isiZulu would be beneficial.
- There is scope for research within rural communities to compare their constructs of mental illness to urban communities.
- Group-centred therapy has been beneficial for Zulu MHCUs admitted to the facility and are an appropriate mechanism to facilitate healing.

Limitations

The study was limited in that participants were mainly from an urban background who had access to private mental health care. Only one facility and its programme were studied to reduce confounding variables. Culture in urbanised settings differ from rural settings due to the difference in interaction with other cultures. Thus, findings of the study would not be inclusive of persons in rural areas where there is decreased cultural diversity.

CONCLUSION

Culture contributes to creating norms and provides occupational constraints and opportunities depending on the person's identity. The privilege of safely and acceptably practising occupation in a way that is seen as culturally appropriate depends on the power afforded to that culture, and the acceptance of it in society, as well as the positionality of the person concerned. This study will help therapists to understand factors that affect the Zulu MHCUs' mental health and how to better equip them with skills, while maintaining culturally appropriate interventions. A significant cognitive dissonance occurs for the Zulu individual whose cultural norms differ from westernised mental health services. While these health services are beneficial, the Zulu MHCUs risk going against cultural norms and does not want this to impact their inclusion into their communities. Zulu individuals create

their sense of self through interaction with their communities and value their acceptance. Therefore, the community or families of the Zulu MHCUs are essential to include in intervention programmes to keep them informed, create awareness and increase the sustainability of the interventions. With consistent research into the perspectives and experiences of the Zulu community an enhanced understanding of their participation can be built. This contributes to improved service provision and does not perpetuate the marginalisation of their viewpoints and indigenous knowledge.

Acknowledgements

The authors would like to acknowledge the psychiatric facility involved and the participants for their participation, and T. Lingah for her valuable guidance as co-supervisor of this study.

Competing interests

There are no competing interests to declare.

Author contributions

The research study was conceptualised as an action of the researcher for her postgraduate research as well as the collaboration of her supervisors as part of a master's degree programme. T. Gurayah co-supervised the study and provided feedback throughout the process (i.e. literature review; protocol; data collection and interpretation; and findings). A. Moonsamy contributed to the writing of the research article and T. Gurayah reviewed and edited the research article.

REFERENCES

1. Benedict, A. O. (2014). The perception of illness in traditional Africa and the development of traditional medical practice. *International Journal of Nursing*, 1(1), 51-59. Available: Microsoft Word-5.doc(ijnnnet.com).
2. Kessi, S., Marks, Z., & Ramugondo, E. (2020) Decolonizing African Studies. *Critical African Studies*, 12(3), 271-282, <https://doi.org/10.1080/21681392.2020.1813413>.
3. Castro, D., Dahlin-Ivanoff, S., & Mårtensson, L. (2014). Occupational therapy and culture: a literature review. *Scandinavian Journal of Occupational Therapy*, 21(6), 401-414. <https://doi.org/10.3109/11038128.2014.898086>.
4. Whalley Hammell, K. R. (2013). Occupation, well-being, and culture: Theory and cultural humility/Occupation, bien-être et culture: la théorie et l'humilité culturelle. *Canadian Journal of Occupational Therapy*, 80(4), 224-234. <https://doi.org/10.1177/0008417413500465>.
5. Zango Martin, I., Flores Martos, J. A., Moruno Millares, P., & Björklund, A. (2015). Occupational therapy culture seen through the multifocal lens of fieldwork in diverse rural areas. *Scandinavian Journal of Occupational Therapy*, 22(2), 82-94. <https://doi.org/10.3109/11038128.2014.965197>.
6. Ramugondo, E. (2018). Healing work: intersections for decoloniality. *World Federation of Occupational Therapists Bulletin*, 74(2), 83-91. <https://doi.org/10.1080/14473828.2018.1523981>.
7. Ramugondo, E. L. (2015). Occupational consciousness. *Journal of Occupational Science*, 22(4), 488-501. <https://doi.org/10.1080/14427591.2015.1042516>.

8. Edwards, S. D., Grobbelaar, P. W., Makunga, N. V., Sibaya, P. T., Nene, L. M., Kunene, S. T., & Magwaza, A. S. (1983). Traditional Zulu theories of illness in psychiatric patients. *The Journal of Social Psychology*, 121(2), 213–221. <https://doi.org/10.1080/00224545.1983.9924491>.
9. Crawford, T. A., & Lipsedge, M. (2004). Seeking help for psychological distress: The interface of Zulu traditional healing and Western biomedicine. *Mental Health, Religion & Culture*, 7(2), 131-148. <https://doi.org/10.1080/13674670310001602463>.
10. Hassim, J., & Wagner, C. (2013). Considering the cultural context in psychopathology formulations. *South African Journal of Psychiatry*, 19(1), 7. <https://doi.org/10.4102/sajpsychiatry.v19i1.400>.
11. Al Busaidy, N. S. M., & Borthwick, A. (2012). Occupational therapy in Oman: the impact of cultural dissonance. *Occupational Therapy International*, 19(3), 154-164. <https://doi.org/10.1002/oti.1332>.
12. Nyamnjoh, F. B. (2012). Blinded by Sight: Divining the Future of Anthropology in Africa. *Africa Spectrum*, 47(2–3), 63–92. <https://doi.org/10.1177/000203971204702-30>.
13. Greene, M. C., Jordans, M. J., Kohrt, B. A., Ventevogel, P., Kirmayer, L. J., Hassan, G., Chiumento A., van Ommeren M. & Tol, W. A. (2017). Addressing culture and context in humanitarian response: preparing desk reviews to inform mentalhealthandpsychosocial support. *Conflict and Health*, 11(1), 1-10. <https://doi.org/10.1186/s13031-017-0123-z>
14. Van Dyk, G., & De Kock, F. (2004). The relevance of the individualism – collectivism (IC) factor for the management of diversity in the South African national defence force. *SA Journal of Industrial Psychology*, 30(2). <https://doi.org/10.4102/sajip.v30i2.155>.
15. Mokgobi, M. G. (2014). Understanding traditional African healing. *African journal for physical health education, recreation, and dance*, 20(Suppl 2), 24. <https://doi.org/10.520/EJC162333>.
16. Gopalkrishnan, N. (2018). Cultural diversity and mental health: Considerations for policy and practice. *Frontiers in public health*, 6, 179. <https://doi.org/10.3389/fpubh.2018.00179>.
17. Hechanova, R., & Waelde, L. (2017). The influence of culture on disaster mental health and psychosocial support interventions in Southeast Asia. *Mental health, religion & culture*, 20(1), 31-44. <https://doi.org/10.1080/13674676.2017.1322048>.
18. Daniels, A. L., & Isaacs, D. (2022). Cultural constructions of the mentally ill in South Africa: A discourse analysis, part one. *Culture&Psychology*, 0(0). <https://doi.org/10.1177/1354067X221131998>.
19. Egbe, C. O., Brooke-Sumner, C., Kathree, T., Selohilwe, O., Thornicroft, G., & Petersen, I. (2014). Psychiatric stigma and discrimination in South Africa: perspectives from key stakeholders. *BMC psychiatry*, 14(1), 1-14. <https://doi.org/10.1186/1471-244X-14-191>.
20. Molot, M. (2017). Discourses of Psychiatry and Culture: The Interface Between Western and Traditional Medicine in the Treatment of Mental Illness. Independent Study Project (ISP) Collection.2582. Available: https://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=3605&context=isp_collection
21. Kpanake, L. (2018). Cultural concepts of the person and mental health in Africa. *Transcultural psychiatry*, 55(2), 198-218. <https://doi.org/10.1177/1363461517749435>.
22. Nwoye, A. (2017). An Africentric theory of human personhood. *Psychology in Society*, (54), 42-66. <https://doi.org/10.17159/2309-8708/2017/n54a4>.
23. Whalley Hammell, K. R. (2015). Client-centred occupational therapy: the importance of critical perspectives. *Scandinavian Journal of Occupational Therapy*, 22(4), 237-243. <https://doi.org/10.3109/11038128.2015.1004103>
24. Hammarberg, K., Kirkman, M., & de Lacey, S. (2016). Qualitative research methods: when to use them and how to judge them. *Human reproduction*, 31(3), 498-501. <https://doi.org/10.1093/humrep/dev334>.
25. Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. Third Edition. Sage publications.
26. Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice*, 24(1), 9-18. <https://doi.org/10.1080/13814788.2017.1375091>.
27. Braun, V., & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2). pp. 77-101. ISSN 1478-0887 Available from: <http://eprints.uwe.ac.uk/11735>
28. Dunn, W., Brown, C., & McGuigan, A. (1994). The ecology of human performance: A framework for considering the effect of context. *American Journal of Occupational Therapy*, 48(7), 595-607. <https://doi.org/10.5014/ajot.48.7.595>.
29. Whitelaw, E. & Branson, N. (2020). Black Tax: Do graduates face higher remittance responsibilities? Southern Africa Labour and Development Research Unit (SALDRU) University of Cape Town. Available: <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiy95KV6Mv7AhVMg1wKHfchCC0QFnoECA4QAQ&url=https%3A%2F%2Fwww.saldru.uct.ac.za%2Fwp-content%2Fuploads%2FBlack-tax.pdf&usq=AOvVaw3fzy1EMgtrN1zvZZGb8xKA>.
30. Mtshelwane, D., Nel, J., & Brink, L. (2016). Impression management within the Zulu culture: Exploring tactics in the work context. *SA Journal of Industrial Psychology*, 42(1), 13 pages. <https://doi.org/10.4102/sajip.v42i1.1325>
31. Thwala, J. D., Hermann, C., Edwards, M., Edwards, D. J., & Edwards, S. D. (2020). COVID-19 Coping Experiences in a South African isiZulu speaking sample. *International Journal of Innovation, Creativity and Change*, 30, 37-49. Available: (PDF) COVID-19 study of Zulu people's coping and resilience in the pandemic(researchgate.net)
32. Hadebe, L. (2010). Zulu masculinity: culture, faith and the constitution in the South African context (Doctoral dissertation).

Clinical utility of MODAPTS during work assessment: Perceptions of South African occupational therapists

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KEYWORDS

work-samples, vocational rehabilitation, work speed, work practice, Functional Capacity Evaluation

HOW TO CITE THIS ARTICLE

Buys TL, Harmse S, Slawson CC, Rapolai BT, Rapotu KD, Furniss SG, Jacobs K. *Clinical utility of MODAPTS during work assessment: Perceptions of South African Occupational Therapists*. South African Journal of Occupational Therapy. Vol 54 No 1. April 2024. DOI:<https://doi.org/10.29333/2310-3383/vol54no1a6>

ARTICLE HISTORY

Submitted: 25 May 2023

Reviewed: 31 July 2023

Revised: 19 January 2024

Accepted: 19 January 2024

EDITOR

Hester M. van Biljon

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FUNDING

No funding was received for this study

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ISSN On-line 2310-3383

ABSTRACT

Introduction: Clinical utility is an important attribute in selecting an assessment tool. The study aimed to determine the perceptions of South African occupational therapists of the clinical utility of Modular Arrangement of Predetermined Time Standards (MODAPTS) work samples when assessing a client's work ability. The research objectives were to determine whether MODAPTS is perceived to be credible, practical, useful, and easy to use.

Methodology: A quantitative, cross-sectional, descriptive research design was used. Non-probability sampling with elements of voluntary response- and snowball sampling was used to recruit respondents. An electronic questionnaire was developed using Qualtrics, which was distributed electronically via the Occupational Therapy Association of South Africa, WhatsApp and Telegram.

Results: Data were based on 52 completed questionnaires, analysed through descriptive statistics.

MODAPTS was perceived as practical, useful, credible, and easy to use in practice. Main barriers to the use of MODAPTS included the timeliness of developing work samples, lack of MODAPTS training, and having other more useful and reliable assessment tools. Experienced occupational therapists used MODAPTS more often than inexperienced occupational therapists.

Conclusion: Clinical utility of work samples developed using MODAPTS has been confirmed. This supports the use of work samples developed using MODAPTS as part of work assessments as a cost-effective, practical tool.

Implications for Practice:

- Development of contextually relevant work samples.
- Use of MODAPTS work samples as an outcome measure during intervention.
- Application during rehabilitation goal setting.
- Cost effective application of MODAPTS work samples in a variety of settings.

INTRODUCTION

Work is an essential tool through which people may find meaning to life, flourish and achieve their goals¹. It can also act as a stabilising- and balancing factor in life which in turn contributes to health and well-being². However, some clients experience barriers to participating in work due to injury, illness or disability. These clients require vocational rehabilitation services. Vocational rehabilitation is described as services that are provided for starting, re-starting, going back to or staying in work³. It is a multidisciplinary strategy offered to people of working age who have health-related impairments, limitations, or constraints on their ability to function at work, with the main goal of maximising work participation⁴.

In vocational rehabilitation, a number of steps, are followed to

determine whether a client can return to, remain in or obtain work^{5,6,7,8,9}. An important part of this process is work assessment. Work assessment refers to the assessment of the abilities of a client to be able to perform vocational tasks⁵, and to determine a client's ability to return to work, work readiness and work ability¹⁰. Occupational therapists play an integral role in the occupation of work because they assess and address the physical-, cognitive-, emotional-, environmental-, and social factors required for adequate performance of work-related tasks^{8,9,10,11}. An important consideration during this process is the assessment of work speed¹⁰. Work speed is important to determine a client's ability to meet productivity demands⁸. Occupational therapists make use of various work assessment methods which include standardised- and non-standardised assessments¹², work simulation^{6,9,13} or on-the-job assessments^{3,6,7,9,13,14,15}. In choosing appropriate methods of assessment, safety and adaptability of assessment methods are further identified as important factors¹⁰.

Work samples are performance-based assessments which require a client to perform a work-related task in conditions that are similar to his/her working environment^{8,16,17}. It evaluates not only work performance, specifically in terms of work speed, but also allows the therapist to make observations regarding observable behaviours and traits within context⁸. Work samples can either be self-developed by an occupational therapist or purchased commercially⁹. Work samples have a defined time standard against which a person's performance can be measured⁹. Some universities in South Africa include education on the use of Predetermined Time Standard (PTS) to develop and standardise work samples at both an undergraduate and postgraduate level. One PTS that South African occupational therapists are trained in to develop and administer work samples, is the Modular Arrangement of Predetermined Time Standard (MODAPTS). Occupational therapists use MODAPTS to self-develop work samples^{8,9}. When using self-developed work samples (developed using MODAPTS), the PTS is used to determine the reasonable time for a task to be completed by a person, prior to seeing or administering the sample on a client. Times established for basic human motions are used to determine the reasonable time¹⁶. MODAPTS assumes that all body movements can be described as a multiple of the time that it takes to move a single finger, with the time being 0.129 seconds⁸. When using self-developed work samples, the client's performance is measured against the MODAPTS standard time (the reasonable time) to determine the client's capability in terms of work speed. Observations of the client's performance skills, as well as behaviours can be made during administration of a work sample in addition to measuring work speed.

MODAPTS is a valid assessment method⁸, which indicates that MODAPTS accurately measures work speed. However, occupational therapists appear hesitant to use MODAPTS because they do not feel confident in using it¹⁷. Along with lack of confidence, other reasons cited for not using self-developed MODAPTS work samples include having no training, it is not cost-effective, it is not time-effective, it is not applicable in the setting and it is unfamiliar or unknown

to the therapists¹⁸. Concerns were also raised regarding insufficient under-graduate training in MODAPTS for occupational therapists and their confidence in using MODAPTS¹⁷. Harmse⁸ found that occupational therapists viewed MODAPTS as clinically usable, but developing the work samples when making use of MODAPTS was difficult and time-consuming⁸. De Klerk¹⁸ stated that the use of MODAPTS by occupational therapists is infrequent or non-existent¹⁸. There are various other methods that include speed of performance to assess work speed (such as the series of VALPAR component work samples) but many of these methods are imported and costly for South African occupational therapists whose resources are guarded.

An important aspect considered by occupational therapists in selecting an assessment method is clinical utility. Clinical utility is described as the usefulness and relevance of an assessment tool or measure¹⁹. Clinical utility includes aspects such as safety, practicality, reliability¹⁰, cost-effectiveness, time-effectiveness, applicability, credibility⁸, accuracy, flexibility, suitability, comprehensiveness, feasibility, value and adaptability²⁰ of an assessment or assessment tool. Therefore, clinical utility is important because it determines the practitioner's views/judgment about an assessment tool²¹ and will most likely influence their use thereof. Currently, there is no research available on the clinical utility of MODAPTS by occupational therapists. Establishing clinical utility of MODAPTS may increase its use in practice, as a cost effective, performance-based assessment which could strengthen work assessments delivered by occupational therapists in many settings.

For South African occupational therapists, the use of MODAPTS could prove to be valuable for the assessment of work speed as it focuses on the time²², is available in South Africa, has been proven to be valid and is not costly. Occupational therapists can self-develop work samples, using MODAPTS, which suit the client's work context and is individualised to the client. Within the South African context, occupational therapists can also make use of resources and equipment available to them when developing and setting up the MODAPTS samples, which is beneficial and cost-effective. MODAPTS has great potential value during work assessments but is not utilised by many occupational therapists during work assessments. To our knowledge, no research could be found by the authors addressing the clinical utility of MODAPTS in occupational therapy. Therefore, research was undertaken to establish how South African occupational therapists perceived MODAPTS and how this influenced their use of MODAPTS.

LITERATURE REVIEW

Recent literature indicates that occupational therapists are placing a greater emphasis on work/vocational rehabilitation and providing it as part of their services^{5,14,15,22}. This is important as occupational therapists play an important role in assessing a client's function and providing targeted interventions²⁶, with vocational rehabilitation a central part of practice¹⁰.

In contrast to occupational therapists, industrial engineers use PTS to estimate the duration of manual tasks in

projects (therefore, they look at the PTS itself). MODAPTS is used by industrial engineers internationally in the manufacturing industry⁸. The effectiveness of MODAPTS as used in engineering was compared to other PTS by Glopîra²³. The results revealed that MODAPTS were in line with other, more recognised, PTS²³. It was therefore concluded that MODAPTS was superior due to its simplicity, easiness to set up and cheaper costs²³.

Advantages of using MODAPTS as part of occupational therapy practice have been explored by researchers. Van Biljon¹⁷ indicated that by using MODAPTS, clients are motivated to improve their task completion times¹⁷. Participation in MODAPTS work samples provides immediate feedback to clients, and observations and self-evaluations can be made while administering the work sample¹⁷. MODAPTS tasks can be smaller parts of a larger activity and can be used in various contexts. MODAPTS is cost-effective and easy to use for the occupational therapist and the MODAPTS tasks are easy for the client to follow¹⁷. Occupational therapists find it easy to administer a MODAPTS sample for assessment once the MODAPTS task has been developed⁸. However, disadvantages of MODAPTS have also been raised. Van Biljon¹⁷ argued that when making use of MODAPTS, the environment and pathology are not considered, only a smaller part of a larger task is used, it just measures the client's performance at a point in time (and not for a full work shift), and that it should not be used in isolation for assessment or treatment¹⁷.

Occupational therapists do not have many available methods to assess ability to work which includes a time component. Most commonly used are the Valpar Component Work Samples (VCWS) and other commercially available assessments, that mainly focus on fine motor control. MODAPTS samples, used in assessment, include a time component. However, when considering an assessment method, researchers generally consider aspects such as usage, choice, frequency of use, knowledge and type of measurement tool when they determine the clinical utility of an assessment method^{10,18,20}, and it is unknown which aspects South African occupational therapists consider regarding MODAPTS.

According to a study conducted by van Biljon¹⁷, occupational therapists were encouraged by the Gauteng Vocational Rehabilitation Task Team (VRTT) to develop their own MODAPTS samples which they can use in clinical settings with confidence and ease¹⁷. This would allow for specific client centred assessments that is based on a client's specific job demands and/or limitations. Adopting such practice would be in line with the continued recommendation for moving toward performance-based assessment as opposed to novel and abstract tasks used for assessment. Although occupational therapists are encouraged to make use of MODAPTS in some settings, there is no research available on the clinical utility thereof. The question was therefore raised: What are the perceptions of South African occupational therapists of the clinical utility of MODAPTS during work assessment? This research therefore aimed at determining the perceptions of South African occupational therapists of the

clinical utility of MODAPTS during work assessment. The objectives of the research were to:

- Determine whether occupational therapists consider MODAPTS as a PTS to develop work samples that delivers credible (valid, reliable and accurate) results during the assessment of work speed.
- Determine whether occupational therapists perceive MODAPTS as a practical (practicality, time management, cost-effectiveness, applicable) and useful PTS used to develop work samples that can be used frequently in work assessment.
- Determine whether occupational therapists find it easy to develop work samples using MODAPTS.

METHODOLOGY

Theoretical framework

According to Smart²¹, clinical utility is a multi-dimensional judgment made by practitioners about the usefulness, advantages and disadvantages of an intervention²¹. The core concepts and dimensions of the multi-dimensional model of clinical utility are what practitioners consider when determining the clinical utility of a tool or assessment method²¹. In this study, the researchers used the core concepts and dimensions of the multi-dimensional model of clinical utility, developed by Smart²¹, to guide the research. The core concepts included the following:

- Ease of use of materials and methods (availability, price, clear instructions, and the location requirements).
- Training and qualifications required (knowledge used, training and availability of training).
- Time of administering.
- Format (acceptability to client and clinician and the role of the client).
- Interpretation (ease, information technology, support, requirements and training interpretation).
- Meaning and relevance of information obtained (information gained, use of information, responding to clinical change and factors that compromise the use of the information)²⁴.

The dimensions of clinical utility include appropriateness (effectiveness and relevance), accessibility (resource implications and procurement), practicality (functionality, sustainability, training and knowledge) and acceptability (to the clinician, client and society)²¹. For this study, clinical utility referred to the usefulness and practicality of MODAPTS during work assessment, including credibility (validity, reliability and accuracy), practicality (practical, time management, cost-effectiveness, applicable) and ease of utilising MODAPTS.

Research design

A quantitative, cross-sectional, descriptive research design^{24,25,26} was used for this study. A quantitative approach allowed for drawing comparisons between the objectives, occupational therapists' years of experience (level of expertise) and various other questions to be able to determine their perceptions. This design also allowed for specific, quantifiable data. By using a descriptive design, an understanding of the occupational therapists' perceptions of

the clinical utility of MODAPTS could be understood, formulated and presented.

Population

The research population consisted of South African occupational therapists who conducted work assessments, in both the private and public health sectors at the time of data collection. According to the Occupational Therapy Association of South Africa (OTASA) annual report, there were 356 occupational therapists registered who reported conducting work assessments.

Sampling method

Non-probability sampling²⁴ with elements of voluntary responsesampling²⁴ and snowball sampling²⁷ was used to recruit respondents. Only occupational therapists currently conducting work assessments were included in the sample, their participation was voluntary, and respondents were asked to redistribute invitations to potential respondents so that the response rate could be increased. Methods of distribution included an email distributed by OTASA using their database, and a research invitation that was distributed through WhatsApp and Telegram groups with special interest in work assessments and vocational rehabilitation services. The link to the online questionnaire was included in all distributions. The respondents had to be registered with the Health Professions Council of South Africa (HPCSA) and conduct work assessments as part of occupational therapy practice to be eligible to participate in the study. Occupational therapists who practiced outside of South Africa or who were employed full time as occupational therapy lecturers at institutions of higher earning were excluded from the study.

Data collection instrument

Data were collected through an electronic questionnaire developed using on-line survey software, Qualtrics. The questions were based on the theoretical framework and the questionnaire was piloted. It was sent to three occupational therapists with varied expertise (one in research design, one in vocational rehabilitation and one in work and vocational rehabilitation) to evaluate the questionnaire's content, usefulness and face validity. The feedback was obtained on pre-developed feedback forms that were distributed and received via email. The feedback received from the pilot study was incorporated into the final online questionnaire. The questionnaire was divided into three sections with subsections. The first section included information on the inclusion criteria and informed consent. The second section contained questions relating to demographic information of the participants, which assisted in compiling the respondent profile. The third section focused on the credibility, ease of use, practicality and usefulness of MODAPTS work samples. A four-point Likert scale (strongly agree = 4, agree = 3, disagree = 2 and strongly disagree = 1) was used in the third section. Table I (adjacent) provides an overview of the questions that were asked to determine the occupational therapists' perceptions of the credibility, practicality and usefulness, and ease of use of MODAPTS work samples, both in terms of using existing samples and developing new samples. The respondents had to rate their level of agreement with the statements on the four-point Likert scale.

Table I: MODAPTS-focused questions to determine perceptions on its clinical utility

Aspect of clinical utility	Do you agree with the following statement:
Credibility	<ul style="list-style-type: none">• MODAPTS work samples are consistent (reliable) in measuring the work speed of the client.• MODAPTS work samples deliver accurate assessment results.• MODAPTS work samples deliver reliable assessment of work speed in work assessments (the results can be trusted).
Ease of use	<ul style="list-style-type: none">• MODAPTS work samples are easily incorporated into your clinical practice and during work assessment.• MODAPTS work samples can be easily adapted and applied to different work assessment environments and contexts.• You consider MODAPTS work samples to be feasible (easy and convenient).• It is easy to develop MODAPTS tasks.• The equipment/tools/materials used in MODAPTS work samples are portable.• It is easy to understand and make use of the codes of MODAPTS in your experience.• It is easy for other stakeholders to understand the results of a MODAPTS assessment sample.
Practicality and usefulness	<ul style="list-style-type: none">• MODAPTS work samples are appropriate (suitable) to use for work related assessments.• You consider MODAPTS work samples to be feasible (easy and convenient).• Administration of MODAPTS work samples are time-effective.• Administration of MODAPTS work samples are cost-effective (inexpensive in terms of tools, equipment or other resources).• The equipment/tools/materials used in MODAPTS work samples are portable.

Data collection methods

The final questionnaire was distributed to all occupational therapists registered on the OTASA database. The questionnaire was sent on three different occasions to increase the response rate. An invitation to participate was also distributed via WhatsApp and Telegram groups for occupational therapists with a special intertest in vocational rehabilitation on three occasions. Responses were electronically submitted through Qualtrics and exported to Excel.

Data analysis

Descriptive statistics were used to analyse the quantitative data which summarised, organised, compared, evaluated and interpreted the data. The data was cleaned by applying filters on Qualtrics to exclude questionnaires that were incomplete. The frequencies of responses were calculated by Qualtrics, based on internal response rate whereby the percentage rate was calculated based on the number of respondents responding to a specific question. Pivot tables were generated using Microsoft Excel spreadsheets to compare the results, to analyse the relationship between specific questions, such as questions concerning experience in MODAPTS and ease of incorporating MODAPTS in practice. The percentage agreement was calculated using the numbers associated with

the four-point Likert scale (strongly agree = 4, agree = 3, disagree = 2 and strongly disagree = 1) by summing the chosen answer numbers (of the four-point Likert scale) on MODAPTS focused questions, dividing the total of each question by 208 (total number of responses for each answer of the four-point level Likert scale) and multiplying the answer by 100 to obtain a percentage. Thereafter, Lynn's content validity index proportions were used to interpret the results using the collective agreement²⁸. The internal consistency of the questionnaire was calculated using Cronbach's Alpha²⁹ and was calculated to be 0.938 which proves that the Likert-scale questions were consistent, which demonstrates the rigour of the study.

Ethical considerations

This research protocol was approved by the Research Ethics Committee of the University of Pretoria, approval number 694/21. Informed consent was included in the first section of the online questionnaire. The nature and purpose of the study, explanation of the procedures and the expectations of the respondents should they wish to participate, was included in the informed consent. The respondents provided their informed consent on the questionnaire after they had read and understood what was required of them to participate in the study.

RESULTS

Respondent profile

According to the OTASA annual report, there were 356 occupational therapists registered who conducted work assessments during 2021. This represented 13% of OTASA members³⁰. The number of responses received were 63. Of the 63 responses, 52 responses were included after data cleaning. The majority of respondents (n=35) practiced in the Gauteng province (67%). Further, majority (n=41) indicated working in urban/suburban areas (79%).

Years of experience in vocational rehabilitation ranged from less than one year to more than 30 years. Most respondents (n=18) indicated having between 6 and 10 years of experience in vocational rehabilitation (34.6%). Of the 52 respondents, 33 (63%) reported having a postgraduate qualification. These included 16 post-graduate diplomas (30%), 13 master's degrees (25%), three honours degrees (6%) and 1 PhD (2%). Twenty-two (42%) respondents indicated having received MODAPTS training in undergraduate programs with 15 respondents (29%) who reported that their training was received at a post-graduate level. Five respondents (10%) indicated that they received training at a course or workshop, while nine (17%) received training at their place of work either through in-service training or from colleagues. One respondent (2%) indicated obtaining knowledge from publications. Respondents were able to indicate more than one practice setting where they worked. The most prevalent practice setting was private healthcare practices, clinics and hospitals (n=45). This was followed by public healthcare settings (n=9), the insurance sector (n=6), and the mining industry (n=2).

MODAPTS in practice

At the time of data collection 33 respondents (65%) reported administering MODAPTS work samples. Reasons reported for

not administering MODAPTS work samples included, lack of understanding and training, the use of other standardized assessment methods, and that MODAPTS was not practical for the setting. Twenty-three (n=23) respondents (44%) were not aware of published evidence on the use of MODAPTS. Thirty-six (n=36) of the respondents (69%) agreed that they were confident in the use of MODAPTS work samples.

Twenty-eight (n=28) respondents (54%) stated that they never developed work samples, 18 respondents (35%) developed samples yearly, and six respondents (11%) developed samples every six months. The main barriers to developing samples were reported as it being time consuming to develop samples and that the respondents have other tools they preferred to use. MODAPTS work samples were used weekly by 18 respondents (35%), monthly by 13 respondents (25%), rarely by 12 respondents (23%) and never by nine respondents (17%). Seventeen (n=17) of the respondents, (33%) reported that they were reluctant to make use of MODAPTS when assessing clients, and the main reason for the reluctance was reported as difficulty to develop MODAPTS work samples.

The majority (40) of the respondents (77%) indicated an interest in training in the use of MODAPTS, while the remaining respondents indicated no interest. Reasons for disinterest included already being trained in the use of MODAPTS or preferring another assessment tool. From the results, it was found that most (n=27) of respondents (52%) supplemented MODAPTS with other work samples and reasons for this included triangulation and consistency testing.

Figure 1 (below) displays the correlation between having experience in MODAPTS and perceiving it to be an accurate assessment method of work speed. Occupational therapists who had been using MODAPTS longer (measured in years) perceived MODAPTS to be more accurate (percentage agreement).

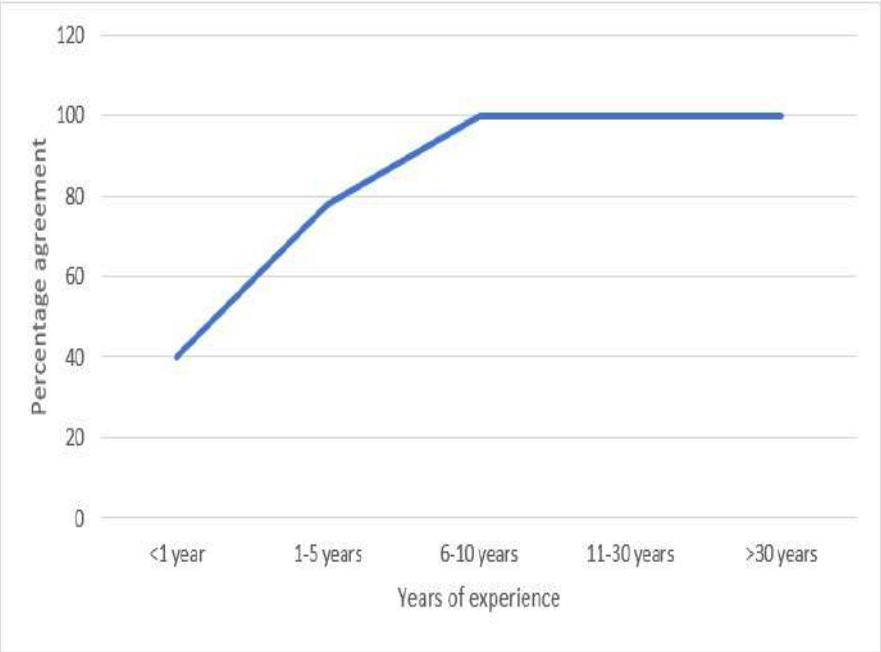


Figure 1: Correlation between years of experience and perceived accuracy (n=52).

Figure 2 (page 50) demonstrates the correlation between years of experience and perceived ease of incorporating MODAPTS into practice.

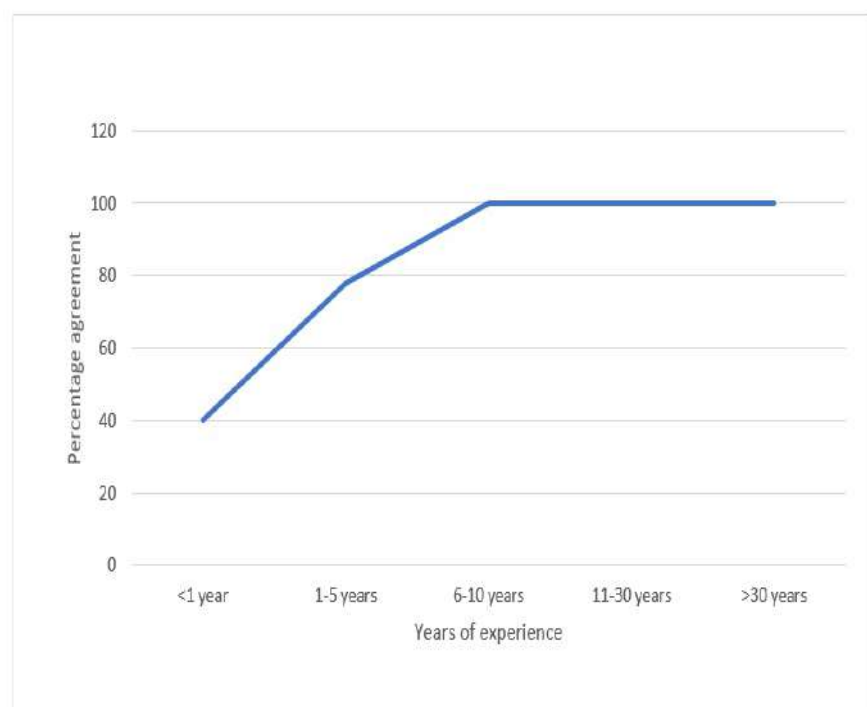


Figure 2: Correlation between experience and perceived ease of incorporation (n=52).

Lastly, Figure 3 (below) demonstrates the correlation between perceived appropriateness and use of MODAPTS in practice.

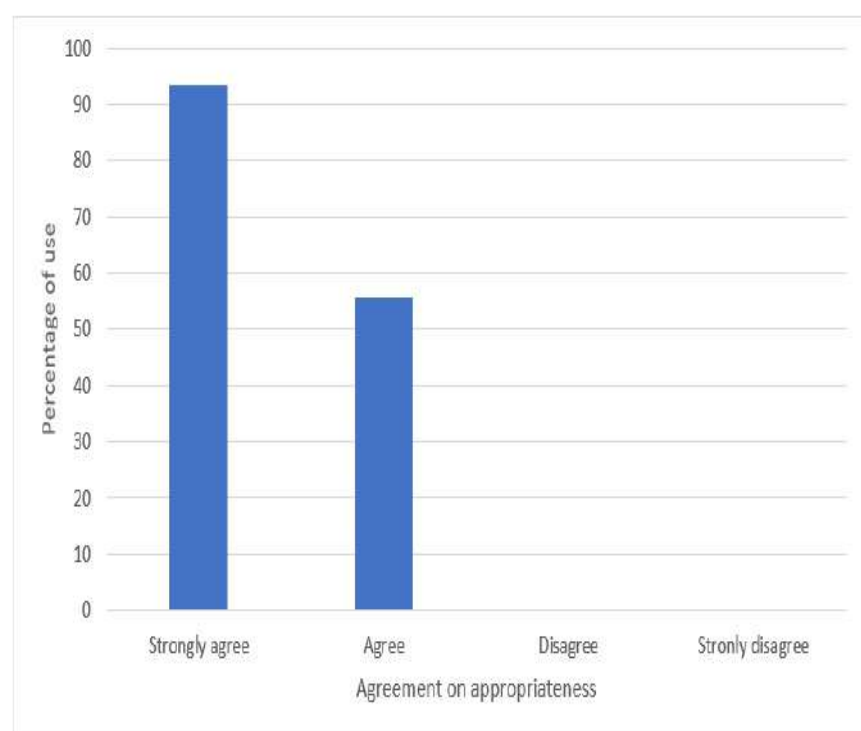


Figure 3: Correlation between perceived appropriateness and use of MODAPTS (n=52).

Perceived utility of MODAPTS

The results demonstrated in figures 4, 5, and 6 (adjacent, respectively) are based on the analysis of the four-point Likert scale questions and speak to the level of agreement within the sample about the various aspects included in credibility, practicality and usefulness, and ease of use. Based on Lynn's content validity index, proportions from 60-69% can be interpreted as acceptable, 70-79% as satisfactory and 80-100% as very satisfactory²⁸.

Regarding *credibility*, the respondents' perceptions regarding consistency, accuracy and reliability of MODAPTS were considered, which is indicated in Figure 4 (adjacent).

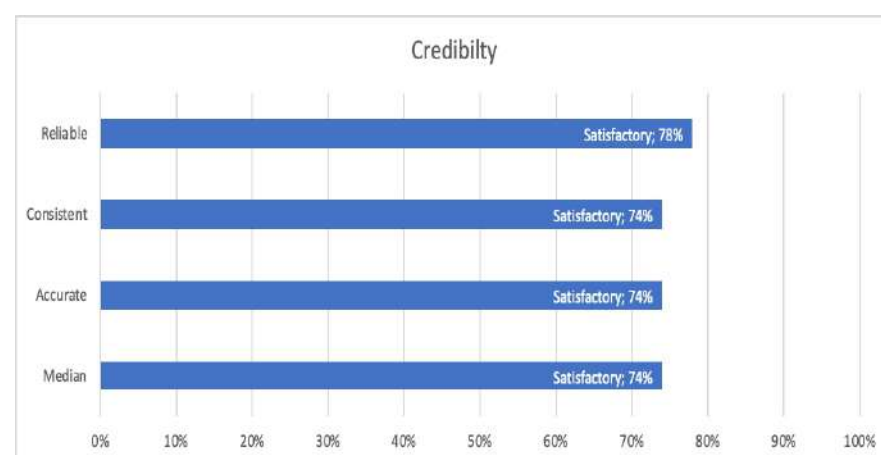


Figure 4: Credibility of MODAPTS (n=52).

Regarding *practicality and usefulness*, the following was considered: the participants' perceptions of the appropriateness and ease of incorporation of MODAPTS into clinical practice and during work assessment, if work samples can be easily adapted and applied to different work assessment environments and contexts, if MODAPTS work samples are feasible (easy and convenient), time effective, cost-effective and if MODAPTS work samples have portable equipment/tools/materials. Figure 5 (below) indicates the responses on the different aspects of practicality and usefulness:

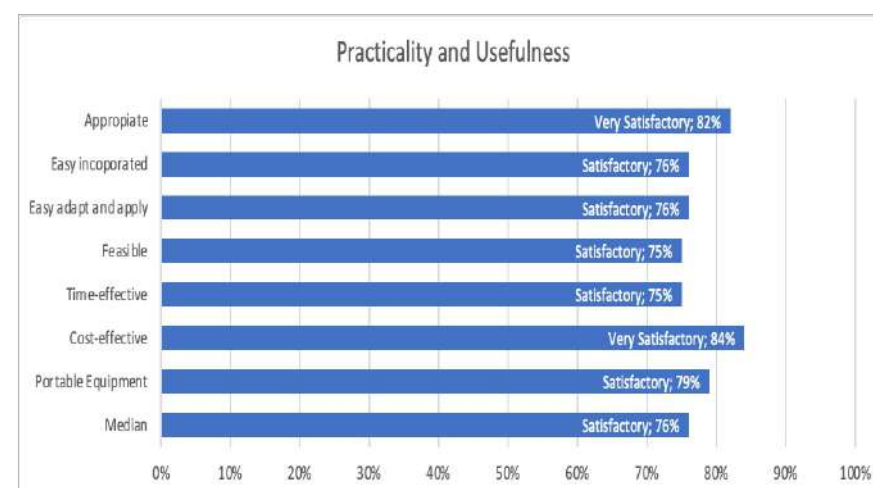


Figure 5: Practicality and usefulness of MODAPTS (n=52)

Regarding *ease of use*, the following was considered: the participants' perceptions on the ease of incorporation and adaptation of MODAPTS work samples, the feasibility, the ease of developing work samples, the understanding and use of MODAPTS codes, whether stakeholders understand MODAPTS and the portability of equipment and tools used for the MODAPTS work samples. Figure 6 (below) indicates the responses on the different aspects of the ease of use of MODAPTS:

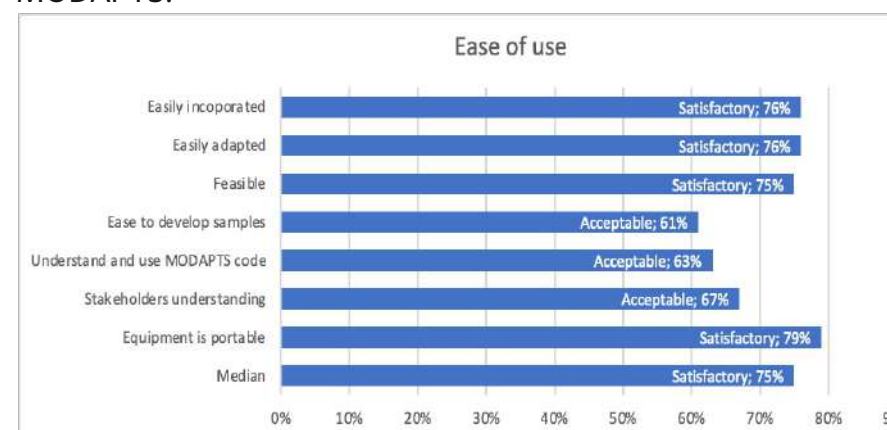


Figure 6: Ease of use of MODAPTS (n=52).

DISCUSSION

The results indicated that many respondents were not aware of published evidence supporting MODAPTS and, based on the response rate, a deduction can be made that occupational therapists are unwilling or unable to contribute to further research on MODAPTS. It can be assumed that the lack of awareness of published evidence on MODAPTS is also a reason for the PTS not being used to develop work samples.

In addition, by comparing the therapists' experience in vocational rehabilitation/work assessment and MODAPTS with their confidence in the use of MODAPTS, it was clear that more experience correlated with more confidence in using MODAPTS. Similarly, respondents who received formal training in MODAPTS, have increased confidence in using the PTS to develop and administer work samples. Comparison of previous training and frequency of use, revealed that an increase in training and education in MODAPTS leads to an increase in the use of MODAPTS. This also correlated with the research findings that indicated that more experienced occupational therapists develop work samples, using MODAPTS, more often. Therefore, it can be assumed that an increase in formal training and opportunities to gain experience in the use of MODAPTS will increase the use thereof. This finding is supported by O'Brien et al³¹ and Prior et al,³² who found that occupational therapists were more confident in work-related services after they had received training^{31,32}. The findings are also supported by van Biljon¹⁷ who stated that under-graduate training in MODAPTS is insufficient to enable occupational therapists to feel comfortable with using MODAPTS¹⁷. Occupational therapists who were not trained in the use of MODAPTS tend to not use it in practice^{17,18}. Respondents with increased experience and confidence in the development of work samples using MODAPTS reported greater ease in adapting MODAPTS samples and incorporating them in the work assessments.

MODAPTS was reported as being most useful for the assessment of clients with physical conditions, and as less useful for other conditions, such as neurological- and mental health conditions. This is supported by the results that indicate that all respondents conduct work assessments for physical-, neurological- and mental health conditions with relatively equal distribution; however, MODAPTS is used during work assessment mainly for physical conditions.

Only a few respondents found mental operations MODAPTS codes easy to use. This could allude to the fact that MODAPTS is not used in the assessment of clients with mental health conditions and/or with mainly cognitive limitations. Developing work samples has been identified as time-consuming. If practitioners find it difficult to use some of the codes, and therefore have difficulty with determining which codes to use, additional constraints are placed on their time. Therefore, the difficulty of using some of the codes is a contributing factor to the clinical utility of MODAPTS during work assessments.

Credibility

The respondents perceived MODAPTS as a consistent measure of work speed with a satisfactory level of agreement. Similarly, the respondents' agreement level regarding the

delivery of accurate results when utilising MODAPTS is also satisfactory. This is supported in a study by Glopîra²³ where he found that MODAPTS delivers accurate and reliable results²³. However, the findings are contradicted by another study, where the results indicated that occupational therapists do not believe that MODAPTS yields accurate results⁸. This is possibly attributed to the confidence level in developing work samples, because if an occupational therapist lacks confidence in developing a work sample, using MODAPTS, then the occupational therapist will most likely doubt the accuracy of the results yielded from the sample. The results reflected that the more experience occupational therapists have in using MODAPTS, the more they view it as an accurate assessment method.

Regarding the reliability of MODAPTS, the respondents' agreement was satisfactory, therefore, the assumption can be made that the respondents perceive it as reliable. A study conducted by Glopîra²³ yielded similar results in which MODAPTS was found to deliver reliable and accurate results²³. Although the validity of MODAPTS has been proven⁸ and occupational therapists perceive MODAPTS as reliable, consistent and accurate in this study, occupational therapists are infrequently using MODAPTS in practice. During the research it was clear that three aspects heavily impact on the use of MODAPTS work samples, and these are the time required and difficulty in development of tasks, and lack of confidence. This then begs the question: if occupational therapists are perceiving MODAPTS as a credible PTS, why is it not being utilised more as part of work assessments?

Practicality and usefulness

The respondents' level of agreement was satisfactory in terms of MODAPTS being an easily incorporated PTS, as well as MODAPTS tasks being easily adapted and applied. Other studies support the findings in stating that MODAPTS is easy to apply^{8,17,23}. Based on the agreement level of feasibility, it can be assumed that the sample perceived MODAPTS as a feasible PTS. Similarly, it can be assumed that the sample perceived MODAPTS as a time-effective PTS, which was also confirmed in previous studies^{8,18}. However, this contradicts the participants' comments where they stated, amongst other things, that they did not use MODAPTS due to the timeliness associated with developing samples. MODAPTS is perceived as a cost-effective PTS, which correlates with findings in other studies completed on MODAPTS^{17,23}. Glopîra²³ also found that MODAPTS was cost effective when compared to other PTS.

Despite the positive perceptions of the cost-effectiveness of MODAPTS samples, some respondents indicated that they prefer other standardized assessments, such as the VCWS series which is more expensive. This may be due to the belief that MODAPTS is insufficient in work assessments, a lack of experience and confidence in MODAPTS or the timeliness and difficulty in self-developing samples, since the VCWS series is already developed and self-development is not required. It was noticed that the more experience an occupational therapist has in using MODAPTS, the easier it is for them to use it. Harmse⁸ has also found that it is difficult for occupational therapists to develop MODAPTS as adequate in assessing work speed of clients⁸.

Ease of use

Regarding the ease of developing MODAPTS work samples, the respondents' level of agreement just fell within the acceptable range. A sizable number of respondents indicated that they are reluctant to make use of MODAPTS samples when assessing a client and this is due to the difficulty in developing the MODAPTS samples. This correlates with other results obtained where the respondents indicated that they do not develop MODAPTS samples because it is time consuming, and they would rather use other assessment tools. Harmse¹³ yielded similar results regarding participants' reluctance in developing work samples using MODAPTS and also yielded similar reasons for their reluctance which included lack of confidence, it being time consuming and the availability of other test⁸. Cho, Lee and Park¹⁶ also argue that MODAPTS is a complicated process.

Although respondents experienced difficulties in developing work samples, they found it easy to use developed work samples and find certain codes easier to use than others.

According to van Biljon¹⁷, MODAPTS is objective and easy to use¹⁷ and Glopîra's²³ study results agreed that MODAPTS is easy to apply. Cho, Lee and Park¹⁶ however argued that MODAPTS is a complicated process which is difficult to learn. Additionally, an acceptable level of agreement was reached regarding stakeholders' understanding of results of a work sample developed using MODAPTS.

Occupational therapists should not be deterred from using MODAPTS to develop work samples because it is clinically useful, less costly and easy for other stakeholders to understand. Work samples, developed using MODAPTS, can be developed to be unique to a client and their needs. In spite of this and the results indicating that MODAPTS is clinically useful (and accessible and less costly in South Africa), occupational therapists are still reluctant to use MODAPTS, unless they are experienced and have confidence in using it. It is important to note that more formal training in MODAPTS may therefore lead to more positive perceptions on the ease of use of MODAPTS including the development of the work samples, resulting in larger quantities of occupational therapists using MODAPTS. This assumption can be justified by the results indicating that formal training and experience increase ease of use.

CONCLUSION

The findings of this study support the clinical utility of MODAPTS, to varying degrees. It was perceived as very satisfactory in terms of practicality and usefulness; whereas it was perceived as credible and easy to use at a satisfactory level, by the South African occupational therapists during work assessments. The greatest barriers in using MODAPTS was the difficulty in generating new samples, having other assessment tools that are perceived to be more useful and reliable and not having enough training and confidence in the use of MODAPTS. The findings also implied that experienced occupational therapists, those who were currently using MODAPTS and had sufficient knowledge and experience using MODAPTS, found it easy to use and adapt to different settings as well as find it easy to develop new work samples. However, in relation to the information provided, many

occupational therapists are still not making use of MODAPTS in clinical practice. This study contributes to further development of the clinical utility of MODAPTS in clinical settings, focusing mainly on its credibility, practicality and usefulness, and ease of use.

Limitations

A total of 63 respondents participated in the online questionnaire, but a full response number of 52 respondents completed the questionnaire. This represented 13% of the population, therefore limiting generalisation of the findings of this study. Another limitation noted was the lack of diversity within the sample as most respondents were from Gauteng or Western Cape provinces as well as most respondents working in private practice and none working in rural settings. None of the respondents worked in the primary healthcare or banking sectors. There were no respondents from the Eastern Cape, Northern Cape or Limpopo provinces. It is unclear whether this is representative of limited occupational therapists working in these areas and practice settings, or whether responses were low from those areas and settings. A respondent profile including more diversity in demographics would have strengthened the results of the research. A higher response rate would have further strengthened the research.

Recommendations

The results of this study indicated a need for increased published research on the use of MODAPTS in occupational therapy. It is also deduced from the results that earlier exposure to and incorporation of MODAPTS into undergraduate programmes could lead to an increase in use of MODAPTS - this statement can be justified by the comparison between experience, confidence and use of MODAPTS as it has been mentioned that an increase in experience and confidence leads to an increase in the use of MODAPTS.

The results indicated that within vocational rehabilitation in South Africa, assessment far exceeds treatment, including work hardening and work conditioning. Further investigation into the occurrence and its reason is recommended.

Due to the perceived difficulty in developing samples, establishing a global network to upload/share and peer review MODAPTS samples is suggested. This could further lead to a network of occupational therapists that can help develop and moderate work samples.

Acknowledgements

The authors would like to thank all respondents for taking their time to share their experiences and perceptions of MODAPTS and Prof Daleen Casteleijn for contributing to the data analysis and data interpretation.

Author contributions

Caitlin Slawson, Sian Furniss, Karma Jacobs, Boitumelo Rapolai and Kwena Rapotu completed this study as part of their Bachelors degree in Occupational Therapy (BOccTher) and they were responsible for gathering information on the research topic, data collection, analysis and writing of the article. Dr Tania Buys and Suzanne Harmse were supervisors of the study and guided the process by providing regular feedback. All authors contributed to the conceptualisation of

of the research, proposal development, writing up of the research and approved the article for publication.

Conflicts of interest

The authors have no conflicts of interest to declare.

REFERENCES

1. Bailey C, Madden A. What Makes work meaningful - Or meaningless. MIT Sloan Management Review. 2016;57(4):53–61. [accessed 2023 May 14]. <https://sloanreview.mit.edu/article/what-makes-work-meaningful-or-meaningless>
2. Van Dongen I, Josephsson S, Ekstam L. Changes in daily occupations and the meaning of work for three women caring for relatives post-stroke. *Scandinavian Journal of Occupational Therapy*. 2014;21(5):348–358. doi:<http://dx.doi.org/10.3109/11038128.2014.903995>
3. World Federation of Occupational Therapists (WFOT). Position statement: Vocational rehabilitation. 2012:1–2. [accessed 2023 May 14 now archived]. <https://www.wfot.org/resources/vocational-rehabilitation>
4. Escorpizo R, Reneman MF, Ekholm J, Fritz J, Krupa T, Marnetoft SU, Maroun CE, Guzman JR, Suzuki Y, Stucki G, et al. A conceptual definition of vocational rehabilitation based on the ICF: Building a shared global model. *Journal of Occupational Rehabilitation*. 2011;21(2):126–133. doi:<http://dx.doi.org/10.1007/s10926-011-9292-6>
5. Van Biljon H, Rabothata S, de Witt PA. Occupational Therapy Association of South Africa Position Statement on Vocational Rehabilitation. *The South African Journal of Occupational Therapy*. 2020;50(3):83–85. doi:<http://dx.doi.org/10.17159/2310-3833/2017/v47n3a10>
6. Dorsey J, Ehrenfried H, Finch D, Jaegers LA. Work. In: Willard and Spackman's Occupational Therapy. 13th ed. Baltimore, MD: Wolters Kluwer; 2019. p.779–804.
7. Ross J. Occupational Therapy and Vocational Rehabilitation. Chichester, England: John Wiley & Sons Ltd; 2007.
8. Harmse S. Evaluating validity of MODAPTS as an assessment method of work speed in relation to the open labour market. University of Pretoria; 2018. <https://repository.up.ac.za/handle/2263/68456>
9. Buys T, van Biljon H. Functional capacity evaluation: An essential component of South African occupational therapy work practices. *Work*. 2007;29(1):31–36.
10. Yngve M, Ekbladh E. Clinical utility of the worker role interview: A survey study among Swedish users. *Scandinavian Journal of Occupational Therapy*. 2015;22(6):416–423. doi:<http://dx.doi.org/10.3109/11038128.2015.1007161>
11. King PM, Olson DL. Work. In: Willard and Spackman's Occupational Therapy. 11th ed. Baltimore, MD: Lippincott Williams & Wilkins; 2009. p.615–632.
12. Classen S, Velozo CA. Critiquing Assessments. In: Willard and Spackman's Occupational Therapy. 13th ed. Baltimore, MD: Wolters Kluwer; 2019. p.390–412.
13. Ha DH, Page JJ, Wietlisbach CM. Work Evaluation and Work Programs. In: Pedretti's Occupational Therapy Practice Skills for Physical Dysfunction. 8th ed. St. Louis, Missouri: Elsevier; 2018. p.336–373.
14. Ramano E, Buys T, de Beer M. Formulating a return-to-work decision for employees with major depressive disorders: Occupational therapists' experiences. *African Journal of Primary Health Care and Family Medicine*. 2016;8(2):1–5. doi:<http://dx.doi.org/10.4102/phcfm.v8i2.954>
15. World Federation of Occupational Therapists (WFOT). Occupational Therapy in Work-related Practice. 2016:1–3. [accessed 2023 May 14 now archived]. <https://www.wfot.org/resources/occupational-therapy-in-work-related-practice>
16. Cho H, Lee S, Park J. Time estimation method for manual assembly using MODAPTS technique in the product design stage. *International Journal of Production Research*. 2014;52(12):3595–3613. doi:<http://dx.doi.org/10.1080/00207543.2013.878480>
17. Van Biljon H. Using MODAPTS tasks in Public Healthcare's Clinical Settings. *FOCUS*. 2014;2:9–15.
18. De Klerk S. Occupational therapy assessment of the upper limb: trends in South Africa. 2014. <https://scholar.sun.ac.za/handle/10019.1/86347>
19. Lesko LJ, Zineh I, Huang SM. Editorial: What is clinical utility and why should we care? *Clinical Pharmacology and Therapeutics*. 2010;88(6):729–733. <http://dx.doi.org/10.1038/clpt.2010.229>. doi:<http://dx.doi.org/10.1038/clpt.2010.229>
20. James C, MacKenzie L. The clinical utility of functional capacity evaluations: The opinion of health professionals working within occupational rehabilitation. *Work*. 2009;33(3):231–239. doi:<http://dx.doi.org/10.3233/WOR-2009-0871>
21. Smart A. A multi-dimensional model of clinical utility. *International Journal for Quality in Health Care*. 2006;18(5):377–382. doi:<http://dx.doi.org/10.1093/intqhc/mzl034>
22. Buys T. Professional competencies in vocational rehabilitation: Results of a Delphi study. *South African Journal of Occupational Therapy*. 2015;45(3):48–54. doi:<http://dx.doi.org/10.17159/2310-3833/2015/v45n3/a9>
23. Golpîra H. Estimating Duration of Projects Manual Tasks Using MODAPTS plus Method. *International Journal of Research in Industrial Engineering*. 2013;2(1):12–19.
24. Brink H, Van der Walt C, Van Rensburg G. Fundamentals of Research Methodology for Healthcare Professionals. 4th ed. Cape Town, South Africa: Juta and Company (Pty) Ltd; 2018.
25. Apuke OD. Quantitative Research Methods: A Synopsis Approach. Kuwait Chapter of Arabian *Journal of Business and Management Review*. 2017;6(11):40–47. doi:<http://dx.doi.org/10.12816/0040336>
26. Gray DE. Doing Research In the Real World. London: Sage Publications; 2014.
27. Press OU. Snowballing. Oxford Languages. 2021 [accessed 2021 Sep 17]. <https://www.google.com/search?q=what+is+snowballing&oq=what+is+snowballing&aqs=chrome..69i57j0i512j0i390l4.3554j0j7&sourceid=chrome&ie=UTF-8>
28. Dychawy-Rosner I, Eklund M. Content Validity and Clinical Applicability of the Irena Daily Activity. 2003:127–149. doi:<http://dx.doi.org/10.1002/oti.181>
29. Vaske JJ, Beaman J, Sponarski CC. Rethinking Internal Consistency in Cronbach's Alpha. *Leisure Sciences*. 2017;39(2):163–173. doi:<http://dx.doi.org/10.1080/01490400.2015.1127189>
30. OTASA. Annual Report. 2021.
31. O'Brien R, Woodbridge S, Hammond A, Adkin J, Culley J. The Development and Evaluation of a Vocational Rehabilitation Training Programme for Rheumatology Occupational Therapists. *Musculoskeletal Care*. 2013;11(2):99–105. doi:<http://dx.doi.org/10.1002/msc.1050>
32. Prior Y, Amanna EA, Bodell SJ, Hammond A. A qualitative evaluation of occupational therapy-led work rehabilitation for people with inflammatory arthritis: Perspectives of therapists and their line managers. *British Journal of Occupational Therapy*. 2015;78(8):467–474. doi:<http://dx.doi.org/10.1177/0308022615581312>

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KEYWORDS

Q methodology, theory and research, practice experience, patient–therapist relationship, patient voice, occupational therapy clinical practice

HOW TO CITE THIS ARTICLE

Swanepoel A, Janse van Vuuren EC, Nayar S. *Occupational therapists' perspectives on knowledge transfer in clinical practice in the Free State, South Africa*. South African Journal of Occupational Therapy. Vol 54 No 1. April 2024. DOI: <https://orcid.org/10.17159/2310-3833/vol54no1a7>

ARTICLE HISTORY

Submitted: 23 May 2023

Reviewed: 8 November 2023

Revised: 18 January 2024

Accepted: 19 January 2024

DATA AVAILABLE

Upon reasonable request, from corresponding author

EDITOR

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FUNDING

The study from which this manuscript originated was funded by the University of the Free State Staff Doctoral Programme (USDP).

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ISSN On-line 2310-3833

Occupational therapists' perspectives on knowledge transfer in clinical practice in the Free State, South Africa

ABSTRACT

Background: The transfer of all types of knowledge in occupational therapy practice is complex, and there is little agreement globally on the most important types of knowledge that inform clinical practice. This study aimed to uncover the perspectives of occupational therapists in the Free State, South Africa on knowledge transfer in clinical practice.

Methodology: Q methodology was used to collect data from 14 occupational therapists utilising Q Method Software.

Results: Factor analysis revealed two factors with eigenvalues of greater than 1. Factor 1 had an eigenvalue of 2.97, and factor 2 had an eigenvalue of 1.48. These two factors were constructed from six and five participants' Q Sorts respectively, with the highest factor loads for factor 1 and factor 2. Thematic content analysis of these two factors identified two themes, namely: client-centred philosophy and practice informed through clinical reasoning.

Conclusion: The strategic use of Q methodology presented empirical evidence of the transfer and utilisation of all types of knowledge in clinical practice in the Free State, South Africa. The results indicated the transfer of propositional, procedural, personal, and client knowledge strengthens client-centred practice and manifests in clinical reasoning. Furthermore, the results indicate an interdependence between the types of knowledge, meaning that it is important that therapists utilise all types of knowledge and not rely on only one form of knowledge when they work with patients to promote well-being.

Implications for Practice

- Q Methodology is an ideal research method to identify the subjective perspectives of participants where different opinions on a topic might exist.
- Clinicians hold a wealth of practice experience and personal knowledge that should be shared and captured through research.
- The client's voice needs to be heard more often to ensure client-centred practice is not only an idea on paper.

INTRODUCTION AND LITERATURE REVIEW

Various processes describe how knowledge is used to inform clinical practice. These processes include knowledge transfer, knowledge translation, and knowledge exchange^{1,2}. Much has been published on the different concepts of knowledge-to-action and authors have argued about the difference between the often-interchangeable use of the terms; knowledge translation, knowledge transfer, and knowledge exchange. Table I (below, page 55) provides an overview of some of the definitions of knowledge transfer indicating the different perspectives that exist.

Knowledge transfer, which is the focus of this paper, is seen as a subcategory of the knowledge translation process which occurs in clinical practice. The authors furthermore argue that knowledge transfer consists of all types of knowledge not only research evidence.

Table I. Definitions of knowledge transfer

Knowledge transfer
"Knowledge transfer describes the collaborative problem-solving and sharing of experiences, perspectives, and knowledge among caregivers, researchers, and policymakers that happens through developing partnership and exchanging information and ideas" ^{3,109} .
"A systematic approach to capture, collect and share tacit knowledge in order for it to become explicit knowledge. By doing so, this process allows for individuals and/or organizations to access and utilize essential information, which previously was known intrinsically to only one or a small group of people" ^{2:15} .
"The imparting of research knowledge from producers to potential users. It has a connotation of uni-directionality in comparison with a more bi-directional "knowledge exchange" ^{4:1-14} .
"There are various definitions for KT [knowledge transfer], which despite discrepancies in language share a common theme related to communicating forms of knowledge to relevant stakeholders through various methods" ^{5:1415} .
"This term describes the one-way flow of knowledge from researchers to potential users including policymakers, clinicians, and clients; it is also considered the responsibility of researchers" ^{6:11} .

According to the literature, the transfer of knowledge is considered to be a bilateral activity or a two-way process² of knowledge informing practice, and can include any combination of the types of knowledge described in literature (see below). If compared with some of the definitions of knowledge translation and exchange, knowledge transfer uses both, empirical evidence to guide practice, procedural - as well as personal knowledge. Knowledge is, therefore, not transferred to practice by researchers; rather transferred in practice between clinicians, clients, and other stakeholders. Because of its all-encompassing nature, knowledge transfer as a method to inform practice was the focus of the study.

Occupational therapists use different types of knowledge to understand the complexity of human occupation to guide clinical reasoning for assessment and intervention and inform ethical practice⁷⁻⁹. Often, in clinical practice, the occupational therapist draws on a combination of the types of knowledge to inform their clinical reasoning^{10,11}. These interrelated types of knowledge include propositional (or theoretical/empirical) knowledge,^{8,12} procedural knowledge (practice experience)^{5,12}, personal theory (referred to as personal knowledge henceforth)⁸,

¹², and espoused knowledge². Propositional knowledge includes theoretical knowledge and research evidence^{8,12}; while procedural knowledge refers to the occupational therapist's clinical experience⁸.

¹³. Fish and Boniface⁸ describe personal theory as the clinician's values and beliefs that influence their practice, while espoused knowledge is propositional knowledge that therapists agree with because of their personal knowledge. It is, therefore, the theory they understand or feel comfortable with and which they will use in practice. Client knowledge refers to the knowledge a client has of their occupational profile, context, likes, and dislikes¹⁴.

There are, however, differing perspectives on what is the

types of knowledge to ensure meaningful occupational engagement for the client. This is achieved by recognising the relationship between the person, environment, and occupation and the types of knowledge arising from it.

Over the past few decades, researchers have strongly advocated for the use of propositional knowledge (evidence-based knowledge) to inform clinical practice^{13,16-18}. These authors argue that, to inform practice and ensure quality service delivery evidence-based knowledge is necessary. However, the knowledge that is transferred to clinical practice might also include (or be derived from) clinical skills, cognitive skills such as judgement, problem-solving, and decision-making that developed from occupational therapy practical experience², contextual knowledge acquired from clients (client-knowledge)¹⁵, and the personal values and beliefs of the occupational therapist. It could, thus, be dangerous to focus on a single form of knowledge transfer, furthermore, to ignore the interrelated nature of knowledge transfer.

Knowledge transfer in clinical practice is a dynamic process that involves occupational therapists, their clients, other relevant stakeholders, such as other team members, family, and/or caregivers accessing and sharing all types of knowledge. The transfer of knowledge is, therefore, considered to be a bilateral activity or a "two-way process"^{2:16} of knowledge informing practice, which suggests collaboration between the occupational therapist and client in clinical practice¹⁹. Davis and Polatajko¹⁴ and Park et al.²⁰ also refer to the value of collaboration, where the occupational therapist acknowledges the clients' occupational stories, and use it to inform contextually relevant occupation-based practice. Indeed, it has been argued that it is often the transfer of the expert knowledge of a client or their caregivers about their context and occupational realities that informs practice^{19,21} as well as allows for client-centred service delivery.

Yet, understanding the interrelated nature of knowledge transfer is a complex undertaking, especially given the varied perspectives on the transfer of the different types of knowledge in clinical practice. What authors do agree on, however, is the importance of knowledge for informing clinical practice. To date, limited documentation exists on the perspectives of South African occupational therapists on the type and content of the different types of knowledge that are transferred in clinical practice. The aim of this article is to determine the perspectives of occupational therapists practicing in the Free State, South Africa, regarding knowledge transfer in clinical practice.

METHODOLOGY

Ethical approval for the study was received from the Health Science Research Ethics Committee (UFS-HSD2021/1454/2610) of the University of the Free State.

Study Design

To determine the occupational therapists' perspectives on knowledge transfer in clinical practice, a mixed method Q methodology was utilised. Q methodology was developed by psychologist William Stephenson in 1935,²² and identifies participants' subjective perspectives regarding a specific topic of interest, about which different opinions may exist^{23,24}.

The Q methodology consists of six steps, and the work of Webler et al.²⁵ is referenced in this study.

Step 1: Determine the objective of conducting the Q methodology
The objective was to determine the perspectives of occupational therapists in the Free State, South Africa on knowledge that is transferred in their clinical practice.

Step 2: Preparation to create the concourse
A concourse is a collection of possible statements that, for this study, related to the occupational therapists' knowledge transfer in clinical practice. To build the concourse for the Q sample, published resources and semi-structured interviews are included, as recommended²⁴. For this study, a scoping review was undertaken to determine the landscape of knowledge transfer in occupational therapy clinical practice. The scoping review was followed by semi-structured, digitally audio-recorded interviews with nine occupational therapists from different practice settings (see Table II, adjacent, page 57) in the Free State, South Africa, to gain insight into the content of the knowledge that is transferred in their clinical practice. Interview participants were provided with a definition and an explanation of each of the four types of knowledge that had been identified in occupational therapy literature, namely, propositional knowledge (theoretical/empirical), procedural knowledge (practice experience), personal knowledge (own world view, values, and beliefs), and client knowledge. Inductive thematic analysis was performed to extract statements made by participants in the interviews, to form the concourse²⁵. Statements were also extracted from the literature identified by the scoping review. From the concourse, a Q sample of statements was developed. Including only participants from the Free State, South Africa was a limitation of this study. It is recommended that a follow-up study is conducted amongst occupational therapists practicing in the whole of South Africa.

Step 3: Identify, select, and edit Q statements
The concourse initially consisted of 80 statements representing the four types of knowledge: propositional (n = 20), procedural (n = 32), personal (n = 14), and client (n = 14) knowledge. To identify, select and edit the Q statements, the researcher and a co-coder, who is familiar with Q methodology, went through all the statements to retain, combine, or remove statements. The included final Q statements adhered to the qualities of a "good Q statement" in (a) being meaningful to the participants (occupational therapists), (b) understandable, (c) having the potential to be interpreted in various ways, and (d) giving participants something to think about^{25,16}. The final Q sample consisted of 42 statements relating to the four types of knowledge: propositional (n = 8), procedural (n = 15), personal (n = 10), and client (n = 8) (see Table II page 58). After finalising the Q sample, each statement was allocated a number between 1 and 42. The study was set up using QMethod Software²⁶ and the statements were loaded onto the platform in the same sequence as each statement had been numbered during the preparation phase. A Q grid was set up in an inverted pyramid comprising 42 blocks (Figure 1, adjacent)

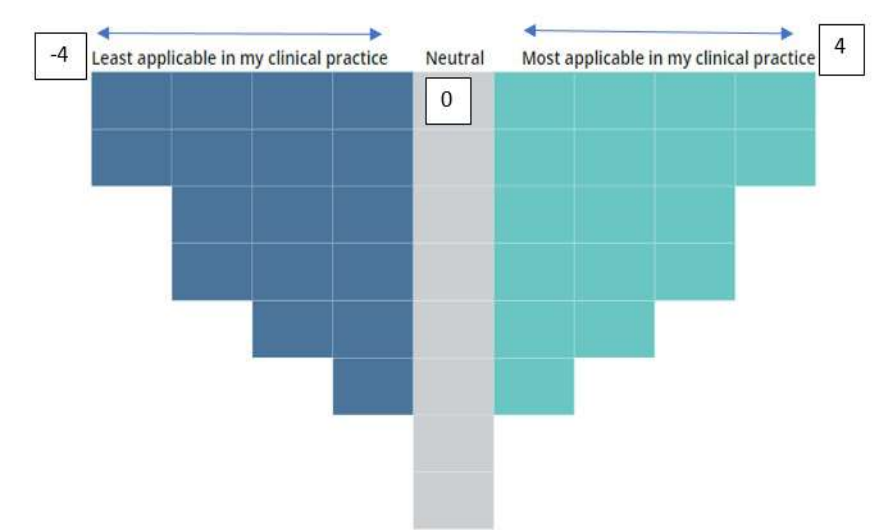


Figure 1: Q Grid
(<https://app.qmethodsoftware.com/admin/study/dashboard/10407/structure>)

QMethod Software provide a forced normal distribution with an equal number of blocks on either side of the neutral column. Statements must be placed in each block before the survey continues. This normal distribution forces participants to carefully reflect on their perspectives of knowledge transfer in their specific clinical practice²⁶ and place a statement in the applicable block of the Q grid (see Figure 1, above).

Step 4: Recruit participants
Convenience and snowball sampling were used to recruit participants. Twenty occupational therapists known to the researcher and practicing in the Free State, South Africa were invited via email to take part in the Q method survey. Through snowball sampling the participants were requested to share the invitation with colleagues who might be interested in the study. The researcher did not specify the number of invitations to be shared with colleagues. Webler et al.²⁵ suggest that participants should hold various perspectives on the topic under investigation. For this reason, occupational therapists were recruited from various clinical fieldwork settings in the Free State, South Africa. Table II (below) shows the clinical practice setting of the two groups of participants of the semi-structured interviews and the Q method survey.

Table II: Practice settings of participants

Interview participant number	Practice setting	Q methodology participant number	Practice setting
1	Private hospital – mental health	1	Retirement facility
2	Private hospital – physical rehabilitation	2	Private hospital – physical conditions
3	School for children with severe intellectual disabilities	3	State hospital – physical conditions
4	School for children with physical and learning disabilities	4	Private practice

5	State hospital – mental health	5	State hospital - paediatrics
6	Private practice - general	6	Private hospital – physical conditions
7	Private practice – paediatric mental health	7	School for children with severe intellectual disabilities
8	State hospital – physical conditions	8	Private hospital – physical conditions
9	Vocational evaluation	9	Academic service delivery platform - paediatrics
		10	Undisclosed
		11	Private hospital – physical rehabilitation
		12	State hospital – physical conditions and paediatrics
		13	State hospital – physical conditions
		14	State hospital – mental health

Step 5: Conducting the Q sorts

Participants used a link provided by the researcher to access the QMethod Software platform and were requested to provide an individualised participation code (also provided by the researcher). The first landing page of the survey requested participants to consent to participation in the study by choosing between the options ‘agree’ or ‘not agree’. In the next step, participants were instructed to rank each of the statements by choosing an icon (thumbs up, neutral, thumbs down) with regard to the applicability of the statement to their clinical practice setting (Figure 2, below). The statements were automatically placed in three piles, to be used in the next step.

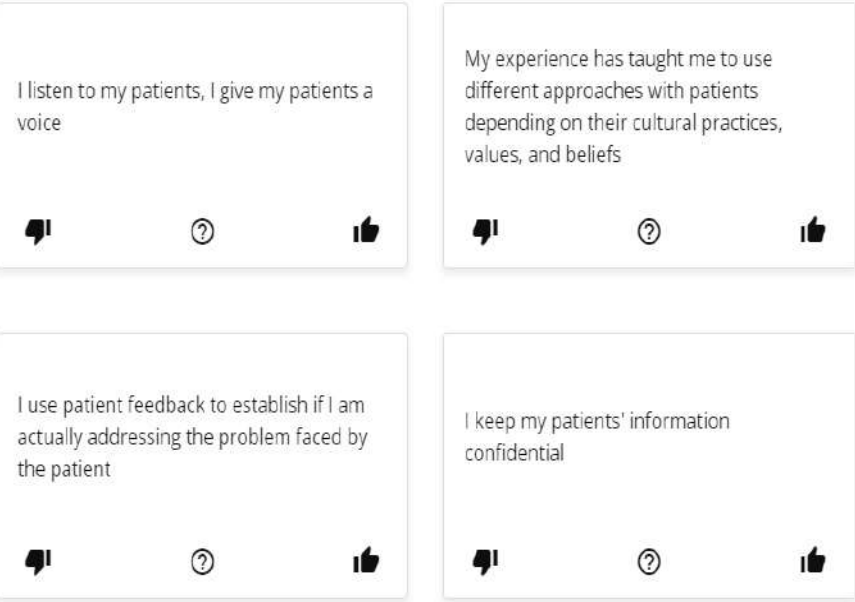


Figure 2: Example of Statements with Icons
(<https://app.qmethodsoftware.com/admin/study/dashboard/10407/codes>)

Once the initial sorting had been done, participants continued to a page where the Q grid appeared (Figure 1, page 56). Each of the statements in the three piles were subsequently placed on the grid, by each participant, according to perception of a

statement — from most to least applicable to the participant’s clinical practice. Statements could be removed and replaced until the participants were satisfied with the placement of their statements. The final placement of the statements by each participant is known as the participant’s Q sort placed from most to least as applicable to their clinical practice. The last landing page of the survey, a short post-sort section, invited participants to comment on their Q sorts and the placements of the statements on the Q grid. Participants were given the option to provide feedback by commenting in the QMethod software, or to send a reflection to the researcher via email or to have a short online discussion with the researcher. Only six participants provided feedback, which is a limitation of the study. The researcher recommends in person reflection with each participant take place to ensure the valuable input from participants are not lost.

Step 6: Using factor analysis to arrive at perspectives of knowledge transfer in clinical practice

Factor analysis was used to identify patterns from the Q sorts of each participant²⁵. The final sorts, also known as factors, are combinations of the different participants’ Q sorts. The first step of the factor analysis was to decide on a method to extract the factors, either centroid or principal components analysis. In this study, centroid analysis was used²⁵ to account for the indeterminacy of its solutions. This means that the same participants would not have the same Q sort twice²⁷. The second step was to choose a rotation method to ensure the best results. In this study, Pearson correlation and Varimax rotation were done to ensure that participants’ Q sorts were considered for only one factor²⁵. The last step of the factor analysis was to decide on the number of factors. The Kaiser-Guttman criterion was used to determine the number of factors to be extracted. Two factors with eigenvalues greater than 1.00²⁶ were chosen, the statements from these two factors with sort values of four, three, and two (Table IV, page 58) were thematically analysed by the researcher to determine the participants’ perspectives on knowledge transferred in their clinical practice.

Q methodology was designed as a rigorous method to determine participants’ subjective opinions or perspectives on specific matters²⁸, which made this the most suitable research method for this study. Content validity was assured by using literature and interviews to compile the final Q sample. The natural-language statements extracted from the semi-structured interviews and statements from literature assured face validity. A pilot study was conducted to further assure content and face validity. No changes were required, and the results of the pilot study were included in the main study. Q sort validity was obtained, and each participant’s Q sort represented their own perspectives. Reliability had been confirmed through test-retest procedures in previous studies²⁹. Regarding trustworthiness of the study; credibility was ensured through method, data, and theory triangulation. Transferability was ensured through a description of knowledge transfer in clinical practice as well as a specific procedure of data collection and analysis were utilised. Dependability was ensured through audit trails and systematic documentation, management, and storage of data.

RESULTS

Results of the two data collection processes described above are included in this paper (see Table II, page 56). The first set of results was obtained from the Q methodology survey itself, with 14 occupational therapists practicing in the Free State, South Africa. The second is based on the qualitative data obtained from the semi-structured interviews conducted with nine experienced occupational therapists, to determine the initial Q statements.

In total 20 occupational therapists in the Free State, South Africa, indicated their interest in taking part in the Q method survey and were sent an information document. This was accompanied by a link to the QMethod Software web page, and a different participation code for each participant randomly created by the platform. In the end, only 14 occupational therapists from different clinical practice settings completed the Q sort and were included in the study. Webl er et al.²⁵ recommends recruiting one participant for every three Q statements; therefore, 14 participants were deemed sufficient for this phase of the study. Six participants provided written reflective feedback regarding their Q sorts. At this stage, it was not known whether a participant's Q sort would be flagged for inclusion in the final factors.

Two factors with eigenvalues greater than 1.00 were extracted. Factor 1 had an eigenvalue of 2.97, while Factor 2 had an eigenvalue of 1.48. A factor represents the collective perspectives of a group of participants²⁷. The final factors are combinations of the statements used in the study. Factor 1 was constructed by Q sorts of participants 3, 9, 10, 12, 13, 14 while Factor 2 was constructed by Q sorts of participants 1, 4, 5, 7, 8. (see Table III, adjacent). Automatic flagging of a Q sort is done to, first, indicate which participants' Q sorts have the highest factor loads and, second, to correlate a participant's Q sort with the final factor^{25,30}.

Table III: Factor Matrix with Defining Sorts Flagged

Participant No.	z scores for Factor 1		z scores for Factor 2	
1	-0,10207		0,53211	flagged
2	-0,08887		0,23908	
3	0,79353	flagged	-0,08959	
4	0,3465		0,35593	flagged
5	0,23712		0,52276	flagged
6	0,04181		0,24935	
7	0,2699		0,73245	flagged
8	0,15148		0,59115	flagged
9	0,63028	flagged	0,47045	
10	0,57251	flagged	-0,09303	
11	-0,09395		0,20845	
12	0,68618	flagged	0,17636	
13	0,32609	flagged	0,14532	
14	0,43583	flagged	-0,12427	

Table IV (below) shows the final factors with the z-scores and sort values of each statement that contributed to the factor. A sort value of 4 represents a statement that is most applicable to a participant's clinical practice. Only statements with a sort value between 4 and 1 are included in Table IV statements with sort values of 0 to -4, which represent neutral or least applicable to a participant's clinical practice, are not included.

The results indicate a low correlation of 0.334 between factors 1 and 2. This is of importance, because it indicates that there are differences between the two sets of factors. The z sores in Table IV (below) indicate the priority statements of each factor. The final factors represent participants' perspectives and include all the types of knowledge transferred in occupational therapy clinical practice in the Free State, South Africa. The thematic analysis of the statements with sort values of 4, 3, and 2 delivered two themes namely: client-centred philosophy (Factor 1) and practice informed through clinical reasoning (Factor 2).

Table IV: Factor scores

Factor 1 scores Client-centred philosophy			
Statement No.	Statement	Z-score	Sort Values
15	I put my patients first, I have their best interests at heart	2,14504	4
26	Collaboration between my patients and me, through the sharing of experiences and reflective practices, facilitates knowledge transfer that improves my service delivery	1,7739	4
25	I demonstrate different skills to my patients or simulate the patients' environment	1,54671	3
1	I use borrowed theories such as NDT, Behavioural, Cognitive behavioural, Client-centred, or Cognitive perceptual theoretic frames of reference, ICF, and Gestalt therapy in my clinical practice	1,30989	3
6	I use my experience, gut feeling, and intuition to guide and adapt my therapy	1,17331	3
13	I use a combination of practical experience and theory knowledge in my clinical practice	1,09216	3
27	I listen to my patients; I give my patients a voice	0,92036	2
21	My colleagues and I reflect, hypothesise, and solve problems together, we share new ideas with each other	0,89184	2
18	Patients provide information such as their background, occupational profiles, role expectations, support systems, and home environment that I use in my clinical practice	0,81915	2
28	My experience has taught me to use different approaches with patients, depending on their cultural practices, values, and beliefs	0,7287	2
23	I am authentic in my clinical practice and share my own stories and examples with my patients	0,68209	2
35	I do not let my personal values and beliefs influence my clinical practice and relationship with my patients	0,59685	1
32	I keep my patients' information confidential	0,58476	1
16	I apply the theory of activity analysis in my clinical practice	0,54135	1
2	I use real-life examples provided by my patients in my clinical practice	0,47246	1
30	My clinical practice is based on research evidence to ensure quality service delivery to my patients	0,42869	1
34	I use observation as an evaluation method a lot	0,37823	1

Factor 2 scores Practice informed through clinical reasoning			
Statement No.	Statement	Z-score	Sort Values
13	I use a combination of practical experience and theory knowledge in my clinical practice	1,99126	4
21	My colleagues and I reflect, hypothesise, and solve problems together, we share new ideas with each other	1,89884	4
24	The patients' pathology influences the choice of theory I use in my clinical practice	1,64481	3
15	I put my patients first, I have their best interests at heart	1,58007	3
38	My clinical reasoning is influenced by the knowledge I gain in my clinical practice	1,34444	3
31	I use patient feedback to establish if I am actually addressing the problem faced by the patient	1,12461	3
28	My experience has taught me to use different approaches with patients depending on their cultural practices, values, and beliefs	1,12063	2
40	I use the knowledge that I have gained from negative experiences in my clinical practice	0,94771	2
6	I use my experience, gut feeling, and intuition to guide and adapt my therapy	0,9336	2
34	I use observation as an evaluation method a lot	0,82764	2
10	My patients teach me more about their culture, values, and beliefs than what I can learn from theory	0,69287	2
20	The patients' physical and socio-economic environments influence the choice of theory I use in my clinical practice	0,68237	1
14	Patients contribute to the problem-solving process and their therapy	0,67311	1
27	I listen to my patients; I give my patients a voice	0,6612	1
32	I keep my patients' information confidential	0,58043	1
36	I apply the knowledge that I gained from one patient to the next patient who has similar problems	0,44925	1
7	The patients' cultures influence the transfer of knowledge between me and my patients	0,14067	1

The qualitative findings, as shown in Table V (below), were extracted from the semi-structured interviews and the post-survey comments of the Q methodology. The verbatim quotes obtained from the semi-structured interviews is

referred to as I participants, whilst data from participants included in the post survey comments of the Q methodology referred to as Q participants. The verbatim quotes of the participants support the two themes identified from Factors 1 and 2.

Table V Qualitative findings

Participant no.	Verbatim quote	Theme
I Participant 5	<i>"Because you're still acting in the best interest of a patient."</i>	Client-centred philosophy
Q Participant 8	<i>"I really use a patient-directed approach in the way I give my therapy. So I try to involve my patients in goal setting and really try to meet their needs and their goals as well."</i>	Client-centred philosophy
I Participant 9	<i>"It's a very important part you should facilitate, speak to them, try and come up with a solution together, guide them. Because ultimately, I think it's important for the patient or your client to really buy into the solutions."</i>	Client-centred philosophy
I Participant 2	<i>"I sometimes even get into a wheelchair and do demonstrations because often just by giving verbal instructions, it's very difficult for that [knowledge] transfer to actually happen. Where I've seen a lot of the time when if I do it, patients often say, wow, I now for the first time actually understand what you're trying to tell me."</i>	Client-centred philosophy
I Participant 5	<i>"Usually it's what will suit, what explains our patient population, what connects all the dots, the best. So, it's not necessarily what you're most comfortable with, but where you can plot your patient the best and what motivates or explains your clinical reasoning in terms of choosing aims. So, it's really about your patient and which theory will explain the problems to be able to connect all the dots to make your treatment plan more specific for the patient or the patient population that you work with."</i>	Client-centred philosophy
I Participant 1	<i>"I think, we can call it your gut feeling or your intuition where you let that guide you. I think it's a combination of you know the experience you've acquired."</i>	Client-centred philosophy

I Participant 7	<i>"It's really thinking about the clients, thinking about the sessions throughout the day. So not necessarily doing it in writing, but in my mind, trying to see, did I do this child justice today in terms of the session?"</i>	Client-centred philosophy
I Participant 6	<i>"All three parts of the knowledge is important for who I am and for doing what I do. I think when I started being an OT, the theoretical and the book stuff, that was very important to me. But it's now subconsciously, it's still there, but I don't focus that much. And the clinical experience I think is important because that is what I do in my day to day things"</i>	Practice informed through clinical reasoning
Q Participant 3	<i>"I would go to my colleagues, and we reflect, and problem solve together."</i>	Practice informed through clinical reasoning
I Participant 9	<i>"You first of all have to understand the pathology to understand how the pathology will impact on the functionality of the patient."</i>	Practice informed through clinical reasoning
Q Participant 3	<i>"I rely on my existing experience that I do have. So, for example, for my stroke patients, I do have kind of a set way that I start my therapy in, and I've got set questions that I ask my patients, and from there I start my treatment and that is influenced by my patient's physical and economic environment, something that I said was very important for me."</i>	Practice informed through clinical reasoning
I Participant 2	<i>"And then something else that I have come to realise is the dynamic within families. We experience that in certain situations; the patient can make their own decisions. Where in other families, in other cultures, a family decision has to be made."</i>	Practice informed through clinical reasoning

DISCUSSION

Q methodology was designed to measure the participant's subjective perspectives on an issue, and to challenge participants' thoughts on the matter²⁵. Participants had to carefully consider what type of knowledge was most or least applicable in their clinical practice setting, which confirms the existing perspective that different types of knowledge inform clinical practice^{7-9,19}. The thought processes facilitated by the Q methodology re-affirmed the importance a client-centred philosophy and clinical reasoning for occupational therapists in clinical practice, through the two themes identified and discussed below.

Client-centred philosophy

The client-centred philosophy, firstly, manifests in clinical practice through the utilisation of propositional knowledge (theory and research) of the patient's pathology. Designing interventions relevant to each patient's needs by choosing theory ensures evidence-based practice. Utilising theory pertaining to pathology, combined with applicable theoretical frames of references, allows occupational therapists to understand the impact of a pathology better, and provide them the opportunity to work towards functional treatment outcomes with their patients³.

Secondly, "Putting the patient first" (Factor 1, statement no 15) reflect participants' world views, values and beliefs, and ethical perspectives which inform and influence the way they approach their patients^{8,12}. This personal knowledge develops through reflective practice that influences and might even change a therapist's personal beliefs of patients, their contexts and challenges³¹. The complex integration of procedural knowledge (experience) and personal knowledge occurs as a result of reflective practice. The integration enables a therapist to identify best practice, transfer contextual relevant propositional knowledge to their clinical practice while maintaining a holistic view of the patient³².

Restall and Egan³³, thirdly, urged therapists to realise the importance of collaborating and building relationships with

their patients. Embodying the client-centred philosophy of the occupational therapy profession might lead to a patient-therapist relationship developing. This relationship is, however, dependent on the engagement of both the patient and their therapist. Where pathology allows, shared problem-solving gives autonomy back to the patient and restores their dignity, because patients contribute to discussions about the total care process of which they are the recipient. Sumsion and Law³⁴ argued, in a patient-therapist relationship, the therapist should be aware of the power relationship in the therapeutic process. By collaborating and communicating treatment goals, the balance of the power relationship might be more equal³⁵. Participants stated that, in this collaborative relationship, they used examples from their own experiences, which further demonstrates the equalisation attempt suggested by Sumsion and Law³⁴.

Fourthly, patient might transfer their expert client knowledge of their own occupational stories, contexts, and support systems to clinical practice. Each patient's environment and context are unique, and intervention plans should not be blindly duplicated from one patient to the next based on similar pathology or geographical context¹⁴. A patient's occupational engagement is often guided by their cultural roles, rituals, and/or routines. Differences in, amongst others, role expectations, cultural practices, spirituality, contexts, and environments, should always be considered, whereby ensuring occupational justice for each patient³³. Therapist often rely on practice experience while being cognisant of the client knowledge transferred by their patient to ensure client-centred service delivery.

Practice informed through clinical reasoning

The skill of applying clinical reasoning is the product of clinical experience and develops throughout the occupational therapist's profession. It informs the occupational therapy

process from the evaluation-, intervention planning-, treatment implementation-, and outcome measure phases. Furthermore, propositional knowledge forms the foundation of occupational therapists' knowledge base, and influences their clinical reasoning, which manifests in clinical practice. Each therapist holds personal world views, values and beliefs, life experiences, and ethical perspectives that influence their clinical reasoning and the way they approach their patients^{8,12}.

Chapparo and Ranka³⁶ proposed the use of clinical reasoning to clarify and explain the occupational challenges patients experience because of their disability. This can be achieved, firstly, by an in-depth evaluation of the patient's occupations, client factors, performance patterns, as well as their context and environment³⁶ which constitute client knowledge. Secondly, utilising propositional knowledge (theoretical and/or research evidence) regarding the patient's pathology, procedural knowledge combined with the above-mentioned assessment outcomes a therapist might be able to determine the long-term treatment needs of a patient³⁴. Participants indicated such transfer of a combinations of propositional and procedural knowledge in clinical practice. Teoh³⁷ supported the notion that knowledge has the potential to be created through an integration of theory knowledge and clinical experience through reflective practice. This view is supported by Carrier et al.³⁸ who proposed clinical reasoning to be informed by propositional, procedural, personal, and client knowledge.

CONCLUSION

The aim of the paper was to determine the perspective of occupational therapists practicing in the Free State, South Africa, regarding knowledge transfer in clinical practice. The study utilised Q methodology that allows for the identification of different perspectives on an issue. The results indicated the transfer of propositional, procedural, personal and client knowledge strengthens client-centred practice and manifests in clinical reasoning. Being aware of the potential to integrate these types of knowledge is a strength of this study and meets the aim set out by the researcher. The clinical experience and personal values, beliefs, and world views of an occupational therapist contribute to unique patient-therapist relationships. No two patients are the same and a relationship must be developed with each of the patients to inform an occupation-based intervention plan for the patient. The occupational therapy process is, subsequently, reliant on an effective patient-therapist relationship. The two themes should not be considered in isolation, rather, a client-centred philosophy is dependent on clinical reason and Vice Versa through the transfer of all types of knowledge in clinical practice.

Author Contributions

Azette Swanepoel conducted the study under the supervision of Corlia Janse van Vuuren (second author) and Shoba Nayar (third author). The second and third author contributed to the conceptualisation and study design. Final revisions of the manuscript were done by the first author. All the authors agreed on the final revised manuscript.

Acknowledgements

The authors would like to acknowledge Anke van der Merwe,

who conducted the semi-structured interviews, and Jani du Preez, who assisted in compiling the final Q sample of 42 statements from the original concourse of 80 statements.

Conflicts of interest

The authors have no conflicts of interest to declare.

REFERENCES

1. Canadian Institute for Health Research. Guide to knowledge translation planning at CIHR: Integrated and end-of-grant approaches [Internet]. 2015 [cited 2022 Mar 19]. Available from: <https://cihr-irsc.gc.ca/e/45321.html>.
2. Graham ID, Logan J, Harrison MB, Straus SE, Tetroe J, Caswell W, et al. Lost in knowledge translation: Time for a map? *J Contin Educ Health Prof.* 2006;26(1):13–24. <https://doi.org/10.1002/chp.47>.
3. Atwal A, Spiliotopoulou G. Knowledge transfer: Developing guidelines for occupational therapists working with people with lower limb amputations. *Br J Occup Ther.* 2011;74(March):4276. <https://doi.org/10.4276/030802211x12996065859120>.
4. Kiefer L, Frank J, Ruggiero E Di, Dobbins M, Manuel D, Gully PR, et al. Fostering Evidence-based Decision-making in Canada. *Can J PublicHealth.* 2005;0–19.
5. Pentland D, Forsyth K, Maciver D, Walsh M, Murray R, Irvine L, et al. Key characteristics of knowledge transfer and exchange in healthcare: Integrative literature review. *J Adv Nurs.* 2011;67(7):1408–25. <https://doi.org/10.1111/j.1365-2648.2011.05631.x>.
6. Stratton Johnson L. From knowledge transfer to knowledge translation: Applying research to practice. *Occup Ther Now.* 2005;(July/August):11–4.
7. Duncan EAS. An introduction to conceptual models of practice and frames of reference. 4th ed. Duncan EAS, editor. Foundation for practice in occupational therapy. Edinburgh: Elsevier Churchill Livingstone; 2006. 59–66 p.
8. Fish D, Boniface G. Reconfiguring professional thinking and conduct: A challenge for occupational therapist in practice. In: Boniface G, Seymour A, editors. Using occupational therapy theory in practice. West Sussex, UK: John Wiley & Sons.; 2012. p. 10–7. <https://doi.org/10.1002/9781118709634.ch13>.
9. Kielhofner G. Conceptual foundation of occupational therapy in practice. 4th ed. Philadelphia: F.A. Davis; 2009.
10. Bryant W, Parsonage J, Tibbs A, Andrews C, Clark J, Franco L. Meeting in the mist: Key considerations in a collaborative research partnership with people with mental health issues. *Work.* 2012;43(1):23–31. <https://doi.org/10.3233/wor-2012-1444>.
11. Haag HL, Sokoloff S, MacGregor N, Broekstra S, Cullen N, Colantonio A. Battered and brain injured: Assessing knowledge of traumatic brain injury among intimate partner violence service providers. *J women's Heal.* 2019;28(7):990–6. <https://doi.org/10.1089/jwh.2018.7299>.
12. Turpin M, Iwama MK. Using occupational therapy models in practice: A field-guide. Turpin M, Iwama MK, editors. Edinburgh: Elsevier Churchill Livingstone; 2011. 13–25 p.
13. McKay MH, Pickens ND, Medley A, Cooper D, Evetts CL. Comparing occupational adaptation-based and traditional training programs for dementia care teams: An embedded mixed-methods study. *Gerontologist.* 2021;61(4):582–94. <https://doi.org/10.1093/geront/gnaa160>.

14. Davis JA, Polatajko HJ. Capturing occupational knowledge: Enabling powerful outcomes for our clients. *Occup Ther Now*. 2008;10(5):10–2. https://caot.in1touch.org/document/3901/OTNow_Sept_08.pdf.
15. Law M. Learning by doing: Creating knowledge for occupational therapy. *World Fed Occup Ther Bull*. 2010;62(1):12–8. https://archive.wfot.org/wfot2010/docs/Mary_Law_ENG.pdf.
16. Caldwell E, Fleming J, Purcell A, Whitehead M, Cox R. Knowledge translation in cancer services: Implementing the research and evidence in practice model. *Br J Occup Ther*. 2011;74(11):535–9. <https://doi.org/10.4276/030802211x13204135680947>.
17. Jutai JW, Teasell RW. The necessity and limitations of evidence-based practice in stroke rehabilitation. *Top Stroke Rehabil*. 2003;10(1):71–8. <https://doi.org/10.1310/crda-pgfw-khel-20e1>.
18. Lin SH, Murphy SL, Robinson JC. Facilitating evidence based practice: Process, strategies, and resources. *Am J Occup Ther*. 2010;64(1):164–71. <https://doi.org/10.5014/ajot.64.1.164>.
19. Metzler MJ, Metz GA. Analyzing the barriers and supports of knowledge translation using the PEO model. *Can J Occup Ther*. 2010;77(3):151–8. <https://doi.org/10.2182/cjot.2010.77.3.4>.
20. Park E, Forhan M, Jones CA. The use of digital storytelling of patients' stories as an approach to translating knowledge: A scoping review. *Res Involv Engagem* [Internet]. 2021;7(1):1–19. <https://doi.org/10.1186/s40900-021-00305-x>.
21. Strong DM. Supporting the “Casa Lar” social educator: A case study of a consultation using intercultural knowledge translation. *Cad Bras Ter Ocup* [Internet]. 2018;26(3):692–701. <https://doi.org/10.4322/2526-8910.ctore1704>.
22. Ramlo S. Mixed method lessons learned from 80 years of Q methodology. *J Mix Methods Res*. 2016;10(1):28–45. <https://doi.org/10.1177/1558689815610998>.
23. Damio SM. Q Methodology: An overview and steps to implementation. *Asian J Univ Educ*. 2016;12(1):105–77. <https://eric.ed.gov/?id=EJ1207820>.
24. Walker BB, Lin Y, McCline RM. Q methodology and Q-perspectives * online: Innovative research methodology and instructional technology. *TechTrends*. 2018;62:450–61. <https://doi.org/10.1007/s11528-018-0314-5>.
25. Webler T, Danielson S, Tuler S. Using Q method to reveal social perspectives in environmental research. *SERI*. 2009.
26. Lutfallah S, Buchanan L. Quantifying subjective data using online Q-methodology software. *Ment Lex*. 2019;14(3):415–23. <https://doi.org/10.1075/ml.20002.lut>.
27. Newman I, Ramlo S. Using Q methodology and Q factor analysis in mixed methods research. In: Tashakkori A, Teddlie C, editors. *SAGE handbook of mixed methods in social & behavioral research*. Thousand Oaks: SAGE; 2010. p. 505–29. <https://doi.org/10.4135/9781506335193>.
28. Brown SR. A primer on Q methodology. *Operant Subj*. 1993;16(3/4):91–138.
29. Akhtar-Danesh N, Baumann A. Q-Methodology in nursing research: A promising method for the study of subjectivity. *West J Nurs Res*. 2008;30(6):759–73. <https://doi.org/10.1177/0193945907312979>.
30. Rahma A, Mardiatno D, Hizbaron DR. Q methodology to determine distinguishing and consensus factors (a case study of university students' ecoliteracy on disaster risk reduction). In: *e3s-conference.com*. 2020. <https://doi.org/10.1051/e3sconf/202020001003>.
31. Carrier A, Levasseur M, Bédard D, Desrosiers J. Community occupational therapists' clinical reasoning: Identifying tacit knowledge. *Aust Occup Ther J*. 2010;57(6):356–65. <https://doi.org/10.1111/j.1440-1630.2010.00875.x>.
32. Alers V. Clinical reasoning psychiatric occupational therapy. In: Crouch R, Alers V, editors. *Occupational Therapy in psychiatry and mental health*. 5th ed. Chichester: John Wiley & Sons, Incorporated; 2014. p. 67–81. <https://doi.org/10.1002/9781118913536.ch7>.
33. Restall GJ, Egan MY. Collaborative relationship-focused occupational therapy: Evolving lexicon and practice. *Can J Occup Ther*. 2021;88(3):220–30. <https://doi.org/10.1177/00084174211022889>.
34. Sumsion T, Law M. A review of evidence on the conceptual elements informing client-centred practice. *Can J Occup Ther*. 2006;73(3):153–62. <https://doi.org/10.1177/000841740607300303>.
35. Bailliard AL, Dallman AR, Carroll A, Lee BD, Szendrey S. Doing occupational justice: A central dimension of everyday occupational therapy practice. *Can J Occup Ther*. 2020;87(2):144–52. <https://doi.org/10.1177/0008417419898930>.
36. Chapparo C, Ranka J. Clinical reasoning in occupational therapy. In: Higgs J, Jones M, Loftus S, Christensen N, editors. *Clinical reasoning in the health professions*. 3rd ed. Philadelphia: Butterworth Henemann Elsevier; 2008. p. 265–77.
37. Teoh JY. How occupational therapy practitioners use virtual communities on the Facebook social media platform for professional learning: A critical incident study. *Scand J Occup Ther* [Internet]. 2021;29(1):58–68. <https://doi.org/10.1080/11038128.2021.1895307>.
38. Carrier A, Levasseur M, Bedard D, Desorsiers J. Clinical reasoning process underlying choice of teaching strategies: A framework to improve occupational therapists' transfer skill interventions. *Aust Occup Ther J*. 2012;59(5):355–66. <https://doi.org/10.1111/j.1440-1630.2012.01017.x>.

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holistic healthcare intervention, rehabilitation personnel, International Classification of Functioning, Disability and Health (ICF), social model of disability, personal and contextual barriers and facilitators, occupation-based practice, impairment-based practice.

HOW TO CITE THIS ARTICLE

Gumede PL, Christopher CJ, Naidoo D.

Perceptions on transitioning from impairment-based to occupation-based practice in public healthcare within KwaZulu-Natal. South African Journal of Occupational Therapy. Vol 54 No 1. April, 2024. DOI: <https://doi.org/10.17159/2310-3833/vol54no1a8>DOI: <https://doi.org/10.17159/2310-3833/vol54no1a8>**ARTICLE HISTORY****Submitted:** 23 October 2023**Reviewed:** 5 December 2023**Revised:** 11 January 2024**Accepted:** 11 January 2024**EDITOR**

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<https://orcid.org/0000-0003-4433-6457>**DATA AVAILABILITY**

Upon reasonable request, from corresponding author

FUNDING

No funding was received for this research

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ISSN On-line 2310-3833

Perceptions on transitioning from impairment-based to occupation-based practice in public healthcare within KwaZulu-Natal

ABSTRACT

Introduction: Holistic healthcare service delivery requires rehabilitation personnel to consider all the components of health that influence the client's quality of life. However, there is limited literature on approaches to implementing rehabilitation services within South African public healthcare. This study explored rehabilitation personnel's (such as occupational therapists, speech therapists, physiotherapists) use of occupation-based practice impairment-based practice and the barriers and facilitators associated with their practice choice.

Methods: A qualitative research design was conducted through semi-structured interviews (13 participants), a focus group (4 participants) and community mapping. Purposive sampling was utilised to select participants in the iLembe district, KwaZulu-Natal, South Africa. Data were analysed using deductive thematic analysis.

Findings: Three themes emerged from the study; *Attitudes towards impairment-based practice*, *Reflections on OBP*, and *The way forward*. The need to focus on all the components of health rather than just the disease and the benefits of using the occupation-based practice approach were highlighted. Additionally, different factors required to implement holistic rehabilitation services and the barriers to OBP were identified.

Conclusion: Although the study identified OBP benefits, various barriers associated with its implementation were identified. Rehabilitation personnel, community stakeholders, and clients must work together to improve OBP implementation in public healthcare by combating the barriers identified in the study.

Implications for practice

This study has implications for rehabilitation service implementation in the iLembe district public healthcare sector. OBP was perceived to have more quality of life and health outcomes, which leads to implications for practice. There is a need to transition from the medical model with approaches only focusing on body structures and functions into approaches that consider all the components of health, such as the OBP. Even though there are barriers towards OBP implementation, rehabilitation personnel can still promote its implementation through inter-professional practice, continuous professional development and health promotion. Furthermore, there are implications for undergraduate programmes to equip undergraduates with the skills to implement OBP within under-resourced facilities.

BACKGROUND

Impairment-based practice (IBP) was reported as the dominant paradigm within medical-oriented healthcare facilities in South Africa, focusing on body structures and function¹. The dominance of the medical model, which defines health as the absence of disease, results in a limited focus on external components influencing the client's participation, in contrast with the World Health Organisation's (WHO) definition of health². This appears at odds with the WHO's definition of health as not just the absence of disease but a complete state of physical, mental and social well-being².

Holistic healthcare interventions require more than focusing predominantly on the impairments. Healthcare providers must consider other factors, such as contextual factors and activity participation, especially when implementing rehabilitation services³.

The WHO has been promoting this agenda, as seen in their shift from the International Classification of Functioning, Disability, and Health (ICF) in 1980 to 2001². The paradigmatic shift entailed changing terminology and service focus from a "consequences of disease" classification to a "components of health" classification in 2001². These components of health represented a move toward including components that consider an individual's holistic health. The ICF is a multifaceted classification providing a theoretical base for implementing healthcare services, specifically rehabilitation services. There are two parts of the ICF, namely Functioning and Disability, which includes body functions and structures, activities, participation, and contextual factors, including environmental and personal factors². The framework highlights participation limitations within roles and activities, which are influenced by physical and social factors while emphasising the importance of activities and participation in health and quality of life. The initial shift towards the inclusion of activities and participation in the ICF resulted in a need for a subsequent shift towards focusing more on occupation-based practice (OBP) to facilitate improved quality of life and health. OBP includes activities (such as activities of daily living and work) and participation (how a client can participate in activities), which are often unaddressed during the implementation of rehabilitation services⁴.

Hall & Visagie⁵ noted that the ICF is not optimally utilised in clinical rehabilitation practice in South Africa. Additionally, efforts to view clients from a holistic perspective are primarily outside of the medical model⁶. These contentions are influenced contextually as South Africa has increased unemployment and poverty rates, negatively impacting access to healthcare services, especially in poor communities³. Personal resource restrictions create a need for more client-specific and context-specific healthcare.

The iLembe community comprises 89.2% isiZulu-speaking Africans, 3.4% White, 6.9% Asian, and 0.8% Coloured populations⁷. A quarter of the population lives in traditional and informal settlements; 50% of the roads are in good condition, and 50% in fair and poor conditions⁷. The South African public healthcare sector caters to 80% of the country's population; however, numerous barriers exist to accessing rehabilitation services⁸. These barriers include a lack of human resources, budget constraints, transportation limitations, a focus on the medical model, high turnover rates in acute hospitals, poor compliance, communication challenges and a breakdown in referral pathways^{9,10}. Anecdotally, therapists have highlighted the challenges above as the critical reasons for the decreased use of OBP in South Africa. There is limited research regarding therapists' experiences in implementing OBP¹¹. Thus, there is a need to explore rehabilitation personnel's experiences with implementing IBP and OBP, and the different factors affecting their practice choice within public healthcare in South Africa. Understanding their views and beliefs will assist in understanding the rationale for their practice choice when implementing rehabilitation services within the district. The need for holistic healthcare requires exploring the factors influencing rehabilitation personnel's

practice choice. Local conditions influence contextual factors linked to clients' access to rehabilitation services and personnel practice choices within the district. The study aimed to explore the factors influencing rehabilitation personnel's practice choices when implementing rehabilitation services in public healthcare. and personal and contextual barriers and facilitators promoting effective OBP implementation.

METHOD

Study design

An explorative qualitative research design was used to understand the rehabilitation personnel's perceptions regarding IBP and OBP, and the rationale behind their practice choice. This research approach supported exploring rehabilitation personnel's experiences, social context, and views¹² through semi-structured interviews, a focus group, and community mapping. These data collection methods allowed the researcher to capture and understand the participant's in-depth perceptions and feelings through careful and focused analysis.

Study population, sampling and recruitment strategy

Participants were recruited by the first author over two months by contacting the facility managers and acquiring the names of the individuals employed in the district's hospitals and primary healthcare institutions, as seen in Figure 1 (below). Purposive sampling was utilised to recruit individuals working in the district for maximum variation. The sample comprised five occupational therapists, nine physiotherapists, three speech therapists, and three of which were key informants including one assistant director, chief physiotherapist and occupational therapy deputy head of department. For the purposes of this study, 'rehabilitation personnel' refers to personnel who are involved in rehabilitation of clients in an acute hospital. This included occupational therapists, physiotherapists, speech and language therapists. The study population comprised of rehabilitation personnel working in the iLembe district's public healthcare sector with more than six months work experience in the South African public healthcare sector and registered with the Health Professions Council of South Africa (HPCSA). The individuals who met the inclusion criteria described above were invited to participate in the study telephonically.

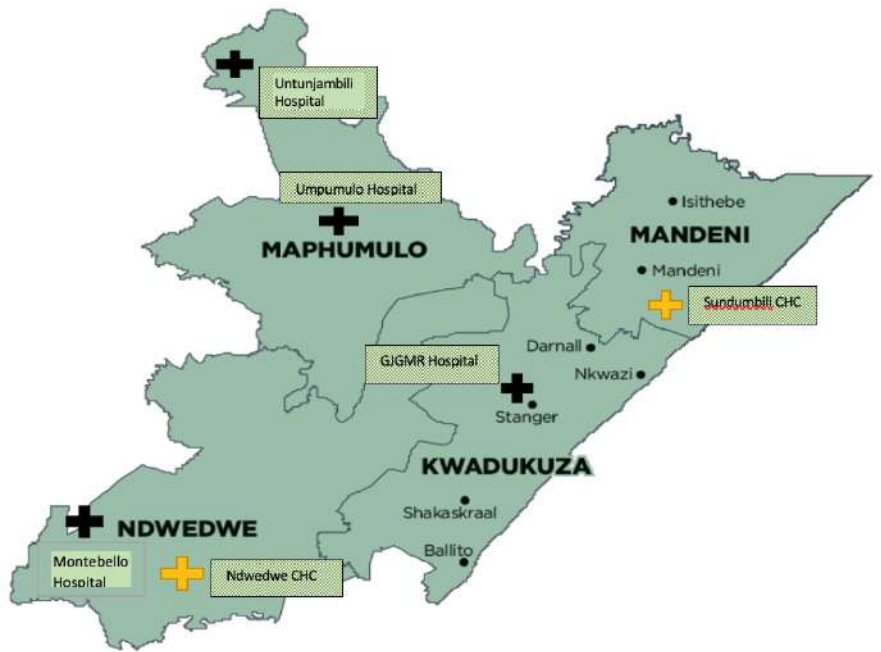


Figure 1: Map of the iLembe district with available full-time rehabilitation personnel.
Key: CHC- Community Healthcare Centre

Data collection

The data collection tools were semi-structured interviews, a focus group and community mapping. The one focus group was aimed at critical key informants. The thirteen semi-structured interviews targeted community service officers and grade one practitioners to explore the factors influencing their practice choice. The ICF's biopsychosocial perspective guided the compilation of the questions used for the semi-structured interviews and the focus group to understand the participants' perceptions of the different practice choices and which contextual factors influence them.

Semi-structured interviews

Semi-structured interviews allow participants to give in-depth opinions on their experiences and report a detailed explanation of their perceptions^{13,14}. The semi-structured interviews comprised of eight open-ended questions that explored the perspectives of the people responsible for implementing rehabilitation services. Further, exploring their perception on IBP and OBP, and OBP facilitators and barriers. The data from the face-to-face and zoom semi-structured interviews which ranged from 15 minutes to 1 hour, were recorded using an audio-recording device and manually transcribed. The interviews were conducted in English, a language both the participants and the researcher were comfortable with and could effectively communicate in. Different venues within KwaDukuza, Maphumulo, Ndwedwe, and Mandeni were utilised, depending on where the participant was employed.

Focus groups

Focus groups provide many different forms of interaction¹⁴, allowing the researcher to identify contradictions between participants. The focus group assisted in defining OBP in a neutral language and improved insight into positive and negative factors contributing to OBP and IBP implementation in the district. It was conducted for one and a half hours on the Zoom platform, with key informants: an Acting Head of Department, Assistant Director (AD), Chief and grade one practitioner. These key informants are involved in the development of policies, permanent staff employment, the training of community service officers (CSO) and make decisions concerning rehabilitation services at a district level.

The data were recorded using Zoom and manually transcribed. The focus group allowed participants to share their opinions, knowledge, and insights on the topic, and to receive feedback from other participants. The researcher conducted the focus group in English, which all the participants reported they were comfortable to converse in.

Community mapping

Community mapping was used to understand the contextual influences of OBP within the iLembe district, such as available healthcare facilities with and without rehabilitation personnel, and facilities, such as special schools and sheltered workshops. Data for community mapping was obtained through interacting with community members and healthcare practitioners in the district.

Pilot study

The pilot study was conducted to test the semi-structured interview's viability, and the necessary changes were made in the questions and questioning method before data collection. Two rehabilitation personnel from different settings within the public healthcare sector participated in the pilot. This assisted in amending the questions and prompts for the semi-structured interviews to improve clarity and elicit sufficient information depth. It also allowed the researcher to become familiar with implementing data collection method before the main study.

Data Analysis

Data were analysed using deductive thematic analysis guided by the ICF framework¹⁵, which allowed the researcher to analyse the participants' perceptions of IBP and OBP concerning the components of health, as seen in Figure 2 (below). Furthermore, Braun and Clark's six-step data analysis techniques¹⁶ guided the write up process of the study's key findings using sub-themes and themes. Initially, the researcher engaged in a process of familiarisation with the data, which was done through transcribing verbatim from the audio recordings and analysing the transcripts with guidance from the supervisors using thematic coding. After coding, similar concepts and findings were grouped to formulate sub-themes and themes. These sub-themes and themes were generated and reviewed, and then the final themes were defined and named ,and used to write up the data findings.

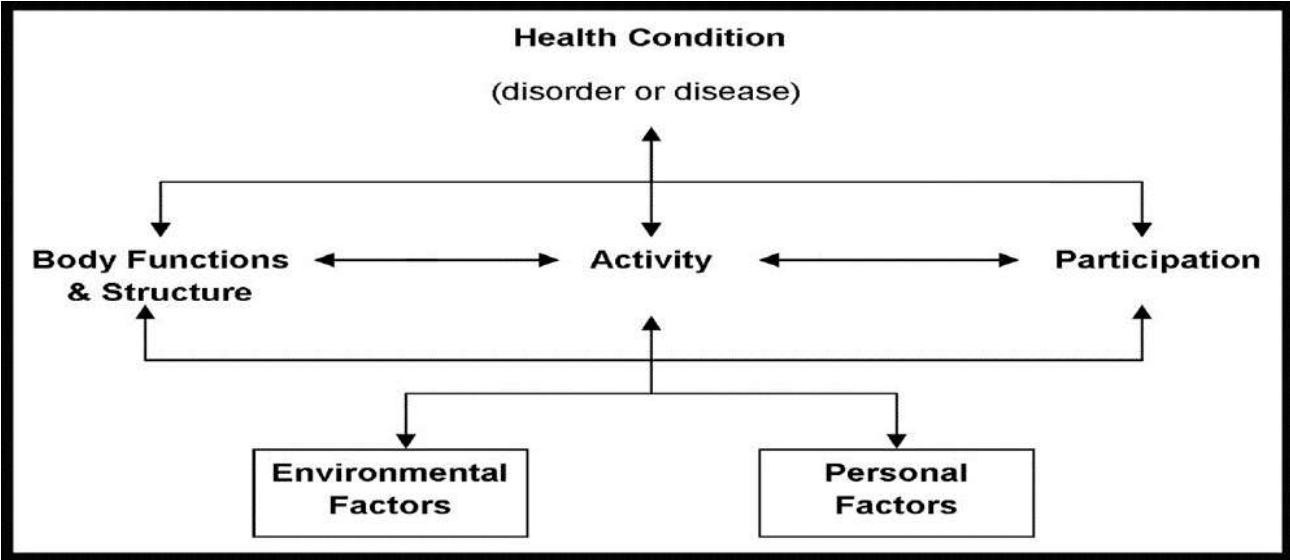


Figure 2: Interactions between the ICF²

Trustworthiness

The researcher used various strategies to ensure the trustworthiness of the study, as seen in Table I (below).

Table I: Trustworthiness of the study

Criterion	Strategy employed	Applicability
Credibility	Peer briefing	<ul style="list-style-type: none">The researcher's supervisors guided and reviewed the data collection and analysis processes.
	Member checks ¹⁷	<ul style="list-style-type: none">Semi-structured interviews and focus group consisted of open-ended questions supporting research questions, done face to face and Zoom.
	Triangulation	<ul style="list-style-type: none">Multiple data collection methods were used, (semi-structured interviews, community mapping and a focus group).Participants were given the same questions and an equal amount of time to answer questions.A pilot study was used to prepare for the data collection.
Transferability	Providing a thick description	<ul style="list-style-type: none">Direct quotes and thick descriptions of the participant's perceptions were used to write up the findings.
	Purposive sampling	<p>All the participants met the inclusion criteria.</p> <ul style="list-style-type: none">Could speak and understand English or isiZulu,Worked in the iLembe district public health care with more than six months experience,Registered with HPCSA.
Dependability	An audit trail	<ul style="list-style-type: none">Field notes, audio files and electronic data files were used to report findings truthfully and accurately.
Confirmability	Sceptical peer review	<ul style="list-style-type: none">Researcher's supervisors evaluated data collection and analysis.
	Reflexivity	<ul style="list-style-type: none">Self-examinationEnsuring that the researcher's subjectivity did not influence the findings.

Ethical considerations

The study followed the Protection of Personal Information Act 4 of 2013 guidelines restricting disclosure of personal and confidential information¹⁸. The purpose of the study, and voluntary participation and confidentiality were emphasised, meaning participants' information was confidential, and withdrawal from the study could occur at any point in the study. Informed consent was obtained from the participants before data collection. All the participants were assigned pseudonyms to ensure anonymity.

Ethical clearance was received from Humanities and Social Sciences Research Ethics committee and the KZN Department of Health (DOH). Gatekeeper permission was obtained from the iLembe District Office. After completing this research study, the findings were sent to the participants, the facility managers and DOH to influence rehabilitation service implementation and awareness.

FINDINGS

Demographics

Seventeen participants took part in this study in total. There were thirteen participants in the semi-structured interviews; three speech therapists, three occupational therapists and seven physiotherapists as seen in Table II (adjacent). The focus group comprised four participants, represented in Table III (adjacent). Tables II and III illustrate the participants' experiences and different factors influencing their practice choice and view of rehabilitation services within the district.

Table II: Demographic characteristics: semi-structured interview participants

		OT	PT	ST	Total
Age	20-29	3	5	3	11
	30-39	0	2	0	2
Race/ Ethnicity	Black/ African	0	1	1	2
	Indian	1	3	0	4
	White/ Caucasian	2	3	2	7
Gender/ Gender Identity	Female	3	6	3	12
	Male	0	1	0	1
Facility	Sundumbili CHC	1	1	0	2
	Ndwedwe CHC	0	2	1	3
	uMpumulo Hospital	0	2	0	2
	uNtunjambili Hospital	0	0	0	0
	General Justice Gizenga Mpanza Regional Hospital (GJGMRH)	2	2	2	6
University	University of Pretoria (UP)	1	3	1	5
	University of Kwa-Zulu Natal (UKZN)	1	3	0	4
	University of Western Cape	0	1	0	1
	University of Witwatersrand	0	0	2	2
	University of Free State	1	0	0	1
Qualification	Bachelors	3	6	3	12
	Masters	0	1	0	1
Years of experience	< 1	3	5	2	10
	1-6	0	2	1	3
Level of the post-occupied	CSO	3	5	2	10
	Permanent	0	2	1	3
Courses done on different approaches to rehabilitation	No courses done on different approaches to rehabilitation service implementation.				

Table III: Demographic characteristics: focus group participants

		OT	PT	Total
Age	20-29	0	0	0
	30-39	2	1	3
	40-49	0	0	0
	50-59	0	1	1
Race/ Ethnicity	Black/ African	0	1	1
	Indian	1	2	3
Gender/ Gender Identity	Female	0	0	3
	Male	1	0	1
Facility	GJGMRH	2	2	4
University &/or College	UKZN	2	2	2
	UP	1 (Post graduate diploma)	0	1
	Regent Business School	0	1 (MBA)	1
Qualification	Bachelors	1	1	2
	Masters	1	1	2
	Postgraduate diploma	1	0	1
Years of experience	1-6	1	0	1
	6-10	1	0	1
	10-20	0	1	1
	>20 years	0	1	1
Level of post occupied	Permanent Grade on	1	0	1
	Chief	0	1	1
	Acting head of department	1	0	1
	AD	0	1	1

Key:
PT-Physiotherapists
ST-Speech therapists
OT-Occupational therapists

Themes and sub-Themes

Three themes were formulated from the data sub-themes gleaned from the analysis of the data, as illustrated in Table IV (below). Theme 1 related to attitudes towards IBP while highlighting how public healthcare is geared towards treating body structures and functions and the different factors promoting IBP. Theme 2 explored reflections on OBP and factors influencing its implementation and Theme 3 discusses participants' positionalities in moving towards more OBP-oriented rehabilitation approaches.

Table IV: Themes and sub-themes

Theme	Sub-themes
Attitudes towards IBP	<ul style="list-style-type: none">• Diagnosis Focused• Contextual influences
Reflections on OBP	<ul style="list-style-type: none">• Prerequisites for implementation,• Barriers to implementation,• Facilitators of OBP,• Outcomes
Way forward	<ul style="list-style-type: none">• "We can't shy away from the impairment",• "You aren't just treating a condition."

Theme 1: Attitudes towards IBP

Participants highlighted an increased need to understand how the client's diagnosis impacts their client's body functions and structures, as seen in IBP. IBP was described as focusing solely on the impairment experienced by the client and the main reason for referrals from other healthcare practitioners. Participants outlined different factors influencing their practice choice and the implications of using IBP. Two sub-themes were identified: Diagnosis Focused and Contextual influences.

Diagnosis Focused

IBP was seen to only focus on body functions and structures, neglecting other components of the ICF, namely, activities and participation and environmental and personal factors. They reported that these limits understanding of other factors influencing the client's health, including restrictions in participation, activity limitations and contextual factors. Participants from different facilities and professions noted that IBP does not allow for a holistic view of the client's needs to offer optimal rehabilitation intervention.

"Sometimes you can be solely focused on one aspect... if somebody... had a physical injury you focus so much on the physical injury that you tend to overlook their psych aspects"

(Participant 9, occupational-therapist CSO, semi-structured interview)

Contextual influences

Most participants highlighted an increased need to understand how the client's impairment impacts their client's body functions and structures, as seen in IBP. Furthermore, IBP was described as focusing solely on the client's impairment and the reason for referrals from other healthcare practitioners.

*"What we find difficult when we go into the ward, we can't get straight in there and always start functional rehab because sometimes patients are very sick ... when we doing our undergrad, we always focusing on function ... and that's ... fine function and activity-based treatment.
But sometimes it doesn't always work in the first... maybe two sessions in a ... patient that's really ... unwell, and it's not there yet."*

(Participant 1, occupational-therapist, focus group)

"They just refer a patient for the impairment; they never refer a patient because the patient can't dress ... I think doctors are more trained for more impairment based"

(Participant 2, occupational-therapist CSO, semi-structured interview)

Participants reported a dominance of the medical model within healthcare facilities and amongst other healthcare practitioners who expect them to implement IBP rather than OBP. Further, noting a limited understanding of OBP among other healthcare professionals, high turnover rates, and limited staff are some of the reasons for focusing on body functions and structures as it is perceived as the faster practice choice.

"This facility is quite acute, so patients come and go... quickly, so you tend to prioritise your rehab towards the patient, especially if they're inpatient or outpatient, and then you tend to focus a lot more on... what the impairment is what the condition is? How can you treat it"

(Participant 9, occupational-therapist CSO, semi-structured interview)

"You sort out... the major issues... the cause of a problem and... it gets the patient through the system faster so it's less taxing on resources ... resources are usually... limited, understaffed there's loads of patients"

(Participant 3, physiotherapist CSO, semi-structured interview)

Some participants in the semi-structured interviews reported they felt their roles as physiotherapists were more IBP-oriented to improve body functions and structures, while OBP was the domain of occupational therapists to improve participation using activities. This perception was held by half of the permanent physiotherapy staff who engaged in the study, the CSOs were observed to have a deeper understanding of the ICF framework and holistic interventions.

"I think with physio we want to get you to your highest-level functioning as early as possible... we deal with the impairment itself"

(Participant 7, physiotherapist, semi-structured interview)

"The ICF method it targets everything the patient's impairment. What they can do? What they cannot do? Activities they used to do? And how it impacts their activities?... their environment and personal factors"

(Participant 4, speech-therapist CSO, semi-structured interview)

Theme 2: Reflections on OBP

Many participants displayed uncertainty when defining OBP and required verbal prompting to report their perceptions of the practice. When they could articulate their understanding of the practice, they regarded OBP as a more holistic approach considering all the "components of health". Some participants who utilised OBP needed to be made aware of the practice name. They highlighted that OBP was client-specific and yielded more activity participation and performance outcomes when utilised correctly. Participants also highlighted factors influencing OBP implementation in the district, resulting in the following sub-themes; Prerequisites for implementation, Barriers to implementation, Facilitators of OBP, and Outcomes.

Prerequisites for implementation

OBP required an initial assessment that allowed participants to gain insight into the client’s personal and environmental activity limitations and facilitators. The insight into the client’s life allowed participants to work towards improving health and quality of life. Participants noted that OBP must be implemented correctly to yield results and improve participation, which requires intense planning, intentionality, time, and knowledge.

“If you do a good subjective and you ask them what job you do
... what are your hobbies
... you will always think of ways to incorporate your exercises”

(Participant 11,
physiotherapist CSO, semi-structured interview)

“We have the whole knowledge of occupational science and
everything that contributes...
to how I do occupation-based treatment. My skills are not
always the best”

(Participant 2, occupational-therapist CSO, semi-structured interview).

Barriers to implementation

Participants identified barriers to OBP implementation in the district's public healthcare, namely; contextual barriers, such as, community-specific and facility-specific; and personal factors, such as, client-specific factors.

The district was observed to be predominantly made up of hills, valleys and gravel roads outside the central towns. Participants noted that most clients are unemployed and poverty-stricken, leading to an inability to afford transportation fees, resulting in non-compliance with rehabilitation services.

The district has six public healthcare facilities (five hospitals and two CHCs) with rehabilitation services, with the rehabilitation personnel being primarily CSOs. There are 34 clinics in the district, but not all have outreach programmes, limiting access to rehabilitation services.

Participants noted a communication barrier as the community members in the district were predominantly isiZulu speaking. Therefore, being unable to speak and understand isiZulu was a limitation towards implementing OBP. Thus, it is difficult to understand the clients leading to difficulties in obtaining subjective information on their activity, participation and contextual needs.

“Language barrier... your different languages trying to explain
how to do a certain thing in a certain way but at the same time,
cultures, people have different ways of doing different
occupations”

(Participant 10, occupational-therapist CSO, semi-structured interview)

Some participants in the focus group reported a lack of facilities outside DOH to carry over OBP, including sheltered workshops and schools catering to individuals with different disabilities. No schools catered to children with only physical disabilities, hearing, visual, and multiple impairments. Moreover, there were no remedial and prevocational schools in the district. The lack of these facilities was believed to be a societal constraint negatively impacting quality of life and carryover of OBP into the community.

“Children with disabilities that ... have physical disabilities, but
have good cognitive function,
are not being included in mainstream schools, because those
schools do not cater for
children with disabilities”

(Participant 1, occupational-therapist, focus group)

There are three schools for severely mentally disabled children and one school for the neutrally impaired in the iLembe district.

Participants identified human resources as a contextual limitation towards implementing OBP as it requires intense planning and intentionality. It was difficult due to the human resource constraints, specifically permanent staff, as noted in Tables V and VI (below). Most participants working in the district were CSOs. They reported having limited experience and skills, which restricted client-specific OBP, which requires intentionality and planning.

Table V: Number of rehabilitation personnel in each facility (year 2022: August- December)

		Facility 1	Facility 2	Facility 3	Facility 4	Facility 5
Speech therapists	NOPS	0	0	0	0	1
	NOC SO	0	0	1	1	1
Occupational therapists	NOPS	0	0	0	0	2
	NOC SO	0	0	1	1	2
Physiotherapists	NOPS	1	1	0	1	10
	NOC SO	0	1	2	1	3

Table VI: Number of rehabilitation personnel in each facility (year 2023: January- May)

		Facility 1	Facility 2	Facility 3	Facility 4	Facility 5
Speech therapists	NOPS	0	0	0	0	1
	NOC SO	1	0	1	1	0
Occupational therapists	NOPS	1	0	0	0	2
	NOC SO	0	1	1	0	2
Physiotherapists	NOPS	1	1	0	1	9
	NOC SO	1	1	1	1	1

KEY: NOPS: Number of permanent staff. NOC SO: Number of community service officers

Participants noted that limited human resources as seen in Table V and VI, and high facility turnover rates in acute settings led to shorter rehabilitation sessions.

"We don't have permanent staff ... if you just have comserves as well that's working, it's hard to do an MDT... most of the comserve's as well they ... learning still"

(Participant 6, physiotherapist, semi-structured interview)

"I definitely think that the knowledge needs to be improved so that they have a good understanding of what's occupation-based, a good understanding about impairment based and when it's best to use which on... In acute hospital, you have such a short time, so you end up having to treat... the impairment... might not have the time frame to do all the occupations ... it's easier to just treat the impairment"

(Participant 10, occupational-therapist CSO, Semi-structured interview)

Participants perceived OBP to require more time for planning and implementation, which was difficult to conduct in a fast-paced environment that required more straightforward approaches to counteract the time constraints.

"It's difficult to give... intense occupation-based therapy which takes planning which takes a lot of intentionality to put the patient's needs first if you're seeing a lot of patients by yourself"

(Participant 5, speech therapist CSO, semi-structured interview)

"...For doctors to... understand... rehab and the role of rehab and not just... being so focused on discharge"

(Participant 1, speech-therapist, semi-structured interview)

Numerous environmental barriers within the facilities were reported, including limited space, equipment, and infrastructure, as activity participation could not be simulated within the facilities to improve performance.

"Physical resources... we don't have space to store the equipment ... it's a barrier as well and general understanding of what therapy is what therapy does for you"

(Participant 6, physiotherapist, semi-structured interview)

Participants identified client-specific barriers to OBP implementation, including poor support systems, unemployment, and poverty, limiting compliance and carryover of OBP at home.

"People don't have a family structure... the family abandons them or they just around people who don't really know them, so it's hard to... bring their occupation into therapy"

(Participant 1, speech therapist, semi-structured interview)

"Financially, a lot of patients cannot get to the hospital ... transport fees are... expensive"

(Participant 3, physiotherapist CSO, semi-structured interview)

Facilitators of OBP

Numerous environmental facilitators for OBP were identified. Participants reported needing a complete rehabilitation team, an excellent subjective assessment, MDT combined sessions,

and working with the client and family to set therapy goals. One participant mentioned that standard operating procedures (SOPs) are required to improve access to rehabilitation services through the correct referral pathways and set a standard level for the rehabilitation services to be implemented.

"If somebody transfers out, gets another post or resigns and tires... the post gets frozen ... your patient load is increasing, and your staffing load is decreasing"

(Participant 2, physiotherapist, focus group)."

"When you see a patient, you have to assess... set some goals where you want to go with this patient. So your goals should come from what... the client wants to achieve... So I'll be working out every... session... with the patient will be directed in terms of... making this patient being able to integrate into the work environment."

(Participant 3, occupational-therapist, focus group)

"Having joint sessions where the OT, physio and... speech therapist worked together on one patient with the family member to get the optimal goals or outcomes"

(Participant 5, speech-therapist CSO, semi-structured interview)

"The SOP's and... DOH policies... it's not specifically for a certain condition, but it is how the patient can access the service... the pathway the patient needs to follow up to access the service, and in terms of referral pathways"

(Participant 2, physiotherapist, focus group)

Special schools and sheltered employment opportunities were noted as key factors required to facilitate OBP carryover in the community. Persons with disabilities were noted to have decreased opportunities to engage in activity performance and participation within the community, which are vital to improving quality of life and health outcomes.

"A program whereby these the skills that I acquire from the centre they can get some kind of... employment, or it can be... where they can start doing their own things maybe that will also give those disabled patients... some kind of purpose and have a meaningful life"

(Participant 3, occupational-therapist, focus group).

Outcomes

OBP was viewed as a holistic approach, facilitating activity participation and improved independence. OBP allowed participants to understand the different components of the client's health, such as functioning and disability, contextual factors, the limitations towards activity performance and participation to work with the client towards returning to the highest level of independence possible. Additionally, allowing for carryover at home as clients could incorporate techniques learnt in therapy.

"Occupation-based is a more holistic approach, according to me, on how we can look at how getting the people back into society ... looking at what they can do... what must they do every day in their life to be able to be as independent as possible"

(Participant 2, occupational-therapist CSO, semi-structured interview)

"Patients... do recover mostly to a high level of functioning, returning to a high level of functioning... to a life that they used to live before so patients are more satisfied and then also... the quality of life... Today I had a patient that has low back pain; so she also said she doesn't have time to do all these extensive exercises because she is a mom of four kids, so she's... busy doing house chores all the time, so I taught her how to do her core exercises while doing dishes for instance"

(Participant 3, physiotherapist CSO, semi-structured interview)

"It's more functional based than just looking at just one joint or one impairment... it's looking at the person as a whole"

(Participant 11, physiotherapist CSO, semi-structured interview)

Theme 3: Way forward

Most participants had decreased insight into the Social Model of Disability (SMoD). Once the definition of SMoD was given to them, they identified the model to have similar principles with OBP, namely, the focus on participation in activities and not just the limiting impairment. Participants reported that OBP allowed for compensation for lost function and contextual adjustments if body functions and structures could not be improved. One participant highlighted that therapy should not be viewed as linear or binary. However, we should consider the different factors influencing the client, such as changes in body structures and functions, capacity to participate in activities, environmental facilitators and barriers, and personal factors. Participants reported that IBP and OBP could be used together depending on the client's needs. Most participants highlighted the need to transition towards OBP to address all the components of health as it is neglected in biomedical healthcare settings. These perceptions resulted in two sub-themes, "We can't shy away from the impairment" and "You are not just treating a condition".

"We can't shy away from the impairment."

Participants acknowledged that the client's body structure and function form part of the components of health. They reported a need to remediate the body structure and functions in acute stages of rehabilitation, if possible, through using different approaches and activities to improve participation in meaningful activities in different environments.

"...You can use both interchangeably because... we can't shy away from the impairment."

We still need to try to find ways to improve the impairment as well as trying to find ways to help the patient to do whatever they used to do."

(Participant 4, speech-therapist CSO, semi-structured interview).

"You aren't just treating a condition."

Even though the client cannot be isolated from their impairment, participants highlighted that the impairment cannot be treated without addressing the client as an active member of society. Due to the medical model dominance in the public healthcare settings in the district, participants

reported a need to move towards more OBP. OBP allows participants to understand the client and the different factors influencing their health, such as their body structures and functions, environment, activities and participation.

"Occupational based would... be the better one because... if people are really wanting to do a specific task then if that if you start early... they are able to achieve that quicker"

(Participant 11, physiotherapist CSO, semi-structured interview)

"Occupation based... it's more functional... and allowing the patient to use those strategies in real life... it's more holistic"

(Participant 1, speech-therapist, semi-structured interview)

"I... think that focusing on occupation rather than impairment, focusing on getting these people out there, getting them to see that my disability doesn't stop me from doing these things"

(Participant 2, occupational-therapist CSO, semi-structured interview)

DISCUSSION

The study identified IBP as a non-holistic approach focusing on addressing body functions and structures, which concurs with the finding by Tomori et al⁹. This focus on impairment was found to sometimes neglect the other components of health, such as activity participation, and environmental and personal factors, which are critical when providing rehabilitation services. Even though IBP was viewed to focus on one component of health, it was still widely utilised in the district's public healthcare sector due to different factors such as stage of illness and rehabilitation, limited human resources, limited insight on OBP and physical resources geared towards body functions and structures in the healthcare facilities.

Despite the increased use of IBP approach, participants perceived OBP as a more holistic approach. It is perceived to consider all the components of health, including activity performance, participation, contextual factors, and how their presenting impairment, disability, and body functions interrelate to impact client health needs. The participants in this study suggested that OBP is multifaceted and aimed at improving health and well-being through activity participation, and easily generalised to client's lives¹⁹. OBP implementation was perceived to have improved quality of life by compensating for lost function by addressing contextual factors. Furthermore, it was viewed as allowing participants to view clients as occupational beings, not just their impairment¹⁰.

Although OBP was viewed as a holistic approach, there are numerous barriers impeding its implementation within the district. Contextual factors, namely, socio-demographic variables such as language, high unemployment, transport limitations, and crime rates which contradict findings by Aas & Bonsaksen's²⁰, who found that these factors did not impact OBP access and implementation. Additionally, language barriers were found to cause difficulty in rehabilitation personnel's understanding of their clients' activities, participation, and contextual needs. Language barriers resulted in a decreased understanding of their client's contextual and personal factors, and rehabilitation goals. The

previously mentioned barrier further limits the client's insight into rehabilitation services and OBP, along with other contextual factors such as poverty and transportation limitations leading to non-compliance, which reinforces findings by Narain & Mathye²¹.

Narain & Mathye²¹ further assert limited awareness of rehabilitation services in rural South African communities. The iLembe community is predominantly a Black community, and this was linked to the decreased awareness of rehabilitation services within the district, which was perceived to be a barrier to OBP implementation, as these services are perceived to be for wealthy White communities²¹. Limited awareness of OBP negatively impacts clients' personal factors, such as motivation to engage in activity-based approaches such as OBP, further impacting their function and participation within their context.

Contextual factors within the district, such as the decreased number of special schools and sheltered workshops, were perceived to decrease compliance and carryover of OBP into the community. Furthermore, emphasising a need for more of these facilities to carry over OBP within the community outside of DOH, which was not seen in other literature relating to OBP.

Contextual factors within the healthcare facilities, such as limited facilities offering rehabilitation services, limited rehabilitation personnel employed in the district's public healthcare sector and limited physical resources also served as barriers. The previously mentioned barriers led to limited time to explore activity performance and identify barriers to activity participation within the client's context. Additionally, this study highlighted the need for rehabilitation personnel to advocate and bring awareness to community stakeholders to conduct environmental changes in the district's healthcare facilities to promote activity performance and participation, which reinforces the findings by Scaffa & Reitz²².

Kwa-Zulu Natal DOH financial constraints influenced the lack of availability of physical resources for OBP implementation²³. These facility-specific barriers concur with a study by Hall & Visagie⁵, which identified the dominance of the medical model, decreased human resources, high turnover rates, and limited time as factors that led to IBP being the primary practice choice. The previously mentioned barriers concur with multiple studies²⁴⁻²⁷, highlighting the limited availability of resources, participants' lack of experience and skills, and medical model dominance hinder OBP implementation. OBP was considered difficult to implement in a medical-model-based facility as pragmatic and contextual factors exerted opposing influences^{22,27}. Due to a lack of experience and skills in implementing OBP, some recent graduates choose IBP over OBP²⁷. CSOs found OBP inherently complex, requiring skills, time and complicated techniques to implement. They felt they needed more time to plan and experience implementing OBP^{24,25,27}, leading to them implementing more IBP. Even though they viewed OBP to be holistic and client-specific, some permanent physiotherapists considered OBP to be an approach for occupational therapists and IBP as more aligned with physiotherapy, which is in keeping with findings from Narain & Mathye²¹ and Inglis et

al.²⁸. The perception that OBP is the core of the occupational therapy profession is one reason why OBP is not used by other rehabilitation personnel²¹. CSOs considered OBP as a practice all rehabilitation personnel should utilise as it encompasses all the components of health, including physiotherapists CSOs. Similarly, Narain & Mathye²¹ stated that physiotherapy must focus more on participation to meet the client's needs.

Contrary to findings by Wolf et al.²⁹ and O'Donoghue et al.²⁵, this study found that decreased family involvement was a barrier towards implementing OBP in terms of facilitating carryover and home-based OBP. Wolf et al.²⁹ found that family involvement was perceived not to impact OBP implementation. In contrast, O'Donoghue et al.²⁵ found that family members increased involvement resulted in the family feeling obligated to help the clients in their activity participation, becoming over-involved and taking over the client's responsibilities and decision-making. Unemployment and poverty were found to limit access to healthcare services and continuous OBP, as seen by Chichaya et al.³⁰ as accessing healthcare services is expensive for people with disabilities. Further, limiting continuous and practical OBP which is critical to producing activity and participation outcomes.

This study identified key factors to promote OBP implementation within the district. The need to improve the client-therapist ratio by employing permanent staff from each discipline to form a complete rehabilitation team in each healthcare facility was identified. More permanent staff would improve human resources to deliver rehabilitation services and access to supervision and mentorship for community service officers³¹, thus improving OBP implementation. More staffing will promote inter-professional practice and collaboration with clients and their families to set therapy goals. Standard operating procedures (SOPs) focusing on improving access to rehabilitation services and awareness of the available rehabilitation services are required to implement OBP and access rehabilitation services.

CSOs spoke highly of OBP, indicating they valued the approach, which concurs with the literature^{20,22}. However, their decreased skills, experience and knowledge resulted in decreased confidence to implement OBP, which is essential in OBP implementation. Furthermore, it highlights the need for undergraduate health science programmes in South Africa to better prepare newly graduated rehabilitation personnel's theoretical knowledge and skills in considering all the components of health and implementing the OBP approaches¹¹. Facilities such as special schools and sheltered employment or employment opportunities are needed in the district to carry over OBP to improve activity participation and quality of life.

When transitioning towards more OBP approaches, it is vital to acknowledge that the clients' impairment is a part of their health. Following the findings by Oliver³², the study highlighted the importance of recognising the relationship between the client's impairment and other components of health. Neglecting body functions and structures, as seen in SMod, creates a gap in understanding the holistic client and health³², thus, the importance of choosing a practice choice according to the client's needs. Different approaches can be

utilised depending on the client's needs. Additionally, rehabilitation service implementation needs to be tackled collaboratively, with the understanding that the components of health are influenced by a dynamic system^{22,32,33}. Activity participation is often unaddressed⁴; therefore, the study found that rehabilitation personnel must adopt more OBP approaches when implementing rehabilitation services.

Recommendations

It is suggested that DOH involves people with disabilities when formulating policies and addressing public healthcare concerns regarding disability. Rehabilitation personnel, other healthcare practitioners and policymakers are advised to be more aware of the components of health when formulating policies and implementing OBP. Additionally, to counteract human and physical resource barriers, DOH is advised to improve the budget towards rehabilitation services to promote the implementation of holistic, client-specific interventions. Non-holistic approaches may lead to further complications and unnecessary use of state resources (Revolving-door syndrome). Moreover, it is suggested that DOH funds training for rehabilitation personnel, and encourage rehabilitation personnel's continuous professional development to improve their knowledge of OBP implementation to conduct holistic, subjective, environmental assessments of client-specific healthcare needs.

Future studies exploring OBP in physiotherapy and speech therapy and other healthcare practitioners are required to improve insight into the effect of OBP within these disciplines. Rehabilitation personnel are advised to improve awareness of rehabilitation services, their role in holistic healthcare and the importance of OBP through health promotion programmes. Furthermore, rehabilitation personnel and community stakeholders must problem-solve ways to counteract barriers to access to rehabilitation services, e.g. outreach services.

Community stakeholders are advised to establish sheltered workshops and more schools catering to the needs of persons with disabilities to improve clients' community engagement, activity participation and quality of life.

The undergraduate curriculum should focus more on inter-professional practice and education, and encourage learning the skills required to implement OBP in public healthcare.

Limitations

The study explores the perspectives of rehabilitation personnel within public healthcare in semi-rural and rural communities in one district; therefore, contextual factors cannot be generalised to other populations. Furthermore, most participants were community service officers who still needed to establish their professional identity. The dominant medical model influenced their practice choices in their workplace. The study is focused on the perspective of rehabilitation personnel; this includes physiotherapists and speech and occupational therapists. The study did not consider the perceptions of other healthcare practitioners vital in providing holistic healthcare services.

CONCLUSION

OBP was found to improve the components of health, level of independence and carryover into the community. Even though OBP was perceived to have more health outcomes, IBP dominates the district's public healthcare facilities. IBP's dominance is accredited to factors such as the dominance of the medical model, acute phases of illness, high hospital turnovers, limited staff, skills, experience and insight into OBP and the belief that OBP is restricted for occupational therapists. The limited resources within the district's public healthcare system require rehabilitation personnel to problem-solve sustainable and innovative ways to improve OBP implementation. This requires the district stakeholders to work together and use the available resources to improve OBP and holistic healthcare implementation, considering all the components of health. The study emphasised the need for continuous learning and skills development to equip CSOs with the necessary skills to make them confident to implement OBP. Insight building amongst healthcare practitioners about OBP is required to decrease the misinformed perceptions associated with OBP.

Acknowledgements

The University of KwaZulu-Natal, the Department of Health, and the participants are acknowledged for participating in this study.

Author contributions

Phana Gumede conceptualised the study, collected the data and did the preliminary data analysis and the writing of the manuscript. Chantal Christopher and Deshini Naidoo assisted with the conceptualisation of the study and refined the data analysis and were critical reviewers of the manuscript and contributed toward the final version thereof.

Conflicts of Interest

None to declare.

REFERENCES

1. Alotaibi NM, Reed K, Nadar MS. Assessments used in occupational therapy practice: an exploratory study. 2009;23(4):302–18.
2. World Health Organization. International Classification of Functioning, Disability, and Health: Children & Youth Version: ICF-CY. World Health Organization 2007.
3. Heymani S, Pillay D, de Andrade V, et al. A transformative approach to disability awareness, driven by persons with disability. South African Health Review 2020;2020(1):1–9.
4. Abdel Malek S, Rosenbaum P, Gorter JW. Perspectives on Cerebral Palsy in Africa: Exploring the Literature through the Lens of the International Classification of Functioning, Disability and Health. Child Care Health Dev 2020;46(2):175–186;https://doi.org/10.1111/cch.12733.
5. Hall R, Visagie S. A qualitative exploration of the uses of the International Classification of Functioning, Disability and Health at an inpatient neurorehabilitation facility in the Western Cape, South Africa. Disability and Rehabilitation 2022;44(4):582–9.

6. Kielhofner G. *Conceptual Foundations of Occupational Therapy Practice*. FA Davis; 2009.
7. ILembe District Municipality KZN. *Profile and Analysis: District Development Model*. 2023.
8. Magaqa Q, Ariana P, Polack S. Examining the availability and accessibility of rehabilitation services in a rural district of south africa: A mixed-methods study. *Int J Environ Res Public Health* 2021;18(9); <https://doi.org/10.3390/ijerph18094692>.
9. Tomori K, Nagayama H, Ohno K, et al. Comparison of occupation-based and impairment-based occupational therapy for subacute stroke: A randomized controlled feasibility study. *Clinical Rehabilitation*, 2015;29(8):752–762; <https://doi.org/10.1177/0269215514555876>.
10. Brown HV, Hollis V. *The Meaning of Occupation, Occupational Need, and Occupational Therapy in a Military Context*. 2013.
11. Hess-April L, Ganas N, Phiri L, Phoshoko P, Dennis L. Occupation-based practice in a tertiary hospital setting: occupational therapists' perceptions and experiences. *South African Journal of Occupational Therapy* 2017;47(3); <https://doi.org/10.17159/2310-3833/2017/v47n3a5>.
12. Hunter DJ, Mccallum J, Howes D. *Defining Exploratory-Descriptive Qualitative (EDQ) Research and Considering Its Application to Healthcare*. 2019.
13. Creswell John W, Creswell JD. *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications 2017.
14. Smithson J. Using & Analysing Focus Groups. *Int J Soc Res Methodol* 2000;3(2):103–19.
15. Dawadi S. *Thematic Analysis Approach: A Step by Step Guide for ELT Research Practitioners*. 2020.
16. Peel KL. beginner's guide to applied educational research using thematic analysis. *Practical Assessment, Research and Evaluation* 2020;25(1):1–16; <https://doi.org/10.7275/ryr5-k983>.
17. Birth L, Scott S, Cavers D, et al. Member Checking. *Qualitative Health Research*. *Qual Health Res* 2016;26(13):1802–1811.
18. de Stadler E, Esselaar P. *A Guide to the Protection of Personal Information Act*. Juta: Cape Town; 2015.
19. Estes J, Pierce DE. Pediatric therapists' perspectives on occupation-based practice. *Scandinavian journal of occupational therapy*. *Scand J Occup Ther* 2012;19(1):17–25.
20. Aas MH, Bonsaksen T. Exploring occupation-based practice among occupational therapists in hospitals and rehabilitation institutions. *Scand J Occup Ther* 2022; <https://doi.org/10.1080/11038128.2022.2059564>.
21. Narain S, Mathye D. Strategies to integrate physiotherapists into primary health care in South Africa. *The South African Journal of Physiotherapy* 2023;79(1).
22. Scaffa ME, Reitz SM. *Occupational Therapy in Community-Based Practice Settings (8th Ed.)*. F.A. Davis Company; 2014.
23. The Department of Health. *The Department of Health. Budget Vote 7.2023*.
24. Copley JA, Rodger SA, Graham FP, et al. Facilitating student occupational therapists' mastery of occupation-centred approaches for working with children. *Canadian Journal of Occupational Therapy* 2011;78(1):37–44.
25. O'Donoghue C, O'Leary J, Lynch H. Occupational Therapy Services in School-Based Practice: A Pediatric Occupational Therapy Perspective from Ireland. *Occup Ther Int* 2021;2021; <https://doi.org/10.1155/2021/6636478>.
26. Daud AZC, Judd J, Yau M, et al. Barriers of Occupation-based Intervention. *Asian Journal of Quality of Life* 2016;1(4):1–10; <https://doi.org/10.21834/ajqol.v1i4.12>.
27. Di Tommaso A, Wicks A, Scarvell J, et al. Experiences of occupation-based practice: An Australian phenomenological study of recently graduated occupational therapists. *British Journal of Occupational Therapy*. *British Journal of Occupational Therapy* 2019;82(7):412–21.
28. Inglis G, Faure M, Frieg A. *The Awareness and Use of Outcome Measures by South African Physiotherapists*. 2008.
29. Wolf TJ, Chuh A, Floyd T, et al. Effectiveness of occupation-based interventions to improve areas of occupation and social participation after stroke: An evidence-based review. *The American Journal of Occupational Therapy* 2015;69(1):6901180060p1-6901180060p11.
30. Chichaya TF, Joubert R, McColl MA. Applying the occupational justice framework in disability policy analysis in Namibia. *South African Journal of Occupational Therapy* 2019;49(1); <https://doi.org/10.17159/2310-3833/2019/vol49n1a4>.
31. Struwig N, van Stormbroek K. Support, supervision, and job satisfaction: Promising directions for preventing burnout in South African community service occupational therapists. *South African Journal of Occupational Therapy* 2023;53(1):67–80.
32. Oliver M. The social model of disability: Thirty years on. *Disability & society*, 2013;28(7):1024–1026; <https://doi.org/10.1080/09687599.2013.818773>.
33. Pillay M, Kathard H. *Decolonizing Health Professionals' Education: Audiology & Speech Therapy in South Africa*. 2016.
34. Queirós A, Faria D, Almeida F. STRENGTHS AND LIMITATIONS OF QUALITATIVE AND QUANTITATIVE RESEARCH METHODS. *European journal of education studies* 2017; <https://doi.org/10.5281/zenodo.887089>.

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Autism, intervention, occupational therapy, rapid review, policy support

HOW TO CITE THIS ARTICLEVan der Walt J, Engelbrecht M, Van Biljon H, Soeker, SM. *Occupational Therapy interventions for Autism Spectrum Disorder. a Rapid Review*. South African Journal of Occupational Therapy. Vol 24 No 1. April 2024. DOI: <https://doi.org/10.17159/2310-3833/vol54no1a9>**DATA AVAILABILITY**

Upon reasonable request, from corresponding author

ARTICLE HISTORY**Submitted:** 26 August 2023**Reviewed:** 6 February 2024**Revised:** 13 February 2024**Accepted:** 14 February 2024**EDITOR**

Blanche Pretorius

<https://orcid.org/0000-0002-3543-0743>**FUNDING**

The Occupational Therapy Association of South Africa (OTASA) requested the authors to do this rapid review and they were remunerated by the association.

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ISSN On-line 2310-3833

Occupational therapy interventions for Autism Spectrum Disorders - a Rapid Review

ABSTRACT

Introduction: This rapid review aimed to synthesise evidence for occupational therapy intervention in the management of autism spectrum disorders. The review forms part of a series of rapid reviews commissioned by the Occupational Therapy Association of South Africa to help inform decision making as South Africa prepares for a new health system.**Method:** Level I and II research studies published from 2017 - 2022 were considered for inclusion. Electronic database searches were conducted on the Cochrane database. The identified records were screened in Rayyan according to inclusion and exclusion criteria. Quality assessment of the selected articles was done with the CASP appraisal tool. Data were extracted to a custom Microsoft Excel® worksheet and analysed quantitatively by percentage/frequency and qualitatively by thematic analysis of statements.**Results:** Thirty-eight records were selected. These included 30 systematic reviews and eight randomised controlled trials. Twelve intervention domains across four age groups were identified with sensory integration and social skills interventions most frequently examined. Interventions were delivered across various venues, including mediation and technology (e.g., telehealth interventions). A number of different outcome measures were used.**Conclusion:** There is evidence to support the effectiveness of occupational therapy interventions for autism spectrum disorder across the lifespan for twelve different domains.**Implications for practice**

- Occupational Therapists are involved in the provision of therapy intervention across all age groups for people with ASD.
- Intervention can successfully take place in a clinic setting, but also at home or through means of technology.
- There is growing evidence for sensory integration therapy or techniques when considering functional outcomes when treating people with ASD.
- There is a lack of Level I and II research in the form of randomised control trials and systematic reviews regarding ASD intervention in sub-Saharan Africa.

INTRODUCTIONThis rapid review was performed as part of a series of reviews by an appointed task team, initiated by the Occupational Therapy Association of South Africa (OTASA). The aim of the rapid review project is to provide evidence for the role of occupational therapy intervention for specific conditions in preparation of moving towards a National Health Insurance (NHI) system in South Africa¹. This review was guided by the autism standard operating protocol for occupational therapy as compiled by the OTASA standard protocol group².

The focus of this review is on autism spectrum disorders. Autism spectrum disorder (ASD) is a complex neurological disorder,

characterised by impairments of reciprocal social interaction, verbal and non-verbal communication, as well as preference for repetitive stereotyped activities, behaviours and interests. To diagnose ASD, symptoms must be present before the age of three years, but last throughout the lifespan. Autism spectrum disorder is described as level 1, 2 or 3 by severity of social communication impairments and repetitive restrictive patterns of behaviour and the level of severity depends on the level of support required^{3,4}.

The World Health Organization (WHO) reports a global prevalence of autism at 1%⁵, while systematic reviews of global prevalence figures reflect a prevalence of between 0.6%⁶ and 0.65 %⁷. An updated systematic review⁸ indicates an increased global prevalence of 0.03% from 2012 onwards, possibly due to increased awareness about the condition and earlier identification. Systematic and scoping reviews found no records of prevalence studies conducted in sub-Saharan Africa, including South Africa^{9,10}. Considering the absence of prevalence data in South Africa, Pillay et al. performed a search of all the children with a primary or secondary diagnosis of ASD in schools in the Western Cape of South Africa, resulting in a broad rate of 0.08%¹¹. The lack of more extensive and comprehensive data complicates service delivery and intervention for ASD in South Africa¹⁰.

Occupational therapists enable individuals and communities to participate in daily life activities through engagement in occupations relevant to them, or by modifying the occupation or environment¹². De Schipper et al., in their systematic review of the literature, identified numerous categories on the International Classification of Functioning, Disability and Health (youth version) core sets for ASD when considering ability and disability in ASD¹³, affirming the importance of occupational therapists within a larger intervention team¹⁴. The need for occupational therapy services for adults with ASD are less frequently reported on, although services include involvement in the areas of sensory integration¹⁵, vocational rehabilitation services¹⁶, driving training¹⁷ and social skills¹⁸.

This study examines global evidence-based occupational therapy intervention for ASD across the lifespan to inform policy makers as we move towards a new NHI system in South Africa. Rapid reviews are used to inform health decision makers both timeously and cost effectively, while still maintaining methodological rigor^{19,20}. Rapid reviews proved very valuable during the Covid-19 pandemic to inform the government, clinicians and patients about strategic evidence to make crucial decisions. These reviews take an average of five to twelve weeks to complete, however during an emergency, such as the Covid-19 pandemic, the timeframe was much shorter i.e. seven to ten days to complete a review^{19,20}.

METHODOLOGY

Scope and question

The OTASA rapid review task team consisted of four occupational therapists with clinical and academic experience in the various fields of practice. The first author was the principal researcher for this review and was assisted by the other authors during all phases of the review. The review

was steered by the methods guide for rapid reviews for Covid-19 medicine reviews¹⁹, and a practical guide to rapid reviews by the World Health Organization²⁰. The research question investigated was: What ASD-related evidence exists for occupational therapy intervention across the human lifespan? The research population was defined as any person with ASD across the lifespan. "Intervention" included any form of treatment that involves occupational therapists as intervention/programme developers, organisers, researchers or facilitators. Assessment methods were not included in this review.

Study designs

Only level I and II studies* were considered for the review and included systematic reviews and randomised controlled trials. Qualitative designs and other reviews such as scoping or literature reviews were excluded.

Search approach

Searches were conducted online through use of the library at Stellenbosch University. Cochrane library and Medline were used as search engines; however, the Medline search was aborted due to no new records found when compared to the Cochrane search. The search string used was: "Autism OR Autism Spectrum Disorder OR ASD AND Occupational Therapy OR occupational therapist" Inclusion criteria were: level I or II studies*, peer-reviewed publications, published between January 2017 and December 2023, available in English and full text available. Conference proceedings, reports, theses, etc., were not included.

References were saved online in Mendeley²¹, an online personalised reference database and referencing tool. All references were transferred to the webtool Rayyan.ai to assist with the screening process²².

Study selection

Two researchers firstly screened the records on Rayyan.ai by title and abstract, while a third researcher resolved any conflicts. The selected records underwent full text screening by the primary investigator, while a second researcher screened 20% of the full text articles. A third reviewer resolved any uncertainties.

Data extraction

A custom Microsoft Excel® worksheet was designed to extract data under the following headings: author; study title; study design; population (gender, age, geographical location, setting); intervention method; comparisons; outcomes. The headings "comments" and "statements" were added to allow for any important information to be recorded which was not covered under the previous headings.

Appraisal of study quality

The quality of studies was appraised using the Critical Appraisals Skills Program (CASP) Randomised Controlled Trial Standard Checklist, or CASP checklist for systematic reviews²³. Points for each question were awarded to obtain an informal score per record as follow: Yes = 1; Not clear = 0.5 and No = 0.

* Level I studies include RCTs and systematic reviews of RCTs with or without meta-analysis. Level II include systematic reviews of a combination of RCT's and quasi-experimental studies with or without meta-analysis.

Evidence analysis

Data were analysed by percentage and frequency predominantly for quantitative reporting. Additional information recorded under the statements/comments sections were grouped together through thematic analysis. Statements were filtered by method of deduction and only statements that were not already represented quantitatively were selected for reporting.

RESULTS

Search results

From the Cochrane search, 2348 records were identified. After

43 duplicates were removed through the Rayyan.ai screening tool, 2305 records were screened by title and abstract. The first screening eliminated 2050 records, while the full text version of eight records could not be accessed. This resulted in full text screening of 250 records. At this stage, the research team agreed to only include records identified from 2017 - 2022, rather than for ten years due to sufficient records identified in this timespan. Records from the previous five years were found to be well-represented in the systematic reviews from 2017 - 2023. The PRISMA diagram²⁴ (Figure 1, below) illustrates the screening and selection process.

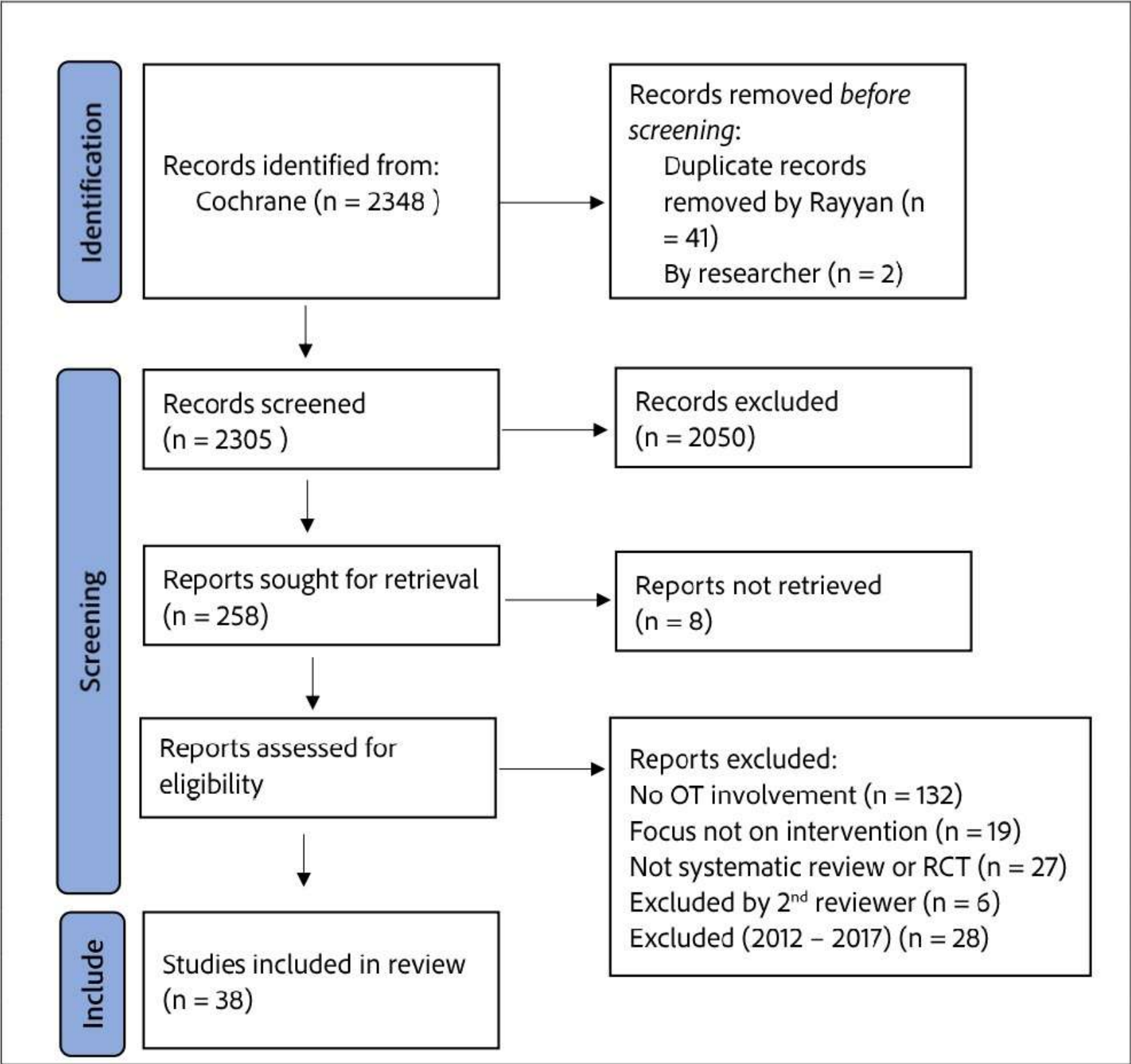


Figure 1 Prisma Diagram²⁵

Study design and quality

The included records comprised thirty systematic reviews and eight RCTs. A full description of studies can be seen in Table I (below). All included studies were of acceptable quality with scores of above 7/10 for systematic reviews and above 8/11 for RCTs on the CASP. Systematic reviews reported studies over the timespan of 1967 to 2021.

Study locations were not reported for all studies. Among those reported, most studies were conducted in the United States of America (n = 6), Northern Europe (n = 5), Australia (n = 5) and Asia (Japan, China, Taiwan) (n = 4). Studies were also reported in Canada (n = 2), Brazil (n=1), New-Zealand (n = 1) and Egypt (n = 1).

Table I Records included in the reiew

Author	Title	Type	CASP rating	Focus	Outcome(s)
Afsharnejad et al. (2022) ²⁶	KONTAKT® Social Skills Group Training for Australian Adolescents with Autism Spectrum Disorder: a Randomized Controlled Trial.	RCT	9,5	Kontakt® program for group social skills training. Control group = Interactive cooking program	Both groups made significant progress towards their personal meaningful social goals (p<001), but the KONTAKT® group made significantly more progress (p> 0.04) Outcome measures: Goal Attainment Scaling (GAS), Social Responsiveness Scale—Second Edition (SRS-2), Social Interaction Anxiety Scale (SIAS), Circumplex Scale of Interpersonal Efficacy (CSIE), Perth A-Loneliness Scale (PALs), Emotion Regulation and Social Skills Questionnaire (ERSSQ), Paediatric Quality of life Inventory TM, version 4.0 (PedsQL TM 4.0), subset of stimuli from the Mindreading Battery Experience Sampling Method (ESM) feedback survey.
Alabdulkareem et al. (2022) ²⁷	A Systematic Review of Research on Robot-Assisted Therapy for Children with Autism.	SR (38 studies included)	9	Interactive robots assisting in therapy	The use of robots in therapy can be effective.
Althoff et al. (2019) ²⁸	Parent-Mediated Interventions for Children with Autism Spectrum Disorder: A Systematic Review	SR (13 studies included)	9,5	Effectiveness of parent-mediated intervention on the occupational performance of children with ASD	Communication, behaviour, play, adaptive functioning, and autism symptoms may be positively influenced by parent-mediated interventions.
Anderson et al. (2019) ²⁹	A Systematic Literature Review of Empirical Research on Postsecondary Students with Autism Spectrum Disorder	SR (24 studies included)	9	Post secondary students - ASD interventions	High rates of participant satisfaction, diverse participant responses.

Bodison et al. (2018) ³⁰	Specific Sensory Techniques and Sensory Environmental Modifications for Children and Youth with Sensory Integration Difficulties: A Systematic Review	SR (8 studies included)	9	Effectiveness of specific Sensory Integration (SI) techniques and environmental modifications to improve participation of children with SI difficulties	Strong evidence supported Qigong massage, moderate evidence supported sensory modifications to the dental care environment, and limited evidence supported weighted vests.
Boshoff et al. (2020) ³¹	Child Development Outcomes of DIR/Floortime TM-Based Programs: A Systematic Review	SR (9 studies included)	9	A review to inform practitioners on DIR floortime as a model of practice	Positive gains were found for socio-emotional development.
Cameron et al. (2020) ³²	Movement-based Interventions for Preschool-age Children with, or at Risk of, Motor Impairment: A Systematic Review	SR (17 studies included)	7	Explore movement-based interventions to improve motor skills for pre-school children at risk (including ASD)	Interventions showed potential for improving body structure, function and activity, but not significantly.
Deb et al. (2020) ³³	The Effectiveness of Parent Training for Children with Autism Spectrum Disorder: A Systematic Review and Meta-Analyses	SR and meta-analysis (17 studies included)	9,5	Effectiveness of parent training on the child's ASD symptoms and parental stress	Small to moderate gains for three interventions i.e., DIR/Floortime, Pivotal Response and parent focused training.
Diaz et al. (2018) ³⁴	A Systematic Review of Caregiver-Implemented Mealtime Interventions for Children with Autism Spectrum Disorder	SR (26 studies included)	7	Four coaching components examined on caregiver-implemented feeding interventions for children under 36 months	All included studies emphasised caregiver's competence, most studies focussed on guided practice, but fewer than half on collaborative response and decision making and only a third on collaborative planning. Thus, not all four models represented in all the studies.
Duncan et al. (2021) ³⁵	Iterative Development of a Daily Living Skills Intervention for Adolescents with Autism Without an Intellectual Disability	RCT	8,5	Efficacy study of Surviving and Thriving in the Real World (STRW): group treatment for adolescents - promotes attainment of daily living skills. Waitlist/control study	The STRW group made significant gains, which was replicated by the waitlist group. Outcome measures: Vineland Adaptive Behaviour Scales, 3rd Edition (Vineland-3) and GAS (Goal Attainment scale).
Factor et al. (2019) ³⁶	All in the Family: A Systematic Review of the Effect of Caregiver-Administered Autism Spectrum Disorder Interventions on Family Functioning and Relationships	SR (16 studies included)	8	Examines the impact of caregiver implemented interventions on the family unit, relationships and the relation to ASD	Benefits are reported for family relationships and functioning.
Fontil et al. (2020) ³⁷	Barriers to and Facilitators of Successful Early School Transitions for Children with Autism Spectrum Disorders and Other Developmental Disabilities: A Systematic Review	SR (39 studies included)	9	Examines literature on the support provided for children with ASD and other developmental disabilities when transitioning to kindergarten	The importance of collaboration and sufficient support provided to children, teachers and parents are highlighted.

Franz et al. (2022) ³⁸	Early Intervention for Very Young Children with or at High Likelihood for Autism Spectrum Disorder: An Overview of Reviews	SR (7 systematic reviews, 63 studies included)	10	Overview of reviews to investigate ASD intervention for very young children	Interventions vary considerably, limited evidence to support intensive interventions, empirical evidence from RCT's for developmental behavioural interventions and naturalistic developmental behavioural interventions (NDBI).
French et al. (2018) ³⁹	Early Intervention for Infants and Young Children with, or at-risk of, Autism Spectrum Disorder: a Systematic Review	SR (48 RCT's included)	10	Aim to identify the evidence base for early intervention in ASD	High level of recent studies reflects heightened interest in early intervention for ASD. This study is the first to identify such a database.
Healy et al. (2018) ⁴⁰	The Effect of Physical Activity Interventions on Youth with Autism Spectrum Disorder: A Meta-analysis	SR and meta-analysis (29 studies included)	9	Examines the effect of physical activity interventions on children with ASD	Overall moderate effect ($g = 0.62$). Moderate to large effects measured for interventions targeting manipulative skills, locomotor skills, skill-related fitness, social functioning, and muscular strength and endurance.
Ho et al. (2018) ⁴¹	Occupational Therapy Practice in Sleep Management: A Review of Conceptual Models and Research Evidence	SR (11 studies included)	9	Examines occupational therapy intervention for sleep	Evidence support OT involvement to aid sleep through sleep management programs, environmental intervention, assistive devices, activity participation and lifestyle involvement.
Hume et al. (2021) ⁴²	Evidence-Based Practices for Children, Youth, and Young Adults with Autism: Third Generation Review	SR (28 studies included)	10	Examines practices with evidence of positive effect for youth	Areas of possible OT involvement identified: academic/pre-academic skills, self-help/adaptive skills, challenging behaviour, cognitive development, joint attention, mental health, motor skills, play, self-determination, school readiness, vocational skills and social skills.
Kashefimehr et al. (2018) ⁴³	The Effect of Sensory Integration Therapy on Occupational Performance in Children with Autism	RCT	8.5	Examines the effect of sensory integration therapy (SIT) on the occupational performance of children with ASD. Control group = no SIT	Significant greater gains were observed for the intervention group in all areas as measured with the Short Child Occupational Profile (SCOPE) including volition, habituation, communication and interaction skills, process skills, motor skills, occupational performance and the total score of the child ($p < 0.001$). The intervention group also showed significantly greater improvement on all but one area of the sensory profile (SP).
Kent et al. (2021) ⁴⁴	Can I Learn to Play? Randomized Control Trial to Assess Effectiveness of a Peer-Mediated Intervention to Improve Play in Children with Autism Spectrum Disorder	RCT	9	Examines the effect of the Ultimate guide to Play, Language and Friendship (PLF). Waitlist/control group. Control group = no intervention	A significant moderate effect was observed for pre to post intervention for the intervention group, which lasted for at least 3 months ($p < 0.0001$). Outcome measures used: Test of playfulness (ToP), Home and Community Social Behaviour Scales (HCSBS), Parenting Relationship Questionnaire (PRQ), School Social Behaviour Scales (SSBS).
Kuhaneck et al. (2020) ⁴⁵	A Systematic Review of Interventions to Improve the Occupation of Play in Children with Autism	SR (20 studies included)	10	Examines the efficacy of occupational therapy interventions to improve play in children with ASD	There is moderate to strong evidence for specific strategies of modelling and imitating the child and mixed support for other strategies such as parent education, modified environment or play materials or videos. Overall, the review supports occupational therapy intervention to improve play in ASD.
Liu et al. (2020) ⁴⁶	A Systematic Review and Meta-analysis of parent-mediated Intervention for Children and Adolescents with Autism Spectrum Disorder in Mainland China, Hong Kong, and Taiwan	SR and meta-analysis (21 studies included)	10	Examines the effect and research quality of ASD parent-mediated interventions in mainland China, Hongkong and Taiwan	Meta-analysis indicated larger effect size in 5 domains when compared to previous studies. The domains are ASD symptoms, cognitive competence, language-communication ability, social competence, and adaptive behaviours.

Lorenc et al. (2018) ¹³	Support for Adults with Autism Spectrum Disorder without Intellectual Impairment: Systematic Review	SR (32 studies included)	10	Examines the effectiveness of supportive interventions for adults with ASD	Evidence suggests that effective intervention includes interview training, social skills training and protective employment.
Mackenzie et al. (2022) ⁴⁷	Interventions to Improve Outcomes for Parents of Children with Autism Spectrum Disorder: A Meta-Analysis	SR and meta-analyses (37 studies included)	9	Examines the impact of parent intervention on parental outcomes	Small, but significant outcomes were found on parenting confidence ($p < 0.001$) and mental health ($p < 0.002$).
Miller-Kuhaneck et al. (2018) ⁴⁸	Parental or Teacher Education and Coaching to Support Function and Participation of Children and Youth with Sensory Processing and Sensory Integration Challenges: A Systematic Review	SR (4 studies included)	9,5	Examines the effectiveness of OT intervention in coaching teachers and parents for assisting children with sensory integration problems	Positive outcomes for the children and parents were found to be achieved in a relatively short time.
Naveed et al. (2019) ⁴⁹	Implementation and Effectiveness of Non-specialist Mediated Interventions for Children with Autism Spectrum Disorder: A Systematic Review and Meta-analysis	SR and meta-analysis (33 studies included)	10	Examines the evidence for clinical effectiveness of non-specialist ASD interventions for social, motor and communication difficulties	Evidence demonstrates effectiveness of these interventions across a range of outcomes, so encouraging a task-shifting approach in low socio-economic areas.
Novak et al. (2019) ⁵⁰	Effectiveness of Paediatric Occupational Therapy for Children with Disabilities: A Systematic Review	SR (129 studies included)	10	Aim of this review was to summarise the best available intervention methods for children with disabilities, including ASD	Evidence for 39 effective paediatric OT intervention methods were summarised, indicating that parents can make informed choices between different possible interventions.
Omairi et al. (2022) ⁵¹	Occupational Therapy Using Ayres Sensory Integration®: A Randomized Controlled Trial in Brazil	RCT	9,5	To determine the effect of Ayres SI on a group of Brazilian children with ASD	The experimental group scored significantly higher than the control group in the areas of self-care ($p = 0.046$), social function ($p = .036$), and parent-identified goal attainment ($p < .001$). Outcomes measured with the Paediatric Evaluation of Disability Inventory (PEDI) and individualised goal ratings.
Pfeiffer et al. (2018) ⁵²	Effectiveness of Cognitive and Occupation-Based Interventions for Children with Challenges in Sensory Processing and Integration: A Systematic Review	SR (5 studies included)	9	Examines the effectiveness of cognitive and occupation-based interventions for children who have difficulties with sensory integration, including children with ASD	Evidence suggests that cognitive and occupation-based intervention have a positive effect on self-regulation for children with sensory integration difficulties.
Randell et al. (2022) ⁵³	Sensory Integration Therapy for Children with Autism and Sensory Processing Difficulties: the SenITA RCT.	RCT	8	Examines the effectiveness and cost-effectiveness of sensory integration therapy for children with ASD and sensory integration difficulties with regards to behaviour, function and quality of life. Control group = care as usual	No significant difference between the experimental and control group at 6 and 12 months. Significant changes occurred for carer-rated goal performance and satisfaction ($p < 0.001$). Outcome measures used: Aberrant behaviour checklist, Vineland Adaptive Behaviour Scales, Autism Parenting Stress Index, EuroQol-5 Dimensions and Carer Quality of Life, Canadian Occupational Performance Measure, Sensory Processing Measure™, Client Service Receipt Inventory.

Saxena et al. (2020) ⁵⁴	Online Peer Mentorship Programmes for Children and Adolescents with Neurodevelopmental Disabilities: A Systematic Review	SR (11 studies included)	9	Estimates the effectiveness of online peer mentorship programs on the participation of children/adolescents in life situations	Online peer mentorship programs have a positive effect in providing support and facilitating social networking.
Schaaf et al. (2018) ⁵⁵	Efficacy of Occupational Therapy Using Ayres Sensory Integration®: A Systematic Review	SR (5 studies included)	10	Examines the efficacy of Ayers sensory integration in addressing function and participation as defined by the International Classification of Functioning (ICF)	Strong evidence exists for ASI intervention to improve individually generated functional and participation goals. Moderate evidence exists for impairment level reduction in ASD and reduction in need of care giver assistance.
Schoen et al. (2019) ⁵⁶	A Systematic Review of Ayres Sensory Integration Intervention for Children with Autism	SR (3 studies included)	10	Examines the effectiveness research for Ayers sensory integration for children with ASD	ASI can be seen as evidence-based practice for children with ASD according to the Council for exceptional children (CEC) standards.
Scott et al. (2018) ¹⁶	Evaluating the Effectiveness of an Autism-Specific Workplace Tool for Employers: A Randomised Controlled Trial	RCT	9,5	Examines the effectiveness of a workplace tool (Integrated Employment Success Tool – IEST) to improve employers' self-efficacy towards employers with ASD	There was a significant improvement in self-efficacy within the experimental group (P=0.016) but no significant difference between groups. Outcome measures used were the Employer Self-Efficacy Scale (ESES) and the Scale of Attitudes Toward Workers with Disabilities (SATWD).
Severini et al. (2018) ⁵⁷	Systematic Review of Problem Behaviour Interventions: Outcomes, Demographics, and Settings	SR (46 studies included)	7,5	Examines school-based interventions based at improving behaviour for children with ASD	There is evidence for function-based and non-function-based interventions for children with ASD with behaviour problems
Schum et al. (2019) ⁵⁸	Learning How to Make Friends for Chinese Adolescents with Autism Spectrum Disorder: A Randomized Controlled Trial of the Hong Kong Chinese Version of the PEERS® Intervention	RCT	10,5	Examines the effectiveness of the PEERS® intervention for Chinese adolescents with ASD with waitlist/control group design	Significant improvement was observed in the experimental group from baseline to re-testing for social skills knowledge and social functioning . Outcome measures: Test of Adolescent Social Skills Knowledge (TASSK), Quality of Play Questionnaire (QPQ), Social Responsiveness Scale, Second Edition (SRS-2), Adaptive Behaviour Assessment System, Second Edition (ABAS-II) Adolescent Social Behaviour Scale (ASBS).
Valentine et al. (2021) ⁵⁹	Implementation of Telehealth Services to Assess, Monitor, and Treat Neurodevelopmental Disorders: Systematic Review	SR (42 studies included)	9	Examines how telehealth is used for intervention with individuals with neurodevelopmental disorders, including ASD	Telehealth is reported to be an effective ASD intervention in improving caregiver knowledge, caregiver competence, and child participation , increasing communication responses, and reducing problem behaviours.
Vindin et al. (2021) ¹⁷	A Driver Training Program Intervention for Student Drivers with Autism Spectrum Disorder: A Multi-site Randomised Controlled Trial	RCT	11	Examines the effectiveness of a driving training program intervention on the driving skills of people with ASD. Control group; usual driving classes	There was a significant improvement in both groups' driving skills, although no significant difference between the groups. Outcome measures: Cambridge Neuropsychological Test Automated Battery (CANTAB), Social responsiveness scale (2nd edition) SRS-2, Revised children's manifest anxiety scale (2nd edition) RCMAAS-2, NASA TLX.

Wang et al. (2021) ⁶⁰	Cognitive Behavioural Therapy for Autism Spectrum Disorders: A Systematic Review	SR and meta-analysis (51 studies included)	10	Examines the effectiveness of cognitive behavioural therapy interventions for children and adolescents with ASD	Evidence suggest that CBT can have a significant positive effect on children and teenagers with ASD with regards to social-emotional problems and symptoms of ASD.
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Population

Studies included in this review either focused on occupational therapy interventions for people with ASD and/or caregivers and/or employers of people with ASD. Ultimately, the aim of the occupational therapy interventions was always to improve the quality of life of the person with ASD. Ages were covered at a range from birth to late adulthood. Guided by the OTASA standards of practice for ASD document² studies were divided into age group categories of: early years (0- 3 years) (n = 19); childhood (3 – 12 years) (n = 29); adolescents (15- 22 years) (n = 25) and adulthood (23 years and up) (n = 10).

Interventions

Twelve different domains of occupational therapy intervention were identified across all included studies. The sensory domain included any form of intervention aimed at sensory integration, modulation or stimulation, including Ayers sensory integration®, and was most frequently reported on (n = 12) together with the social skills domain (n = 12) which included specialised programs such as KONTAKT®²⁶ and PEERS®⁵⁸. Further domains included behavioural (n = 9); educational (n = 9); mediated (n = 9); cognitive (n = 8); play/ leisure (n = 8); activities of daily living (n = 7); technology (n = 4); motor skills (n = 3), sleep (n = 2) and work (n = 2) domains.

When considering age groups by domains (Table II, adjacent), studies examining the work domain only covered the adolescent to adult age range, while motor skills were covered up to the adolescent age range. The play/leisure domain mostly refers to the occupation of play among the early years, child and adolescent age group (n = 7), with only one study that included adult leisure. All other domains were studied over all age groups.

Intervention venue

The studies that reported venues included clinic or therapy environments, community centres, schools, tertiary institutions, places of work and home environments as study/ intervention venues.

Outcome measures

A vast number of different and diverse outcome measures were reported in systematic reviews and RCT’s. These included standardised assessments, questionnaires, checklists, surveys and rating scales. The specific outcome measures used for RCT’s are reported in Table I (page 77).

Table II Domains of intervention by age groups

Domain	Early years <3	Child 3 – 12	Adolescents 13 - 22	Adults 23 +
Behaviour	8	8	7	3
Cognitive	7	7	6	1
Sensory	10	12	7	1
Motor Skills	3	3	3	0
ADL	6	5	7	1
Social	9	10	10	1
Sleep	1	1	1	1
Play/Leisure	6	8	5	1
Education	7	8	7	2
Work	0	0	2	2
Mediated	9	9	6	1
Technology	3	3	2	1
	69	74	63	15

Thematic analysis

Common themes were identified through thematic analysis and can be summarised as follows:

Studies reported on many specialised programs and techniques for ASD involving occupational therapists, for which supplementary specialised training isrequired^{26,27,30,31,33,43,53,55,58,60}.

However, a combination of approaches and techniques are often necessary to reach desired outcomes^{41,42,50}, andinterventions involving technology, such as robots and telehealth, require multidisciplinary involvement^{27,59}. Caregiver/parent mediated intervention hold many benefits for individuals with ASD, the caregivers and cost-effective service delivery and evidence suggest that gains can occur within a relatively short time span, however more research is needed in this regard^{28,36,46,47,49,50}. There is a lack of research on specific academic support for students with ASD²⁹. In general, more high-quality trials with participation-focused outcome measures are needed to support clinicians involved in the management of ASD ³². Studies yielded many and diverse outcome measures and approaches, which complicates evidence comparison^{38,39,59}.

DISCUSSION

Research considering occupational therapy interventions for ASD is well-represented in the literature over the time period 2017 - 2022 as covered in this rapid review, including 30 systematic reviews. Good quality RCT's are less frequently represented, as also found in other systematic reviews^{31,32}. Records included in this review are predominantly from high-income countries, with no records from low-income countries and limited records from upper-middle-income countries⁶¹ i.e., China^{46,60} and Brazil⁵⁹. South Africa is classified as an upper-middle-income country and can thus most closely associate with these studies, however, no studies from South Africa or sub-Saharan Africa matched the criteria for this review.

Although records include interventions across the lifespan, occupational therapy intervention is most frequently described for children (3 – 12 years), followed by early years (0 – 3 years) and adolescents (13 – 22 years), and much less frequent for adults over 23 years of age. Novak et al⁵⁰ listed 39 different effective interventions for children with a range of disabilities in their systematic review, concluding that parents have many choices when considering therapy intervention. While early intervention for ASD is essential⁶², in their systematic review, Lorenc et al¹⁸ reiterates the importance of more evidence-based research for interventions for adults with ASD, and specifically for adults without intellectual disabilities. Services are usually focussed on mental health, which can only be accessed if a problem develops, rather than having access to preventative services. Furthermore, studies focus on younger adults (below 40 years of age)¹⁸. Considering that ASD is a life-long condition, the focus on the provision of occupational therapy intervention for middle, adult and older adult age groups is an area that needs attention by researchers.

When considering ages by intervention, it makes sense that researchers give more consideration to sensory integration^{30,43, 51-53,55} and parent mediated intervention^{28,33, 36,46,47,49} in the younger years, while social skill interventions are mainly considered in the childhood and adolescent years^{26,46,54,58,60}. Interventions related to work and driving are only considered in late-adolescent years and adult years^{16,18}. Nevertheless, twelve different intervention domains for ASD with occupational therapy involvement were identified in this review across the lifespan, which coincides with the large range of functional impairments that could occur with ASD¹³.

In a systematic review of 406 clinical trials, Provenzani et al⁶³ identifies the vast number of outcome measures used within ASD research as a barrier when comparing studies⁶³. This was reflected in the current review, however, with twelve different domains of intervention, a variety of outcome measures is to be expected. The authors recommend greater consensus regarding outcome measures in ASD research, this could be considered across the individual domains and age groups identified.

Access to occupational therapy interventions is described across a range of locations, indicating an openness to accessible intervention. A systematic review investigating non-specialist options for intervention found promising evidence for a task-shifting approach⁴⁹ where non-specialists are trained by specialists to deliver therapy interventions or programmes⁶⁴. Task-shifting has proved to be a valuable, yet

developing methods of practice to use in sub-Saharan Africa over the past decade⁶⁵ and further research in this area, in support of ASD interventions are indicated. Mediated interventions, often co-occurring with the use of technology, brings intervention within homes and schools and involve families and/or teachers³⁶. Specialised programs are often used and require post qualification training e.g., Kontakt^{®26} or PEERS^{®48,58}, for social skills; DIR[®]/floortime³¹ and Ayers sensory integration^{®55}.

Limitations

Only level I and II studies were included in this review, so limiting the inclusion of lower quality studies specific to sub-Saharan Africa and South Africa that may reveal area-specific interventions for ASD.

There is an overlap in academic and clinical practitioner input with regards to therapy intervention for ASD. Therapists and researchers are often not defined by role in research papers. This complicated the accuracy of the screening process and records might have been missed.

Ethics

Only articles from peer-reviewed journals were considered for the review and the quality and bias of selected records were tested using the CASP rating tool. Ethical clearance was not required as the study did not require primary data collection.

CONCLUSION AND RECOMMENDATIONS

Evidence from around the globe suggests that occupational therapy plays an integral part in the management of ASD across at least 12 domains and across all ages. ASD intervention is a specialised area for which post qualification training is required when considering specific programmes and techniques; however, promising evidence also exists for mediation, use of technology and task-sharing approaches which makes intervention more accessible to all.

There is a gap in and need for ASD research within South Africa to establish reliable data and to determine current intervention processes, including occupational therapy involvement in South Africa. Global evidence for occupational therapy interventions should be considered with caution against the unique challenges South Africa faces with regards to diversities, socio-economics, rurality, co-morbidities and the current and proposed health systems.

Author contributions

All four authors (Janke van der Walt, Madri Engelbrecht, Hester van Biljon and Shaheed M. Soeker contributed substantially to the design of the study and the screening process. Janke van der Walt analysed and interpreted the data with the support of the other authors as critical reviewers. Janke van der Walt wrote the article which was revised by the other three authors. All authors agreed on the final content as presented.

Conflicts of Interest

The authors have no conflict of interest to declare.

REFERENCES

1. Soeker SM, van Biljon H, Engelbrecht M, van der Walt J. Rapid review methodology and occupational therapy practice evidence [Webinar].2023

2. OTASA. Autism standard operating protocol for occupational therapy. Unpublished
3. ICF Research branch. ICF core set for autism spectrum disorder (ASD). 2017 [accessed 2023 May 5]. <https://www.icf-research-branch.org/icf-core-sets-projects2/other-health-conditions/icf-core-set-for-autism-spectrum>
4. CDC. Autism Spectrum Disorder (ASD). 2023 [accessed 2023 July 7]. <https://www.cdc.gov/ncbddd/autism/index.html>
5. World Health Organization. Autism. 2023 [accessed 2023 March 12]. <https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders>
6. Salari N, Rasoulpoor S, Rasoulpoor S, Shohaimi S, Jafarpour S, Abdoli N, Khaledi-Paveh B, Mohammadi M. The global prevalence of autism spectrum disorder: a comprehensive systematic review and meta-analysis. *Italian Journal of Pediatrics*. 2022;48(1):112. <https://doi.org/10.1186/s13052-022-01310->
7. Elsabbagh M, Divan G, Koh YJ, Kim YS, Kauchali S, Marcín C, Montiel-Nava C, Patel V, Paula CS, Wang C, et al. Global prevalence of autism and other pervasive developmental disorders. *Autism Research*. 2012;5(3):160-179. <https://doi.org/10.1002/aur.239>
8. Zeidan J, Fombonne E, Scorch J, Ibrahim A, Durkin MS, Saxena S, Yusuf A, Shih A, Elsabbagh M. Global prevalence of autism: A systematic review update. *Autism Research*. 2022;15(5):778-790. <https://doi.org/10.1002/aur.2696>
9. Abubakar A, Ssewanyana D, Newton CR. A systematic review of research on autism spectrum disorders in sub-Saharan Africa. *Behavioural Neurology*. 2016;2016:1-14. <https://doi.org/10.1155/2016/3501910>
10. Franz L, Chambers N, von Isenburg M, de Vries PJ. Autism spectrum disorder in sub-Saharan Africa: A comprehensive scoping review. *Autism Research*. 2017;10(5):723-749. <https://doi.org/10.1002/aur.1766>
11. Pillay S, Duncan M, de Vries PJ. Autism in the Western Cape province of South Africa: Rates, socio-demographics, disability and educational characteristics in one million school children. *Autism: The International Journal of Research and Practice*. 2021;25(4):1076-1089. <https://doi.org/10.1177/1362361320978042>
12. WFOT. WFOT. About Occupational Therapy. 2023 [accessed 2023 June 24]. <https://wfot.org/about/about-occupational-therapy>
13. de Schipper E, Lundequist A, Coghill D, de Vries PJ, Granlund M, Holtmann M, Jonsson U, Karande S, Robison JE, Shulman C, et al. Ability and disability in Autism Spectrum Disorder: A Systematic Literature Review Employing the International Classification of Functioning, Disability and Health-Children and youth Version. *Autism Research*. 2015;8(6):782-794. <https://doi.org/10.1002/aur.1485>
14. Sinai-Gavrilov Y, Gev T, Mor-Snir I, Golan O. Seeking Team Collaboration, Dialogue and Support: The perceptions of multidisciplinary staff-members working in ASD preschools. *Journal of Autism and Developmental Disorders*. 2019;49(11):4634-4645. <https://doi.org/10.1007/s10803-019-04175-x>
15. Novakovic N, Milovancevic MP, Dejanovic SD, Aleksic B. Effects of Snoezelen—Multisensory environment on CARS scale in adolescents and adults with autism spectrum disorder. *Research in Developmental Disabilities*. 2019;89:51-58. <https://doi.org/10.1016/j.ridd.2019.03.007>
16. Scott M, Falkmer M, Falkmer T, Girdler S. Evaluating the effectiveness of an autism-specific workplace tool for employers: A randomised controlled trial. *Journal of Autism and Developmental Disorders*. 2018;48(10):3377-3392. <https://doi.org/10.1007/s10803-018-3611-0>
17. Vindin P, Cordier R, Wilson NJ, Lee H. A driver training program intervention for student drivers with autism spectrum disorder: A multi-site randomised controlled trial. *Journal of Autism and Developmental Disorders*. 2021;51(10):3707-3721. <https://doi.org/10.1007/s10803-020-04825-5>
18. Lorenc T, Rodgers M, Marshall D, Melton H, Rees R, Wright K, Sowden A. Support for adults with autism spectrum disorder without intellectual impairment: Systematic review. *Autism*. 2018;22(6):654-668. <https://doi.org/10.1177/1362361317698939>
19. Department of Health RSA. Methods guide for rapid reviews for Covid-19 medicine reviews. 2022 [accessed 2023 March 12]. https://health.gov.za/wp-content/uploads/2020/12/NEMLC-Protocol-Template-for-rapid-reviews-of-COVID-19_v1.0_31May20202.pdf
20. Longlois E V, Straus Sharon E, Mijumbi-Deve Rhona, Lewin Simon, Tricco Andrea C. The need for rapid reviews to inform health policy and systems. In: Tricco AC, Langlois E V, Straus SE, editors. *Rapid reviews to strengthen health policy and systems: a practical guide*. Geneva: World Health Organization; 2017. p.1-15.
21. Elsevier. Mendeley. 2020 [accessed 2020 Jun 26]. <https://www.elsevier.com/solutions/mendeley>
22. Rayyann. rayyann. 2022 [accessed 2023 April 16]. <https://www.rayyan.ai/>
23. CASP. CASP Checklists. 2023 [accessed 2023 April 16]. <https://casp-uk.net/casp-tools-checklists/>
24. PRISMA. PRISMA Transparent reporting of systematic reviews and meta-analyses. 2023 [2023 June 27]. <http://prisma-statement.org/>
25. Moher D, Liberati A, Tetzlaff J AD. PRISMA 2009 Flow Diagram. The PRISMA statement. 2009;6:1000097. <https://doi.org/10.1371/journal.pmed1000097>
26. Afsharnejad B, Falkmer M, Black MH, Alach T, Lenhard F, Fridell A, Coco C, Milne K, Bölte S, Girdler S. KONTAKT® social skills group training for Australian adolescents with autism spectrum disorder: a randomized controlled trial. *European Child & Adolescent Psychiatry*. 2022;31(11):1695-1713. <https://doi.org/10.1007/s00787-021-01814-6>
27. Alabdulkareem A, Alhakbani N, Al-Nafjan A. A systematic review of research on robot-assisted therapy for children with autism. *Sensors*. 2022;22(944):944. <https://doi.org/10.3390/s22030944>
28. Althoff CE, Dammann CP, Hope SJ, Ausderau KK. Parent-mediated interventions for children with autism spectrum disorder: A systematic review. *The American Journal of Occupational Therapy*. 2019;73(3):1-13. <https://doi.org/10.5014/ajot.2019.030015>
29. Anderson AH, Stephenson J, Carter M, Carlon S. A systematic literature review of empirical research on postsecondary students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*. 2019;49(4):1531-1558. <https://doi.org/10.1007/s10803-018-3840-2>

30. Bodison SC, Parham LD. Specific sensory techniques and sensory environmental modifications for children and youth with sensory integration difficulties: A systematic review. *The American Journal of Occupational Therapy*. 2018;72(1):1-11. <https://doi.org/10.5014/ajot.2018.029413>
31. Boshoff K, Bowen H, Paton H, Cameron-Smith S, Graetz S, Young A, Lane K. Child development outcomes of DIR/Floortime TM-based programs: A systematic review. *Canadian Journal of Occupational Therapy* (1939). 2020;87(2):153–164. <https://doi.org/10.1177/0008417419899224>
32. Cameron KL, Albeshier RA, McGinley JL, Allison K, Cheong JLY, Spittle AJ. Movement-based interventions for preschool-age children with, or at risk of, motor impairment: a systematic review. *Developmental Medicine and Child Neurology*. 2020;62(3):290–296. <https://doi.org/10.1111/dmcn.14394>
33. Deb SS, Retzer A, Roy M, Acharya R, Limbu B, Roy A. The effectiveness of parent training for children with autism spectrum disorder: a systematic review and meta-analyses. *BMC Psychiatry*. 2020;20(1):583–583. <https://doi.org/10.1186/s12888-020-02973-7>
34. Diaz J, Cosbey J. A systematic review of caregiver-implemented mealtime interventions for children with autism spectrum disorder. *OTJR: Occupational Therapy Journal of Research*. 2018;38(3):196–207. <https://doi.org/10.1177/1539449218765459>
35. Duncan A, Liddle M, Stark LJ. Iterative development of a Ddaily living skills intervention for adolescents with autism without an intellectual disability. *Clinical Child and Family Psychology Review*. 2021;24(4):744–764. <https://doi.org/10.1007/s10567-021-00360-6>
36. Factor RS, Ollendick TH, Cooper LD, Dunsmore JC, Rea HM, Scarpa A. All in the Family: A systematic review of the effect of caregiver-administered autism spectrum disorder interventions on family functioning and relationships. *Clinical Child and Family Psychology Review*. 2019;22(4):433–457. <https://doi.org/10.1007/s10567-019-00297-x>
37. Fontil L, Gittens J, Beauhttps://doi.org/n E, Sladeczek IE. Barriers to and facilitators of successful early school transitions for children with autism spectrum disorders and other developmental disabilities: A systematic review. *Journal of Autism and Developmental Disorders*. 2020;50(6):1866–1881. <https://doi.org/10.1007/s10803-019-03938-w>
38. Franz L, Goodwin CD, Rieder A, Matheis M, Damiano DL. Early intervention for very young children with or at high likelihood for autism spectrum disorder: An overview of reviews. *Developmental Medicine and Child Neurology*. 2022;64(9):1063–1076. <https://doi.org/10.1111/dmcn.15258>
39. French L, Kennedy EMM. Annual Research Review: Early intervention for infants and young children with, or at-risk of, autism spectrum disorder: a systematic review. *Journal of Child Psychology and Psychiatry*. 2018;59(4):444–456. <https://doi.org/10.1111/jcpp.12828>
40. Healy S, Nacario A, Braithwaite RE, Hopper C. The effect of physical activity interventions on youth with autism spectrum disorder: A meta-analysis. *Autism Research*. 2018;11(6):818–833. <https://doi.org/10.1002/aur.1955>
41. Ho ECM, Siu AMH. Occupational therapy P\practice in sleep management: A review of conceptual models and research evidence. *Occupational therapy international*. 2018;2018:8637498–12. <https://doi.org/10.1155/2018/8637498>
42. Hume K, Steinbrenner JR, Odom SL, Morin KL, Nowell SW, Tomaszewski B, Szendrey S, McIntyre NS, Yücesoy-Özkan S, Savage MN. Evidence-based practices for children, youth, and young adults with autism: Third generation review. *Journal of Autism and Developmental Disorders*. 2021;51(11):4013–4032. <https://doi.org/10.1007/s10803-020-04844-2>
43. Kashefimehr B, Kayihan H, Huri M. The effect of eensory integration therapy on occupational performance in children with autism. *OTJR: Occupation, Participation and Health*. 2018;38(2):75–83. <https://doi.org/10.1177/1539449217743456>
44. Kent C, Cordier R, Joosten A, Wilkes-Gillan S, Bundy A. Can I learn to play? Randomized control trial to assess effectiveness of a peer-mediated intervention to improve play in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*. 2021;51(6):1823–1838. <https://doi.org/10.1007/s10803-020-04671-5>
45. Kuhanek H, Spitzer SL, Bodison SC. A systematic review of interventions to improve the occupation of play in children with autism. *OTJR: Occupational Therapy Journal of Research*. 2019;40(2):83–98. <https://doi.org/10.1177/1539449219880531>
46. Liu Q, Hsieh W-Y, Chen G. A systematic review and meta-analysis of parent-mediated intervention for children and adolescents with autism spectrum disorder in mainland China, Hong Kong, and Taiwan. *Autism*. 2020;24(8):1960–1979. <https://doi.org/10.1177/1362361320943380>
47. MacKenzie KT, Eack SM. Interventions to improve outcomes for parents of children with autism spectrum disorder: A meta-analysis. *Journal of Autism and Developmental Disorders*. 2022;52(7):2859–2883. <https://doi.org/10.1007/s10803-021-05164-9>
48. Miller-Kuhanek H, Watling R. parental or teacher education and coaching to support function and participation of children and youth with sensory processing and sensory integration challenges: A systematic review. *The American Journal of OccupationalTherapy*. 2018;72(1):1-11. <https://doi.org/10.5014/ajot.2018.029017>
49. Naveed S, Waqas A, Amray AN, Memon RI, Javed N, Tahir MA, Ghozy S, Jahan N, Khan AS, Rahman A. Implementation and effectiveness of non-specialist mediated interventions for children with Autism Spectrum Disorder: A systematic review and meta-analysis. *PloS one*. 2019;14(11):e0224362–e0224362. <https://doi.org/10.1371/journal.pone.0224362>
50. Novak I, Honan I. Effectiveness of paediatric occupational therapy for children with disabilities: A systematic review. *Australian Occupational Therapy Journal*. 2019;66(3):258–273. <https://doi.org/10.1111/1440-1630.12573>
51. Omairi C, Mailloux Z, Antoniuk SA, Schaaf R. Occupational therapy using Ayres Sensory Integration®: A randomized controlled trial in Brazil. *The American Journal of Occupational Therapy*. 2022;76(4). <https://doi.org/10.5014/ajot.2022.048249>
52. Pfeiffer B, Clark GF, Arbesman M. Effectiveness of cognitive and occupation-based interventions for children with challenges in sensory processing and integration: A systematic review. *The American Journal of Occupational Therapy*. 2018;72(1):1-9. <https://doi.org/10.5014/ajot.2018.028233>
53. Randell E, Wright M, Milosevic S, Gillespie D, Brookes-Howell L, Busse-Morris M, Hastings R, Maboshe W, Williams-Thomas R, Mills L, et al. Sensory integration therapy for children with autism and sensory processing difficulties: the SenITA RCT. *HealthTechnologyAssessment*. 2022;26(29).

54. Saxena S, Mitchell J, Ehsan A, Majnemer A, Shikako-Thomas K. Online peer mentorship programmes for children and adolescents with neurodevelopmental disabilities: A systematic review. *Child: Care, Health & Development*. 2020;46(1):132–148. <https://doi.org/10.1111/cch.12726>
55. Schaaf RC, Dumont RL, Arbesman M, May-Benson TA. Efficacy of occupational therapy using Ayres Sensory Integration ®: A systematic review. *The American Journal of Occupational Therapy*. 2018;72(1):1-10. <https://doi.org/10.5014/ajot.2018.028431>
56. Schoen SA, Lane SJ, Mailloux Z, May-Benson T, Parham LD, Smith Roley S, Schaaf RC. A systematic review of Ayres Sensory Integration intervention for children with autism. *Autism Research*. 2019;12(1):6–19. <https://doi.org/10.1002/aur.2046>
57. Severini KE, Ledford JR, Robertson RE. Systematic review of problem behavior interventions: outcomes, demographics, and settings. *Journal of autism and developmental disorders*. 2018;48(10):3261–3272. <https://doi.org/10.1007/s10803-018-3591-0>
58. Shum KK-M, Cho WK, Lam LMO, Laugeson EA, Wong WS, Law LSK. Learning how to make friends for Chinese adolescents with autism spectrum disorder: A randomized controlled trial of the Hong Kong Chinese version of the PEERS® intervention. *Journal of Autism and Developmental Disorders*. 2019;49(2):527–541. <https://doi.org/10.1007/s10803-018-3728-1>
59. Valentine AZ, Hall SS, Young E, Brown BJ, Groom MJ, Hollis C, Hall CL. Implementation of telehealth services to assess, monitor, and treat neurodevelopmental disorders: Systematic review. *Journal of medical Internet Research*. 2021;23(1):e22619. <https://doi.org/10.2196/22619>
60. Wang X, Zhao J, Huang S, Chen S, Zhou T, Li Q, Luo X, Hao Y. Cognitive behavioral therapy for autism spectrum disorders: A systematic review. *Pediatrics*. 2021;147(5):1. <https://doi.org/10.1542/peds.2020-049880>
61. World Bank Group. Countries and economies. 2023 [accessed 20230708]. <https://data.worldbank.org/country>
62. Sacrey L-AR, Bennett JA, Zwaigenbaum L. Early infant development and intervention for autism spectrum disorder. *Journal of Child Neurology*. 2015;30(14):1921–1929. <https://doi.org/10.1177/0883073815601500>
63. Provenzani U, Fusar-Poli L, Brondino N, Damiani S, Vercesi M, Meyer N, Rocchetti M, Politi P. What are we targeting when we treat autism spectrum disorder? A systematic review of 406 clinical trials. *Autism*. 2020;24(2):274–284. <https://doi.org/10.1177/1362361319854641>
64. World Health Organization. Task shifting: Global recommendations and guidelines. 2008 [accessed 2020 06 13]. <https://www.who.int/healthsystems/TTR-TaskShifting.pdf?ua=1>
65. Galvin M, Byansi W. A systematic review of task shifting for mental health in sub-Saharan Africa. *International Journal of Mental Health*. 2020;49(4):336–360. <https://doi.org/10.1080/00207411.2020.1798720>

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KEYWORDS

intersectoral burn injury intervention, multidisciplinary rehabilitation, pressure garment, splinting, systematic review, randomised control trial, psychosocial functioning, occupational engagement

HOW TO CITE THIS ARTICLE

van Biljon HM, Engelbrecht M, van der Walt J, Soeker, SM. *Occupational therapy practice with burn injuries. A rapid review*. South African Journal of Occupational Therapy. Vol 54 No 1. April 2024. DOI: <https://doi.org/10.17159/2310-3833/2024/vol54no1a10>

ARTICLE HISTORY

Submitted: 9 July 2023

Reviewed: 1 October 2023

Revised: 13 October 2023

Accepted: 13 October 2023

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FUNDING

The Occupational Therapy Association of South Africa (OTASA) who requested the authors to do this rapid review, remunerated them.

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ISSN On-line 2310-3833

Occupational therapy practice with burn injuries: A Rapid Review

ABSTRACT

Introduction: The Occupational Therapy Association of South African commissioned a task team to gather evidence that would inform upcoming National Health policies on the role and practice of occupational therapists. This rapid review aimed to identify level 1 and 2 peer reviewed published evidence that describes occupational therapists' practice and intervention in all types of burn injuries, at all levels of care, and for all age groups.

Method: Using the South African Department of Health template and the Cochrane Rapid Reviews method guide, a search for level 1 and 2 evidence sourced articles from CINAHL (EBSCO), MEDLINE (EBSCO), the Cochrane Library (Wiley) and OTSeeker data bases through the Stellenbosch University library with hand searching of references in the selected articles. Rayyan was used for the screening and selection of articles. The CASP appraisal tool was used for risk bias and quality assessment of the selected articles. Data was captured in Excel and Word, and analysed and synthesised in Microsoft Excel and Taguette. Results were presented in the form of an online workshop to stakeholders and discussions and questions incorporated into the discussion and conclusion of this review.

Results: Eleven articles were selected and their quality assessed. Seven categories of evidence of occupational therapy interventions were extracted from selected articles: pain, oedema, scarring and abnormal skin sensations, joints and range of motion, psycho-social and functional impact of burn injuries, the education of burn injury victims and their families, and vocational rehabilitation. All interventions took place in healthcare facilities. Nine articles referred to occupational therapists working in multi-disciplinary teams. Occupational therapist worked with children and adult burn injury victims and with a variety of type of burn injury from acute to post discharge phases.

Conclusion: There is level 1 and 2 evidence confirming occupational therapy intervention with burn injury victims with all ages and at all stages of injury within healthcare facilities. None of the evidence found is from the South African context. Such levels of evidence are needed to promote occupational therapy intervention in primary, preventative and community contexts.

Implications for practice:

Internationally there is level 1 and 2 evidence that confirms occupational therapists are members of multi-disciplinary teams addressing the functional ability and participation in activities of burn injury victims. None of this evidence is from South Africa. As a matter of priority, South African clinical occupational therapy practice and intervention within the field of burn injury, need to be researched and disseminated as level 1 and 2 evidence.

INTRODUCTION

A burn injury is an injury to the skin or other organic tissue, caused by heat, radioactivity, electricity, friction or chemical contact¹. Burn injuries are a global public health problem and most burn injuries occur in the home or workplace. Living in low- and middle-income countries (LMICs) puts people at greater risk for burn injuries than those in high-income

countries (HICs) and burn risk correlates with socioeconomic status. High risk population groups for burn injuries are females, children under the age of 5 and older adults. In South Africa, where inequality is among the highest in the world, more than half of the population live below the country's designated upper-middle-income poverty line² and burns in this population group are seen as a major public health issue, responsible for a significant amount of long term disability³. A literature review on rehabilitation practices for burns survivors in low and middle income countries⁴ calls for research to investigate undocumented burn rehabilitation services.

The World Health Organisation (WHO) constitution states that *"health is a state of complete physical, mental and social well-being" and that "the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition"*^{5:1}. This ethos is also enshrined in the South African Constitution⁶ and, with a specific focus on rehabilitation, in the National Rehabilitation Policy (NRP)⁷. This policy emphasises the creation of equitable, accessible and quality rehabilitation services for all in South Africa, describing the components of rehabilitation as: prevention and health education, identification and diagnosis, medical rehabilitation and therapeutic devices, education, assistive devices, vocational rehabilitation and psychosocial rehabilitation⁷. A position paper focusing on the role of occupational therapy within rehabilitation the Occupational Therapy Association of South Africa (OTASA)⁸, positions occupational therapy rehabilitation as the link between healthcare and the resumption of daily occupations. The latter brings purpose, meaning and satisfaction in life and allows the realisation of potential⁸. To achieve such ideals, legislation⁹ and strategies such as the National Health Insurance (NHI)¹⁰ were effected and associations representing rehabilitation professions, were approached to provide evidence for best practice. For occupational therapy practices to be recognised and remunerated, an evidence base that is contextually relevant and that has been informed by high quality research is important¹¹.

In order to provide evidence for best practice, OTASA commissioned the development of standard operating procedures (SOPs) and operationalised a task team of occupational therapists to compile level 1 and 2 evidence in the form of rapid reviews to support and inform the SOPs. Level 1 and 2 evidence, as described by Burns et al.¹², is evidence produced in the form of systematic reviews and randomised control trials (RCT) . To produce a summary of such evidence for stakeholders. Garritty et al.¹³ suggests the use of a rapid review. This rapid review has a specific focus on occupational therapy intervention offered for burn injuries, and excluded review of effectiveness of different interventions. Three documents were used to inform the planning, analysis, synthesis, reporting format of the results, discussion and conclusion, namely the WHO's information document on burn injuries¹, the South African rehabilitation policy⁷ and the OTASA's burns SOP¹⁴.

Summary of the focus for this rapid review

This rapid review was aimed at identifying level 1 and 2 peer reviewed published evidence that describes occupational therapy intervention for all types of burns injuries at all levels of healthcare and for all age groups.

METHOD

The OTASA rapid review task team consisted of the four authors, all of them occupational therapists. They met on a weekly basis to ensure consistency and uniformity in approach. The South African Department of Health method guide and template for rapid reviews¹⁵ and the Cochran Rapid Reviews method guide¹³ were used to inform the methodology for this rapid review. The first author and principal researcher for this review, was assisted by the other authors during all phases of the review. The time frame in which this rapid review was completed was January 2023 to May 2023.

Search strategy

Step1: Topic and review refinement

The OTASA Rapid Review Task Team and authors of the OTASA SOP were stakeholders involved in setting and refining the review question, eligibility criteria and outcome. The review question formulated was: *What burn injury related Level 1 and 2 evidence exists for occupational therapy intervention across the human lifespan?*

The following population, intervention and outcome (PIO) elements were discussed and considered for the review: *Population:* A human being, from all age, gender and cultural groups, who had sustained a burn injury, for which intervention at any setting or level of healthcare is needed and/or sought with a referral to occupational therapy. *Intervention:* Any form of occupational therapy as per the WFOT and OTASA definition and the OTASA Burns SOP^{14,16,17}. *Outcomes:* Occupational therapy intervention that enables persons whose functional ability is affected by burn injuries, enhancing their ability to engage in the occupations they value, want to, need to, or are expected to do, or modifying the occupation or environment to better support their occupational engagement.

Step2: Strategy and search

Evidence considered for this review included systematic reviews and RCTs written in English, peer reviewed, published between January 2012 - May 2023 and that were accessible to the review team as full texts. Three of the reviewers had access to the Stellenbosch University library where the following data bases were searched by the first author, on¹³ March 2023: CINAHL (EBSCO), MEDLINE (EBSCO), the Cochrane Library (Wiley) and OTSeeker. A hand search of the references of articles that were selected after screening, was then undertaken.

The OTASA Burns SOP document¹⁴, Medical Subject Headings (MeSH), key and index words with Boolean operators and the Participant, Intervention, Outcome (PIO) were used during an iterative group checking process, to develop the search string shown in Table I (page 89).

Table I Search strings used in the rapid review

Burn Injury	Outcome	Occupational therapy intervention	Level of Healthcare
("burn" OR "corrosion" OR "degree of burn" OR "body region" OR "burn site" OR "extent of burn" OR "body surface" OR "contracture" OR "amputation" OR "skin graft" OR scar* OR "post-traumatic stress disorder")	("energy and drive functions" OR "sleep functions" OR "emotional function" OR "proprioceptive function" OR "touch function" OR "generalised pain" OR "pain in head, neck, back, upper limb, lower limb, joints" OR "mobility of joint functions" OR "stability of joint functions" OR "muscle power" OR "gait function" OR "movement function" OR "protective functions of skin" OR "repair functions of skin" OR "sensations related to the skin")	("activities of daily living" OR "ADL" OR "IADL" OR "return to work" OR "return to school" OR "return to home" OR "social integration" OR "physical appearance" OR "daily activity function" OR "scar management" OR "range of motion" OR "total body surface" OR splint* OR "static, progressive, dynamic splinting" OR scar* OR "pressure garment" OR "pain management" OR "oedema management" OR "patient education" OR "caregiver education" OR "exercise" OR "joint positioning" OR "compression garments" OR "silicone and scar softening" OR "skin care" OR "massage" OR "assistive device" OR "home program")	("ICU" OR "outpatient" OR "inpatient" OR "community" OR "clinic")

In addition, the following database-specific restrictors were used:

- CINAHL (EBSCO): Date, Language and Full Text availability: 9 articles were found. Adding "occupational therap*": 42 articles were found including the previous 9. Adding "randomised control trial" OR "RTC" and "systematic review": produced nothing.
- MEDLINE (EBSCO): "occupational therap*" AND "burn*", the date range, language, Linked Full Text, Abstract available, Human, All sex, All clinical, Scholarly (Peer Reviewed) Journals, All ages, All subject subsets: 35 articles were found.
- Cochrane Library (Wiley): Applying the date, All Text and the above search string showed no results. Adding "occupational therap*" AND "burn*" still had no results.
- OTSeeker advanced search option was used with the date range and the Burns, resulted in 10 articles.

The 42 articles from CINAHL, 35 articles from MEDLINE, and 10 articles from OTSeeker were downloaded into the reference manager Mendeley18 which removed 14 duplicates. From hand-searching references of the 73 articles, four articles were found relevant and added to the final evidence pool of 77 articles.

Step 3: Study Screening and Selection

Rayyan¹⁹ software was used to screen articles and generate a PRISMA flow diagram (Figure 1 adjacent). Two of the authors, used the blinded setting to screen the articles and conflicts were resolved by discussion and consensus. Title and abstract

screening excluded 63 articles and full text screening a further three, resulting in 11 articles being included for the review.

Step 4: Risk of bias assessment, quality appraisal and data extraction

The first author created data extraction templates in Excel and Word to extract quantitative and qualitative data from the included articles. The Critical Appraisal Skills Programme (CASP)^{20,21} appraisal tool, which offers healthcare professional various checklists to check the quality of articles, was used. The CASP Systematic Review²⁰ and the CASP RCT²¹ checklists were applied in this rapid review. The quality rating indicated in Table III (page...) was devised by allocating scores to the three answer options: Yes = 2, Can't tell = 1, and No = 0. A higher rating percentage indicated higher quality research. Comments were noted during the appraisal and considered in the discussion section of this review.

Step 5: Evidence Synthesis

Quantitative data were analysed in Excel predominantly with frequencies/percentages. The qualitative data were analysed using Taguette²². During weekly group discussions the results of the analysis were reported and discussed. Final synthesis of the results was done by the first author.

Step 6: Reporting and dissemination of results

The results of the rapid review were presented in the form of an online workshop with 274 attendees. The workshop was organised by OTASA for stakeholders who included the OTASA membership, OTASA management and members of the Health Professions Council of South Africa (HPCSA) board. Discussion, questions and feedback from attendees were encouraged. These were considered and used to enrich and refine the review's discussion and conclusion.

RESULTS

The PRISMA 2020 diagram²³, Figure 1 (below), shows the results of the search, screen and selection of burn related evidence for occupational therapy.

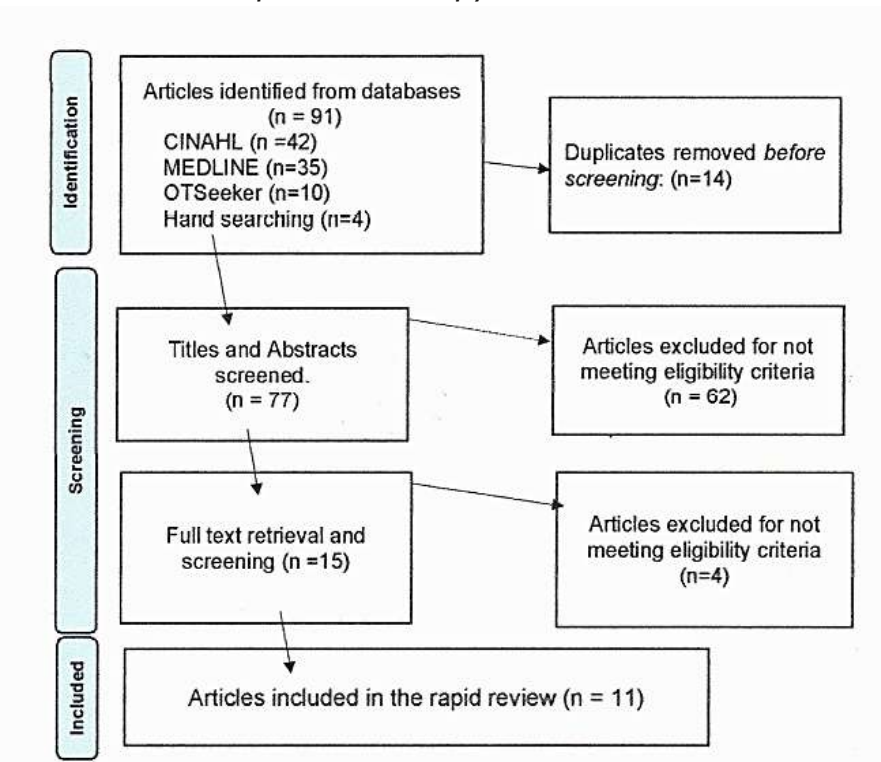


Figure 1. PRISMA2020 the results of the searching, screening and selection of articles.

Table II (below) lists the 11 included articles, in order of year of publication. There were five randomised control trials (RCT's) and six systematic reviews. All articles had a university affiliation and were published in high impact journals hosted by publishing companies and that had 'pay-to-publish' policies. None of them were from South Africa. Only one author had an African affiliation. Four of the articles were from Australia, three from North America and one from South America. There was one article from Iran, one from China and one article reported a multi-national collaboration.

Table II. Articles used in this Rapid Review.

Citation	Country and author affiliations
Edger-Lacoursière Z, et al. (2023) 'Rehabilitation interventions after hand burn injury in adults: A systematic review', Burns: Journal of the International Society for Burn Injuries, 49(3), pp. 516–553. doi: https://doi.org/10.1016/j.burns.2022.05.005 ²⁴	Canada School of Physical and Occupational Therapy, McGill University Rehabilitation Hospital
Khanipour, M. Lajevardi, L. Taghizadeh, G. Azad, A. Ghorbani, H. (2022) 'The investigation of the effects of occupation-based intervention on anxiety, depression, and sleep quality of subjects with hand and upper extremity burns: A randomized clinical trial', Burns: Journal of the International Society for Burn Injuries, 48(7), pp. 1645–1652. doi: https://doi.org/10.1016/j.burns.2022.02.014 ²⁵	Iran Iran University of Medical Sciences Shahid Motahari Burns Hospital
Wiseman J, Ware RS, Simons M, McPhail S, Kimble R, Dotta A, Tyack Z. (2020) 'Effectiveness of topical silicone gel and pressure garment therapy for burn scar prevention and management in children: a randomized controlled trial'. Clinical Rehabilitation, Vol. 34(1) 120 –131. https://doi.org/10.1177/02692155198775 ²⁶	Australia University of Queensland, Queensland Children Hospital
Parry IS, Schneider JC, Yelvington, M, Sharp P, Serghiou M, Ryan CM, Richardson E, Pontius K, Niszczak J, McMahon M, Macdonald LE, Lorello D, Kehrer CK, Godleski M, Forbes L, Duch S, Crump D, Chouinard A, Calva V, Bills S, Benavides L, Acharya HJ, de Oliveira A, Boruff J, Nedelec B. (2020) 'Systematic review and expert consensus on the use of orthoses (splints and casts) with adults and children after burn injury to determine practice guidelines', Journal of Burn Care & Research, 41(3), pp. 503–534. ²⁷	USA, Canada Shriners Hospital for Children California. University of California–Davis
Crofton, E. Meredith, P. Gray, P. O'Reilly, S. Strong, J. (2020) 'Non-adherence with compression garment wear in adult burns patients: A systematic review and meta-ethnography', Burns: Journal of the International Society for Burn Injuries, 46(2), pp. 472–482. doi: https://doi.org/10.1016/j.burns.2019.08.011 ²⁸	Australia University of Queensland Queensland Health
Novak, I. and Honan, I. (2019) 'Effectiveness of paediatric occupational therapy for children with disabilities: A systematic review', Australian Occupational Therapy Journal, 66(3), pp. 258–273. doi: https://doi.org/10.1111/1440-1630.12573 ²⁹	Australia University of Sydney
Scapin, S. Echevarría-Guanilo ME, Fuculo Junior PRB, Gonçalves, N Rocha PK, Coimbra R. (2018) 'Virtual Reality in the treatment of burn patients: A systematic review', Burns: Journal of the International Society for Burn Injuries. Guildford, Surrey: Butterworth Scientific Ltd, pp. 1403–1416. doi: https://doi.org/10.1016/j.burns.2017.11.002 ³⁰	Brazil Universities of Santa Catarina and Pelotas
Zhang, Y., Li-Tsang, C. W. P. and Au, R. K. C. (2017) 'A Systematic Review on the Effect of Mechanical Stretch on Hypertrophic Scars after Burn Injuries', Hong Kong Journal of Occupational Therapy, 29, pp. 1–9. doi: https://doi.org/10.1016/j.hkjot.2016.11.001 ³¹	China Hongkong Polytechnic University Sichua University
Wiechman, S. A, Carrougheer GJ, Esselman PC, Klein MB, Martinez EM, Engrav LH, Gibran NS. (2015) 'An expanded delivery model for outpatient burn rehabilitation. Journal of Burn Care & Research, 36(1), pp. 14–22. doi: https://doi.org/10.1097/BCR.0000000000000153 ³²	USA School of Medicine, University of Washington,
Brown, N. J., Kimble, R. M., Rodger, S., Ware, R. S. & Cuttle, L. (2014). 'Play and heal: Randomized controlled trial of Ditto™ intervention efficacy on improving re-epithelialization in paediatric burns. Burns: Journal of the International Society for Burn Injuries, 40 (2), 204–213. https://doi.org/10.1016/j.burns.2013.11.024 ³³	Australia Burn Care Centre, Royal Hospital University of Queensland
Omar MTA, Hegazy FA, and Mokashi SP. (2012) 'Influences of purposeful activity versus rote exercise on improving pain and hand function in paediatric burn', Burns: Journal of the International Society for Burn Injuries. 38(2), pp. 261–268. Available at: http://www.otseeker.com ³⁴	Egypt, Saudi Arabia, United Arab Emirates and India. Cairo University Egypt King Saud University, Saudi Arabia

Quality appraisal

The results of the Critical Appraisal Skills Programme (CASP) Randomised Controlled Trial Standard checklist²¹ and Systematic Review checklist²⁰ for the articles ratings expressed in percentage are presented in Table III (below). The sample size of each article reported the number of participants, if it was a RCT and the number of articles included if it was a systematic review.

Table III. Type of evidence, sample size and CASP rating of included articles.

Article	Type of evidence	Sample size	CASP rating
Edger-Lacoursière Z, et al. ²⁴	Systematic review	35	80%
Khanipour, M. et al. ²⁵	RCT	20	80%
Wiseman J, et al. ²⁶	RCT	152	85%
Parry IS, et al. ²⁷	Systematic review	50	100%
Crofton, E. et al. ²⁸	Systematic review	5	90%
Novak, I. et al. ²⁹	Systematic review	129	90%
Scapin, S. et al. ³⁰	Systematic review	34	80%
Zhang Y et al. ³¹	Systematic review	9	80%
Wiechman, S. A,et al. ³⁵	RCT	81	85%
Brown, N. J., et al. ³³	RCT	75	80%
Omar MTA,et al. ³⁶	RCT	30	80%

Occupational therapy interventions reported

The articles provided evidence for occupational therapy involvement with the management of pain, oedema, scarring, abnormal skin sensation, joints and range of motion, psycho social issues, the functional impact of burn injury, the education of burn injury victims and their families and vocational rehabilitation. In some article's, tools, tests, equipment, and specific approaches that occupational therapists used during their intervention were also mentioned.

Occupational therapists were involved in pain management of burn injury victims specifically through play therapy and virtual reality. The use of play therapy with children with burn injuries showed better outcomes in terms of pain reduction, improvement of total active movement and hand function than those achieved using rote exercises³⁴. Using virtual reality games and devices within this context was reported in several studies. The DittoTM (hand held education & distraction device for burns patients) device proved to be a worthwhile tool for paediatric pain management and as an adjunct to pharmacological analgesia therapeutic wound care procedures³³. Virtual reality goggles were also used effectively for adjunctive pain control during occupational therapy in paediatric burn injury patients³⁰. Occupational therapists used the following tools to rate the pain of service users with burn injuries: Adolescent Paediatric Pain Tool³⁰, Numeric Pain Rating Scale (NPRS)³⁰, Faces Pain Scale^{30,34}, Face, legs, activity, cry, consolability (FLACC)³⁰, Wong-Baker faces³⁰, Pain Behaviour Scale³⁰, Visual analogue scale³⁴ and the Children Trauma Screening Questionnaire²⁶.

Oedema, scar and skin sensation management were reported occupational therapy interventions. The use of compression (adhesive compressive wrap, compression

bandage or intermittent compression pump) to decrease hand oedema and increase hand function²⁴ was reported. Elevation exercises, reversible massage, compression bandages and passive mobilization were used to reduce oedema that caused pain, maintain proper positioning and prevent deformity that affected function^{34,24}. Intervention related to scarring was comprehensively reported with passive and active stretching being one of the most commonly used therapeutic techniques for scar management by both physiotherapists and occupational therapists³¹. Massage and splinting after burn injuries were defined as conservative scar management techniques used by occupational therapists³¹. Topical silicone gel and pressure garment therapy were interventions used for the prevention and management of abnormal post-burn scarring in children²⁶, adults²⁸ and to reduce hand scar thickness²⁴. With burn injuries, the experience of itch and pain is grouped into the category of sensory factors. Individuals overwhelmed by sensory information may experience stress and anxiety, and may engage in avoidance behaviours²⁸. Occupational therapists' concern about the impact of such sensory factors on function was also reported. Therapists therefore also provided patients with strategies to deal with discomfort caused by pressure garment wear which included: adjusting and replacing the garments, massage and relaxation techniques²⁸.

Occupational therapy outcomes for increased joint range of motion and the prevention of contracture management were achieved predominantly through splinting, casts and positioning^{24,27,34}. The use of virtual reality, paraffin wax and massage to increase passive range of motion in the hand before engagement in activities of daily living was reported as an effective occupational therapy intervention^{24,30}. Occupational therapy also incorporated the use of virtual reality-based rehabilitation to increase hand function and hand strength²⁴. Play and games which reduce pain, improve hand movement and function as well as being reusable and versatile, are suggested options in the rehabilitation of children with a hand burn injury³⁶. Hand function was measured using: Jebsen-Taylor hand function test (JTHFT) Michigan Hand Outcomes Questionnaire (MHQ), Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire, ergometer for range of motion of thumb IP joint, hydraulic dynamometer and pinch gauge^{36,24}.

Occupational therapy in addressing psychosocial interventions were also reported in seven of the articles. These included chronic pain due to burns, scarring and the wearing of pressure garments which affected mental health, led to sleep deprivation, feelings of unattractiveness and lowered self-esteem and social acceptance^{34,35,28}. Occupation-based interventions were reported to be effective in improving the anxiety, depression, and sleep quality in patients with hand burn injuries and were used to facilitate a sense of power and well-being in burn injury victims²⁵. One of the occupation-based interventions used was the Cognitive Orientation to daily Occupational Performance (CO-OP) which proved effective in enabling the ability to perform meaningful activities and to reintegrate into society for patients with hand and upper extremity burns²⁵. This protocol, along with traditional occupational therapy rehabilitation,

proved an effective intervention on improving anxiety, depression, and sleep quality²⁵. Virtual reality technology used during rehabilitation was associated with increased enjoyment, the reduction of pain, anxiety and stress³⁰. Ditto™ provides procedural distraction and self-management education with a reduction of pain and anxiety being achieved in acute paediatric and adult burn injury victims^{33,29}. Tests and tools used to assess psychosocial components were the Beck Anxiety Inventory (BAI), Self-Rating Depression Scale (SDS) and the Pittsburgh Sleep Quality Index²⁵.

Patients with burn injuries reported reduced participation in activities of daily living, or an inability to fulfil premorbid roles²⁴. Functional limitations caused by burn related injuries or resulting therapy were attended to by occupational therapists^{28,34}. They did so through facilitation and adaptation of activities of daily living, including the provision of adaptive equipment, such as ADL universal cuffs and auxiliary tableware, and providing instructions for their use²⁴. Interventions such as pressure garments however, were reported to cause restriction in homemaking, personal hygiene, shopping, leisure activities, and use of transportation²⁸. The Canadian Occupational Performance Measure (COPM) was used to determine occupational performance level and satisfaction²⁵. Quality of life and activities of daily living (ADL) was measured using: Barthel Index (BI)³⁵, Functional Independence Measure (FIM)²⁷, Burns Specific Health Scale-Brief (BSHS-B)²⁴.

Occupational therapists applied an education component in their rehabilitation to increase the level of burn knowledge in their patients and their care givers²⁴. Collaboration with parents of children with burn injuries was found to be an effective occupational therapy intervention²⁹. It was also found that education, feedback, practical and emotional support from occupational therapists could aid adherence to the wearing of pressure garments²⁸.

Vocational rehabilitation intervention by occupational therapists in the form of an outpatient work-hardening programme was reported as effective. The work hardening programme was a 4–6-week programme, including physical reconditioning, job simulation, education, and evaluation and monitoring of work-related behaviours and attitudes. Hours of participation were graded weekly, with the 1st week requiring 4 hours a day to 8 hours a day in the final week²⁴. The Valpar 9 whole body range of motion work sample test was used to evaluate the outcome³⁵.

All interventions of the randomised control trials and those systematic reviews that did mention the setting were reported to take place in healthcare facilities. These included burn units or centres in general hospitals^{34,33}, outpatient departments^{35,26}, children hospitals³⁵, and specialised burns centres and hospitals^{25,35}. No mention was made of occupational therapists working in communities, places of employment, schools or patients' homes. Nine of the 11 articles mentioned occupational therapist working in multidisciplinary teams.

Occupational therapists were reported to work with children²⁶ and the following age categories were specified: 4–12 years³³, 8–14 years³⁴. They also worked with adults who had burn injuries and only one article reported biographic information; 18–65 years²⁵. The types of burns which were

reported, were hand and upper extremity burns^{34, 24, 25}, acute burn stage^{26 33}, superficial and deep partial and full thickness thermal burns³⁴, second to third degree burns²⁵, hypertrophic scars caused by burns³¹ and burn injuries which had been skin grafted^{22,23}.

DISCUSSION

Rehabilitation is included in the WHO definition of comprehensive healthcare⁵, and is positioned within preventive, promotive, curative and palliative care³⁷ but remains poorly understood by healthcare managers and workers in South Africa³⁸. A reasonable deduction, based on the small amount of published evidence found in this rapid review, is that rehabilitation specifically focused on burn injury rehabilitation and narrowed down even more to occupational therapy intervention, is in dire need of evidence to inform healthcare managers for planning of future healthcare systems.

Guided by the South African rehabilitating policy⁷ and the OTASA standard operating procedure for burn injuries¹⁴ the following three sectors of intervention were used in the discussion of the results of this review: prevention intervention, in- and outpatient intervention, and community intervention.

Primary Prevention intervention is to prevent impairment or disability from arising, to reduce the degree of disability and to reduce or address social disadvantage arising from a burn injury. None of the articles provided evidence of occupational therapy primary prevention intervention. This is of concern in the light of the World Health Organisation’s plan for burn injury prevention and care notes and the United Nations Sustainable Development Goals³⁹.

In- and outpatient intervention are offered when the service user goes to the occupational therapist at a healthcare facility. Intervention in such facilities requires the identification of disability or impairment with the aim of providing rehabilitation intervention. Interventions are aimed at limiting or arresting the effects of impairment or disability allowing service users with burn injuries to regain functional abilities, continue development, and enjoy quality life.

Community intervention entails the occupational therapist providing services outside of the health care facility to the service user. Such intervention is usually to follow-up, to assist and guide users and relevant role players in social and or economic wellbeing, and developing educational levels and/ or vocational skills and aptitudes for them to access places and participate in activities they value within communities of their choice. The OTASA position statement on rehabilitation⁸ states that in addition to facility-based rehabilitation programmes, occupational therapists are committed to community-based rehabilitation (CBR). Another concern is that there was no evidence to support occupational therapy burn injury interventions in the community while, in South Africa, taking rehabilitation to those who need it, is a key strategy to ensure equitable access to quality health care. Such a strategy should address social integration of people with disfiguring injuries or disabilities which is often the case with burn survivors. The development of rehabilitation programmes or services at community level should be given

high priority to ensure the implementation of strategies that aim to educate and increase awareness about preventing common diseases and injuries which frequently cause disability, for example, hypertension, diabetes, **burn injuries**, road accidents^{7,39}.

The OTASA SOP document which outlines¹⁴ South African occupational therapists’ intervention with burn injuries was in a draft format at the time of this review, however it clearly lays out interventions, tools, tests and stages of rehabilitation.

Many of these were supported by the evidence from this review but not all. Table IV (below) shows the detail of what procedures were and were not supported by evidence reported in this rapid review.

Table IV. Supported and unsupported OTASA standard operating procedures

Standard operating procedures supported by results from this rapid review	Standard operating procedures unsupported by results from this rapid review
Canadian Occupational Performance Measure (COPM)	Occupational Adaptation model
Functional Independence Measure (FIM)	CARE Tool
Virtual Reality	PTSD
Pain management (VAS, questionnaires, et) anxiety due to pain	Nutrition (NGT with inhalations), special high protein diets
Oedema management (Circumferential)	Burn prevention and health promotion (use of paraffin stoves, open fires, basic burn first aid to do education and awareness
Active and passive ROM, muscle strength, endurance	Care giver training
Psychosocial factors (body image, self-esteem)	Home programmes
Scar Management and Pressure garments	
Splinting and education	
ADLS and IADLS	
Positioning	

Investigating the current occupational therapy research focus areas in South Africa, Soeker et al.¹¹ found that there was a scarcity of level 1 research evidence, across all fields of practice. They recommended that university research committees develop Think Tanks of academics, clinicians and communities to plan research focus areas. The education of under- and post-graduate occupational therapy students should also emphasise the development and of level 1 research methods and skills. They also addressed the need for research funding and awards to prioritise South African level 1 evidence research projects in occupational therapy.

Limitations of the study

The eligibility criteria of articles for this rapid review, namely level 1 and 2 evidence and peer reviewed articles published after 2012, ruled out published research done in South Africa and therefore articles that reported contextually relevant evidence related to the review question.

Gatekeeping of access to scientific evidence, mostly by large for-profit publishing companies, is a global concern. The pay-to-read or pay-to-publish concept favours large institutions, the rich and/or those fortunate enough to be affiliated with tertiary academic institutions. This excludes smaller non-profit groups, from scientific evidence. Due to the authors’ affiliations with Stellenbosch University and the University of the Western Cape, access could be gained to repositories paid for by these two institutions. but this evidence may not be

readily available to occupational therapy clinicians to guide their practice.

Future research and other recommendations

Evidence from levels 3 and 4 research should be considered. Systematic reviews and randomised control trials are types of research that presupposes a high level of academic experience and are expensive and time-consuming. Unfortunately, this is the evidence requested by authorities to set prescribed minimum benefits and finance health intervention. Graham et al⁴⁰ supports this recommendation. They concur that conventional research methods, including randomized controlled trials, are powerful techniques for determining the efficacy of interventions. However, these designs, have practical limitations in many rehabilitation settings and they also suggest the consideration of available alternative methods.

Clinical researchers need to be enabled, supported and incorporated into research teams that generate evidence of occupational therapy intervention in burn injuries.

Research task teams should be established with specific directives to find, consolidate and publish evidence to fill the gaps identified in this review, namely occupational therapy intervention for prevention of burns-related disability, and community-based occupational therapy interventions for burn injuries in South Africa.

Ethical considerations

Ethical clearance was not required for this review as no primary data collection was done. The quality and bias of selected articles were tested to ensure quality results to inform the question of this review.

CONCLUSION

There is international level 1 and 2 evidence that confirms occupational therapy burn injury intervention with pain, oedema, scarring and abnormal skin sensation, joints and range of motion, psycho social, functional impact of burn injuries, the education of burn injury victims and their families and vocational rehabilitation. In addition, evidence shows that occupational therapists work with children and adults who had suffered burn injuries.

The South African National Rehabilitation Policy acknowledges that policymakers and funders, both nationally and provincially, have historically regarded rehabilitation as a low priority or an unaffordable luxury⁷. The reasons for this are complex and multi-faceted. In the case of burn rehabilitation, one of these facets is the absence of South African occupational therapy evidence that supports what clinicians do in the field of burn injury. Publishing evidence for practice should be a priority. Such evidence should start at preventing disability and impairment and include intervention in community rehabilitation. It should importantly include the clinical intervention of community service and basic level occupational therapists, those working with limited experience, resources and support at the coalface of rehabilitation.

Acknowledgements

The team would like to acknowledge Stellenbosch University (SU), the SU library and SU occupational therapy departments who assisted, encouraged and enabled the access to evidence used in this rapid review. We also acknowledge the Chief Operating Officer of OTASA, Anisha Ramlaul, for her vision, organising of the workshop and patience in this project. Without their support this review would not have been possible.

Conflicts of Interest

The authors have no conflict of interest to declare

Author contributions

Shaheed M. Soeker initiated and supervised the rapid review. All authors planned and participated in the review. Hester van Biljon wrote the article, which was approved by all listed authors.

REFERENCES

1. World Health Organisation. Burns. Fact Sheet, <https://www.who.int/news-room/fact-sheets/detail/burns>(2018).
2. The World Bank IBRD + IDA. The World Bank in South Africa. #AFRICA CAN. Epub ahead of print 2023. <https://www.worldbank.org>
3. Cloake T, Haigh T, Cheshire J, et al. The impact of patient demographics and comorbidities upon burns admitted to Tygerberg Hospital Burns Unit, Western Cape, South Africa. Burns 2017;43:411–416. <https://doi.org/10.1016/j.burns.2016.08.031>
4. Jagnoor J, Lukaszyc C, Fraser S, et al. Rehabilitation practices for burn survivors in low and middle income countries: A literature review. Burns 2018; 44: 1052–1064. <https://doi.org/10.1016/j.burns.2017.10.007>
5. World Health Organization. Constitution of the World Health Organization.49,Geneva,2020.
6. The Republic of South Africa. The Constitution of the Republic of South Africa, 1996. Republic of South Africa 1996; 1–182.
7. Republic of South Africa, Tshabalala-Msimang M. REHABILITATION FOR ALL. National Rehabilitation Policy. November 2000. Government Publishers,Pretoria,2000.
8. OTASA. Occupational Therapy Association of South Africa Position Statement on Rehabilitation. South African J Occup Ther2017;47:63–64.
9. South African Government. National Health Act 61 of 2003. SouthAfrica,2003.
10. National Department of Health. White Paper: National Health Insurance Policy - Towards Universal Health Coverage. Dep Heal 2017;1–67.
11. Soeker M, Olaoya O. Determining the research priorities for the profession of occupational therapy in South Africa. South AfricanJOccup Ther 2023;53:6–7.
12. Burns PB, Rohrich RJ, Chung KC. The levels of evidence and their role in evidence-based medicine. Plast Reconstr Surg 2011; 128:305–310.[doi:10.1097/PRS.0b013e318219c171](https://doi.org/10.1097/PRS.0b013e318219c171)
13. Garritty C, Gartlehner G, Kamel C, King VJ, Nussbaumer-Streit B, Stevens A, Hamel C AL. Cochrane Rapid Reviews. Interim Guidance from the Cochrane Rapid Reviews Methods Group. 2020.

14. Pillay R, Flieringa H, Powell N. OTASA Burns Rehabilitation Standard Operating Protocol for Occupational Therapy. OTASA,Pretoria,2023.
15. South Africa Department of Health. METHODS GUIDE FOR RAPID REVIEWS FOR COVID-19 MEDICINE REVIEWS. 2021.
16. WFOT. WFOT Definition of Occupational Therapy, [https://wfot.org/resources/definitions-of-occupational-therapy-from-member-organisations\(2012\)](https://wfot.org/resources/definitions-of-occupational-therapy-from-member-organisations(2012)).
17. OTASA. Occupational Therapy Association of South Africa: Where do occupational therapists work, [https://www.otasa.org.za/about-otasa/#:~:text=What is Occupational Therapy\(OT,theactivities of everydaylife.\(2023\)](https://www.otasa.org.za/about-otasa/#:~:text=What is Occupational Therapy(OT,theactivities of everydaylife.(2023)).
18. Mendeley Ltd. Mendeley Reference Manager. Elsevier 2020;<https://www.mendeley.com/reference-management/mend>.
19. Rayyan Sytems I. Rayyan Intelligent Systematic Review. Rayyan <https://rayyan.qcri.org>
20. Critical Appraisal Skills Programme. CASP Systematic Review, [http://creativecommons.org/licenses/by-nc-sa/3.0/www.casp-uk.net\(2018\)](http://creativecommons.org/licenses/by-nc-sa/3.0/www.casp-uk.net(2018)).
21. Critical Appraisal Skills Programme. CASP Randomised Control Trial,[http://creativecommons.org/licenses/by-nc-sa/3.0/www.casp-uk.net\(2021\)](http://creativecommons.org/licenses/by-nc-sa/3.0/www.casp-uk.net(2021)).
22. Rampin R, Rampin V, DeMott S. Taguette Version 0.10.1. hi@taguette.org 2020; BSD-3-Clause license, ©.
23. Page M, McKenzie J, Bossuyt P, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ Open*; 372. Epub ahead of print 2021. <https://doi.org/10.1136/bmj.n71>
24. Edger-Lacoursière Z, Deziel E, Nedelec B. Rehabilitation interventions after hand burn injury in adults: A systematic review. *Burns* 2023; 49: 516–553. <https://doi.org/10.1016/j.burns.2022.05.005>
25. Khanipour M, Lajevardi L, Taghizadeh G, et al. The investigation of the effects of occupation-based intervention on anxiety, depression, and sleep quality of subjects with hand and upper extremity burns: A randomized clinical trial. *Burns* 2022; 48: 1645–1652.<https://doi.org/10.1016/j.burns.2022.02.014>
26. Wiseman J, Ware RS, Simons M, et al. Effectiveness of topical silicone gel and pressure garment therapy for burn scar prevention and management in children: a randomized controlled trial. *Clin Rehabil* 2020; 34: 120–131. <https://doi.org/10.1177/0269215519877516>
27. Parry IS, Schneider JC, Yelvington M, et al. Systematic review and expert consensus on the use of orthoses (splints and casts) with adults and children after burn injury to determine practice guidelines. *J Burn Care Res* 2020; 41: 503–534. <https://doi.org/10.1093/jbcr/irz150>
28. Crofton E, Meredith P, Gray P, et al. Non-adherence with compression garment wear in adult burns patients: A systematic review and meta-ethnography. *Burns* 2020; 46: 472–482.<https://doi.org/10.1016/j.burns.2019.08.011>
29. Novak I, Honan I. Effectiveness of paediatric occupational therapy for children with disabilities: A systematic review. *Aust OccupTherJ*2019;66:258–273.<https://doi.org/10.1111/1440-1630.12573>
30. Scapin S, Echevarría-Guanilo ME, Boeira Fuculo Junior PR, et al. Virtual Reality in the treatment of burn patients: A systematic review. *Burns* 2018; 44: 1403–1416. <https://doi.org/10.1016/j.burns.2017.11.002>
31. Zhang Y, Li-Tsang CWP, Au RKC. A Systematic Review on the Effect of Mechanical Stretch on Hypertrophic Scars after Burn Injuries. *Hong Kong J Occup Ther* 2017; 29: 1–9. <https://doi.org/10.1016/j.hkjot.2016.11.001>
32. Wiechman SA, Carrougheer GJ, Esselman PC, et al. An expanded delivery model for outpatient burn rehabilitation. *J Burn Care Res*2015;36:14–22.<https://doi.org/10.1097BCR.000000000000153>
33. Brown NJ, Kimble RM, Rodger S, et al. Play and heal: Randomized controlled trial of Ditto™ intervention efficacy on improving re-epithelialization in pediatric burns. *Burns* 2014; 40: 204–213.<https://doi.org/10.1016/j.burns.2013.11.024>
34. M. T. A. Omar FAH and SPM. Influences of purposeful activity versus rote exercise on improving pain and hand function in pediatric burn. *Burns* 2012;38:261–268.
35. Wiechman SA, Carrougheer GJ, Esselman PC, Klein MB, Martinez EM, Engrav LH GN. An expanded delivery model for outpatient burn rehabilitation. *J Burn Care Res* 2015; 36: 14–22. <https://doi.org/10.1097/BCR.0000000000000153>
36. Omar MTA, Hegazy FA, Mokashi SP. Influences of purposeful activity versus rote exercise on improving pain and hand function in pediatric burn. *Burns* 2012; 38: 261–268. <https://doi.org/10.1016/j.burns.2011.08.004>
37. World Health Organization. Rehabilitation. Newsroom, 2020, p. <https://www.who.int/news-room/fact-sheets/detail>
38. Sherry K. Disability and rehabilitation: essential considerations for equitable, accessible and poverty-reducing health care in South Africa. *South African Heal Rev* 2014; 2014/2015: 89–99. <https://hdl.handle.net/10520/EJC189294>
39. United Nations. Global Sustainable Development Report (GSDR) 2023. Geneva, Switzerland, <https://www.worldbank.org> (2023).
40. Graham J., Karmarkar A., Ottenbacher K. Small sample research designs for evidence-based rehabilitation: issues and methods. *Arch Phys Med Rehabil* 2012; 93: 2384. <https://doi.org/10.1016/j.apmr.2011.12.017>

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KEYWORDS

person-environment-occupation model, occupational engagement, occupational consciousness, occupational justice, gender discourse

HOW TO CITE THIS ARTICLE

Tintinger S, Ncwane T, Ebrahim N. *The role of occupational therapy serving LGBTQIA+ people: Retrospective perceptions of an occupational therapist*. South African Journal of Occupational Therapy. Volume 54 No 1. April 2024. DOI: <https://doi.org/10.17159/2310-3883/2024/vol54no1a11>

ARTICLE HISTORY

Submitted: 1 November 2022

Reviewed: 8 June 2023

Revised: 20 October 2023

Accepted: 20 October 2023

EDITOR

Hester M. van Biljon

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FUNDING

No funding or grants were received.

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ISSN On-line 2310-3833

The role of occupational therapy serving LGBTQIA+ people: Retrospective perceptions of an occupational therapist

ABSTRACT

Introduction and aim: LGBTQIA+ people constitute a minority group that navigate their occupational engagement within a historically entrenched system of oppression. This opinion piece addresses a subject matter that is increasingly garnering attention from the international health science community, yet it remains insufficiently explored in South African occupational therapy dialogues. The aim of this paper is to stimulate critical reflection among occupational therapists on the discourses that underpin our daily practice. By utilising the person-environment-occupation model, we seek to demonstrate the unique and essential role of occupational therapy in serving LGBTQIA+ people within the South African context.

Conclusion: Although occupational therapists are trained to consider all aspects of a person, discussions around gender are rarely emphasised in undergraduate training or clinical practice. This opinion piece demonstrates the roles that occupational therapists may play when working with LGBTQIA+ people to provide services that are holistic and relevant to their needs and contexts. Recognizing the impact of everyday occupational therapy practices on LGBTQIA+ individuals is crucial, requiring a commitment to inclusivity and continuous reflection within the field of occupational therapy.

Implications for practice

Occupational therapists can play an important role in serving LGBTQIA+ individuals when they are committed to recognizing how dominant discourses about this group can be sustained through the everyday practices of delivering occupational therapy.

INTRODUCTION AND BACKGROUND

This opinion piece focuses on a subject matter that is increasingly gaining the deserved attention of the international health science community. Discourses regarding LGBTQIA+ people are rarely examined in South African occupational therapy. LGBTQIA+ is an acronym used to describe a spectrum of terms related to sex, gender identity, gender expression, sexuality and sexual orientation¹. The LGBTQIA+ acronym is also used to describe a minority group that continues to navigate their occupational engagement within a historically oppressive system. Occupational therapists carry the onus of occupational consciousness – the “ongoing ... recognition that dominant practices are sustained through what people do every day”^{2:488}. In the primary author's experience, it may unintentionally occur that occupational therapists' everyday practice in clinical settings sustain the oppressive discourses regarding the LGBTQIA+ people. The authors hope to prompt critical reflection amongst occupational therapists of their daily practice serving LGBTQIA+ individuals and to demonstrate this by using the person-environment-occupation model³ in the distinctive role occupational therapy has in the South African context.

The genesis of this exploration emerged from a clinical encounter in Pretoria, South Africa, involving Lethabo*, who was referred to occupational therapy after a motor-vehicle accident. Lethabo sustained a traumatic fracture-dislocation of the thoraco-lumbar junction (T12-L2) resulting in paraplegia and had co-morbid diagnosis of HIV and depression. Lethabo was assigned female at birth (AFAB) but identified as male. On admission, Lethabo was placed in a female ward based on the observable features used to categorise patients according to their sex. Lethabo declined the occupational therapy activities of practicing dressing in ward gowns, facial grooming with cosmetics, and nail care using nail polish. Inadvertently, these gender-based activities traditionally used in occupational therapy to support patients' adjustment to their new disability had not honoured Lethabo's gender identity. Instead, occupational therapy made the adjustment more strenuous and marginalised Lethabo's reality daily.

This experience prompted the authors to delve into the impact of everyday occupational therapy practices with LGBTQIA+ people. The aim of the opinion piece is to stimulate dialogue in the South African occupational therapy community about how, at a clinical level, the daily practices of occupational therapists can promote occupational justice for LGBTQIA+ people. The intention of occupational justice is to critically think about how the daily practices of occupational therapy can uphold the right of every individual to meet their basic needs and reach their potential in a way that is specific to the individual and their engagement in meaningful and diverse occupations⁴. One can only imagine how differently the outcomes of Lethabo's journey in occupational therapy could have been had personally meaningful occupational engagement been emphasised in every stage of the process – from the comprehensive assessment, throughout patient-centred goal setting, and as a central tenet in every session's activity choice, facilitation, and evaluation.

This topic has been examined by occupational therapists globally. The following section uses the person-environment-occupation model as described by Strong et al.⁵ to structure how occupational therapists have come to understand their role in serving LGBTQIA+ people, including how to address the personal, environmental and occupational factors that affect meaningful occupational engagement for LGBTQIA+ people.

UNDERSTANDING THE REALITIES OF LGBTQIA+ PEOPLE

It is crucial to unpack the diversity of LGBTQIA+ people and the contextual factors that shape their everyday realities. LGBTQIA+ individuals face complex challenges influenced by personal, environmental, and occupational factors.

Personal factors

Identifying as an LGBTQIA+ person impacts one's core identity, self-acceptance and agency, which influences mental health. Stress, anxiety, and depression affect LGBTQIA+ people four times more compared to the general South African population³. LGBTQIA+ people also face higher risks of suicidality⁶, their social health is affected by fear of discrimination, stigmatization⁶ and religious objection⁷ which

compels them to conceal their gender identities and isolate themselves, and hinders authentic occupational participation. Furthermore LGBTQIA+ people develop risky behaviours (i.e. substance abuse, unprotected sex, sedentary lifestyles)⁸, disability and chronic health conditions (i.e. asthma, arthritis, obesity)⁹.

Environmental factors

Historical, sociocultural, and healthcare contexts play pivotal roles in shaping LGBTQIA+ people's experiences. Historical marginalization, perpetuated through Apartheid laws^{3,6}, has lingering effects on LGBTQIA+ people's engagement. Societal ideologies, despite progressive legal reform in South Africa, continually contribute to homophobic and transphobic attitudes, and perpetuate discrimination and violence against LGBTQIA+ people^{3,6}. Moreover, socio-economic conditions such as poor access to acceptable healthcare and targeted health programmes^{3,8,10}, unemployment, household poverty, and food insecurity largely impact the health outcomes and occupational engagement of LGBTQIA+ people^{6,11}.

Occupational engagement

LGBTQIA+ people face significant changes to their occupations during the processes of coming out and transitioning^{10,11}, including losses (such as self-consciousness, social disapproval)¹² and gains (such as reduced stress, closer interpersonal connections and greater confidence^{12,13}) and loss of relationships, educational marginalisation, stunted professional growth^{12,14}. Coming out and transitioning largely impacts LGBTQIA+ individuals' ADL and iADL satisfaction¹⁰, patterns of sleep and rest¹⁵, gender expression through grooming patterns and choice of clothing¹³, likelihood of obtaining a school-leaving qualification⁶, their career choices⁷, and their likelihood of being employed, promoted, and earn equal salaries⁴. Occupational therapists must consider these changes when addressing the unique needs of LGBTQIA+ individuals.

ENABLING OCCUPATIONAL ENGAGEMENT FOR LGBTQIA+ PEOPLE

Understanding the realities of LGBTQIA+ people is essential for occupational therapists to play a role in promoting occupational justice and addressing factors that influence their occupational engagement. Occupational therapists may encounter LGBTQIA+ individuals in settings for reasons unrelated to their gender or sexual identity, or for issues specifically related to coming out or transitioning, in which case their gender identities and/or sexual orientation is the focal point of intervention¹⁰. In both contexts, the occupational therapist must consider LGBTQIA+ people holistically through a process of collaboration to determine and address their unique occupational needs¹⁵. This is done working with the individual person, creating an enabling environment, and enabling meaningful occupational engagement.

Working with the person

Mental health

Holistic occupational therapy necessitates attention to the mental health of LGBTQIA+ people in both medical and

*Lethabo is a pseudonym (identifying information has been removed to protect the confidentiality of the person described).

psychiatric settings. Direct interventions may include facilitating psycho-education of their diagnoses, facilitating sessions on balanced living, relaxation techniques and life skills (such as assertiveness training, conflict management, healthy coping strategies), or establishing positive self-concept, self-esteem and body image through therapeutic activity^{10,12,16}. Indirectly, occupational therapists may offer emotional support, creating supportive groups for LGBTQIA+ members, or facilitating engagement in therapeutic activities that allow creativity, relaxation or social connection¹⁵.

Physical health

Occupational therapists also need to be involved in health promotion activities and use educational approaches to increase awareness among the LGBTQIA+ people about the risks and available help for substance abuse, HIV, chronic diseases of lifestyle, and mental illness, as well as on safe sex practices, medication adherence and coping mechanisms^{15,17}. The Guidelines for Good Practice with Lesbian, Gay and Bisexual Clients¹⁸ recommend that health professionals employ an affirmative approach to this education, such as refraining from using educational materials that pathologise or stigmatise clients, and preferably using open language (for example, using the term 'partner' instead of 'husband' or 'wife')¹⁸.

Social health

The occupational adaptation during the coming out or transitioning processes may include dealing with occupational losses through embracing the positive changes of these processes¹³. Occupational therapists can support this process by creating a supportive social environment, as well as facilitating self-acceptance, processing of internalised stigma, and strengthening personal resilience against external stigma^{10,11}. Occupational therapists may also enable social health for LGBTQIA+ people through mediating the coming out or transitioning processes in their social, religious, cultural or familial groups, facilitating social networking for clients in the LGBTQIA+ community (i.e. connecting to advocacy groups), or facilitating warm parent-child relationships through family counselling and education^{10,14,18}.

Creating an enabling environment

Pollard and Sakellariou¹⁷ state: "To address the needs of marginalised populations, occupational therapy may need to re-evaluate its relationship with biomedical discourses to prioritise social concerns"^{17:1}. Therefore, occupational therapists need to contribute to the transformation of societal factors which restrict the occupational engagement of LGBTQIA+ people.

Advocacy

Advocacy can range from participating in projects aimed at structural, legislative and policy changes, to challenging negative attitudes on social media, or developing sensitivity training programs for the clinical staff where one works^{10,17,18}. The knowledge gained through working with the LGBTQIA+ people should also be shared with occupational therapy students and other members in the multi-disciplinary team. This will not only allow opportunities for advocacy for this

minority group's needs, but also about the role that occupational therapy has to play in LGBTQIA+ healthcare. However, advocacy may be complicated by time and resource constraints. Beagan et al.¹⁵ suggest that occupational therapists can start small by changing LGBTQIA+ people's experience of their environment, especially their healthcare environment. One way to do this is by creating an occupational therapy context that reflects trans-positive care⁹, for example by enquiring about and using patients' preferred pronoun, ensuring patients understand and give verbal consent to all interventions, and displaying policies of non-discrimination in visible spaces^{9,18}.

Trans-Positive Care

Trans-positive care requires that occupational therapists interrogate their unquestioned patterns of providing services and ingrained assumptions¹⁰. According to Beagan et al.¹⁵, this process requires a willingness to set aside one's religious and cultural beliefs, scrutinise one's heteronormative and cisnormative patterns of working with patients (i.e. the use of gendered grooming therapeutic activities based on clients' biological sex), and identify one's learning gaps when serving this group⁹. Occupational therapists should explicitly question how our everyday clinical practices sustain the dominant discourses and perpetuate oppressive discourses regarding LGBTQIA+ people in order to be tied to the liberation of the communities we aim to serve.

Occupational Consciousness

According to Ramugondo^{2:497}, occupational consciousness refers the minority group's "alertness to how human occupation intersects with dominance and perpetuates inequality and oppression", which is followed by transgressive acts using occupation as the mechanism to disrupt such oppression². Occupational therapists should empower LGBTQIA+ people to question and resist dominant discourses that inform and limit their everyday occupational participation². This can be through supporting LGBTQIA+ clients' abilities to insist on their rights of non-discrimination, to confront discriminating discourses when perpetuated in their social circles, workplaces or educational institutions, and to become involved in the political discussions and policy writing that pertains to their occupational engagement in society².

Enabling meaningful occupational engagement

The role of occupational therapy is especially pronounced during and after the coming out and transitioning processes for LGBTQIA+ people¹⁵. Beagan et al.¹⁵ describe gender performance as a learned behaviour that can be taught. The difference, compared to typical occupational therapy approaches with cisnormative, gender-conforming clients, is that LGBTQIA+ people are not only re-learning or adapting occupations previously known to them, but also learning new, gendered occupations that may be foreign to them^{10,13}. A few examples of facilitating these changes in occupational engagement include:

ADL and iADLs

Occupational therapists should collaborate with clients about

their occupational needs regarding their ADLs, as these will be heterogeneous. Certain clients may experience dysphoria during their ADL routines and require assistance to incorporate adaptive techniques to manage anxiety or to minimise their direct contact with their genitalia (i.e. using a long-handled sponge)^{10,12}. Occupational therapists may also address issues of rest and sleep and can advise LGBTQIA+ individuals who struggle with anxiety or dysphoria on relaxation techniques, life balance, anxiety management, and sleep hygiene practices¹³. Sexual practices may change drastically for an LGBTQIA+ person before, during, or after coming out or transitioning, and occupational therapists can provide education on positioning, safety, hygiene practices, as well as social skills training (i.e. dealing with a changing body image)¹⁰. Occupational therapists may focus on enabling the person's performance of new ADL activities to express their gender (i.e. hair styling, shaving, cosmetics) through training, reinforcement and feedback¹⁴.

Education

Assessment of children with gender dysphoria should be done through observing play, and intervention should include collaborating with the parents, facilitating a warm parent-child relationship, making the school or teacher aware of the child's needs, and encouraging supervised peer support^{14,18}. In the adolescent population, parents should be encouraged to be involved in their child's process, and educated, counselled, or referred to other professionals to enable a supportive home environment¹⁸. For persons completing tertiary education, strategies to prevent abuse and to create a sense of belonging to the LGBTQIA+ people should be fostered by the occupational therapist, such as enabling the client to connect with a new social network^{15,18}.

Work

Occupational therapists can advocate for patients' employment rights throughout and after the transition or coming out process^{9,19}. Occupational therapists can assist the client with employability self-assessment, career exploration and decision-making, and educate clients on their employment rights^{10,14}. Occupational therapists may also focus on the development of pre-vocational and vocational skills for gendered work (i.e. gender expression through appropriate clothing)¹⁹. This may be extended to include supporting the client's disclosure in the workplace, facilitating workplace sensitisation training for employers and other employees and mediating negotiations with employers¹⁶.

OCCUPATIONAL JUSTICE FOR LGBTQIA+ PEOPLE

There is a multi-layered confinement of occupational therapists to render services optimally with LGBTQIA+ people and of LGBTQIA+ people to engage without constraint in their meaningful occupations. This is not a result of practical restraints linked to the health system alone, but it is also compounded by communities and sub-cultures that intentionally and inadvertently enforce restraint on individualism¹⁹. Trentham et al.¹⁸ describe these as 'tangled threads of oppression' within our health systems and society. Liberation of these systems that perpetuate the current discourses and health inequalities of LGBTQIA+ people can be achieved the "communal process and outcome of untangling, undoing, and reconfiguring systems of dominance that

negatively impact health and limit the occupational possibilities of individuals, groups, and communities¹⁹. This is essential for LGBTQIA+ people to participate in meaningful and diverse occupations that meet their basic needs and enable them to reach their potential.

Whilst this task of liberation may seem large to tackle as an individual therapist working within these systems, we can start by viewing LGBTQIA+ people through a client-centred lens to reduce the impact of traditional gender expectations on the services we render. For example, we can question and change administrative processes at our operational level to enable clients to identify their gender pronouns when they are referred for occupational therapy instead of only offering traditional male and female tick boxes on our forms. Another everyday way to change our practices is by using and empowering others in our immediate context to use open and sensitive communication with LGBTQIA+ people, including explicitly questioning gender-based assumptions amongst our colleagues and social circles. As occupational therapists we need to uphold our core principle of understanding each client holistically within their context to ensure not only that the outcomes of occupational therapy are meaningful engagement, but that the therapy process in itself offers meaning and empowerment to LGBTQIA+ people.

CONCLUSION

Occupational therapists need to be cognisant of the person-environment-occupation matrix to provide services that are holistic and relevant to the needs and contexts of LGBTQIA+ people. This opinion piece emphasizes the roles occupational therapist can play in mental, physical, and social health, as well as in advocacy, creating enabling environments, and promoting occupational justice. Recognizing the impact of everyday occupational therapy practices on LGBTQIA+ individuals is crucial, requiring a commitment to inclusivity and continuous reflection within the field of occupational therapy.

Author Contributions

This article was written by Sanet Tintinger. Thabani Ncwane and Naazneen Ebrahim contributed and assisted in the rewriting of the article. All three authors agreed to the publication of this version of the article.

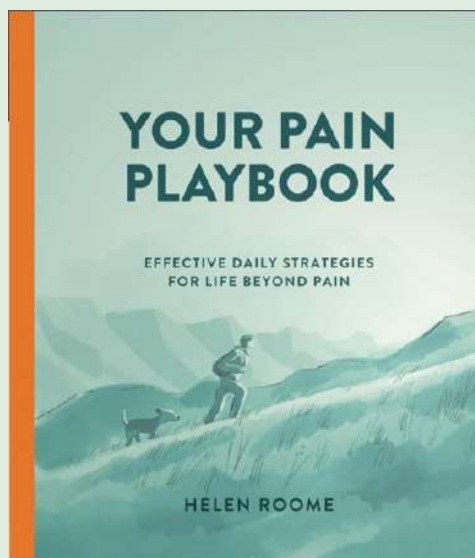
Declarations and conflict of interests

There are no conflicts of interest declared by the authors. The authors used the LLM (Large Language Model) ChatGPT to assist with the reducing of word count and for grammar checking.

REFERENCES

1. Gender Spectrum. The Language of Gender. [Accessed 2021 Aug 31]. <https://www.genderspectrum.org/resources>
2. Ramugondo EL. Occupational Consciousness. *Journal of Occupational Science*. 2015; 22(4): 488–501. <https://doi.org/10.1080/14427591.2015.1042516>
3. Nyeck SN, Shepherd D. The economic cost of LGBT stigma and discrimination in South Africa. Los Angeles: The Williams Institute; 2019. <https://williamsinstitute.law.ucla.edu/wp-content/uploads/Impact-LGBT-Discrimination-South-Africa-Dec-2019.pdf>

4. Wilcock, AA, Townsend, EA. Occupational justice. In EB Crepeau, ES Cohn & BA Boyt Schell (Eds.), Willard & Spackman's occupational therapy (11th ed.). 2009; 192-199. Baltimore: Lippincott Williams & Wilkins.
5. Strong S, Rigby P, Stewart D, Law M, Letts L, Cooper B. Application of the Person-Environment-Occupation Model: A practical Tool. *Canadian Journal of Occupational Therapy*. 1999; 66(3):122-133.<https://doi.org/10.1177/000841749906600304>
6. OUT LGBT Well-being. Hate Crimes Against Lesbian, Gay, Bisexual and Transgender (LGBT) People in South Africa, 2016. Pretoria: OUT LGBT Well-being; 2016. <https://out.org.za/wp-content/uploads/2020/10/Hate-Crimes-Against-LGBT-People-in-South-Africa-21-November-2016-Web.pdf>
7. The Other Foundation. Progressive prudes: a survey of attitudes towards homosexuality & gender non-conformity in South Africa. Johannesburg: Human Sciences Research Council; 2016. https://theotherfoundation.org/wp-content/uploads/2016/09/ProgPrudes_Report_d5.pdf
8. Müller A. Scrambling for access: availability, accessibility, acceptability and quality of healthcare for lesbian, gay, bisexual and transgender people in South Africa. *BMC International Health and Human Rights*. 2017; 17(16). <https://doi.org/10.1186/s12914-017-0124-4>
9. Fredriksen-Goldsen KI, Kim H, Barkan SE. Disability among lesbian, gay, and bisexual adults: disparities in prevalence and risk. *American Journal of Public Health*. 2012; 102(1), e16–e21. <https://doi.org/10.2105/AJPH.2011.300379>
10. Kimelstein J. Gender as an Occupation: The Role of OT in the Transgender Community. Ithaca College Theses. 2019; 424: 1-115. Gender As an Occupation: The Role of OT in the Transgender Community Jamie Kimelstein Ithaca College - DocsLib
11. Meer T, Lunau M, Oberth G, Daskilewicz K, Müller A. Lesbian, gay, bisexual, transgender and intersex human rights in Southern Africa: A contemporary literature review 2012-2016. Johannesburg: HIVOS;2017.<http://hdl.handle.net/11427/28329>
12. Meach L. The occupational experiences of lesbian, gay, bisexual and transgender (LGBT) individuals during the coming out process: An analysis of self-acceptance, disclosure, and occupational change. *OCCUPATION: A Medium of Inquiry for Students, Faculty & Other Practitioners Advocating for Health through Occupational Studies*. 2017; 2(1). <https://nsuworks.nova.edu/occupation/vol2/iss1/2>
13. Murphy M, Tinsley Schaefer J, Washington E. Gender Dysphoria and the Role of Occupational Therapy. School of Occupational Master's Capstone Projects. 2017;14.https://soundideas.pugetsound.edu/ot_capstone/14
14. Munyuki C, Vincent LD. 'It's tough being gay'. Gay, lesbian and bisexual students' experiences of being 'at home' in South African university residence life. *South African Journal of Higher Education*. 2017; 31(4): 14-33. <https://doi.org/10.20853/31-2-869>
15. Beagan LB, Chiasson A, Fiske CA, Forseth SD, Hosein AC, Myers MR, Stang JE. Working with transgender clients: Learning from physicians and nurses to improve occupational therapy practice. *Canadian Journal of Occupational Therapy*. 2013; 80(2): 82-91.<https://doi.org/10.1177/0008417413484450>
16. Psychological Society of Ireland. Guidelines for Good Practice with Lesbian, Gay and Bisexual Clients. [https://www.psychologicalsociety.ie/source/PSI%20Guidelines %20for %20Good%20Practice%20with%20LGB%20Clients_1.pdf](https://www.psychologicalsociety.ie/source/PSI%20Guidelines%20for%20Good%20Practice%20with%20LGB%20Clients_1.pdf)
17. Pollard N, Sakellariou D. Occupational therapy on the margins. *World Federation of Occupational Therapists Bulletin*. 2017; 73(2):71-75.<https://doi.org/10.1080/14473828.2017.1361698>
18. Trentham B. Occupational (Therapy's) Possibilities: A Queer Reflection on the Tangled Threads of Oppression and Our Collective Liberation. *Canadian Journal of Occupational Therapy*.2022Dec;89(4):346-63.<https://doi.org/10.1177/00084174221129700>
19. Phoenix N, Ghul R. Gender Transition in the Workplace: An Occupational Therapy Perspective. *Work*. 2016; 55(1): 197-205. <https://doi.org/10.3233/WORK-162386>



TITLE OF THE BOOK

YOUR PAIN PLAYBOOK. Effective daily strategies for life beyond pain

AUTHOR

Helen Roome

INFORMATION ON THE BOOK

Published: 2023

Publisher: Self-published.

ISBN number: 978-0-6397-7326-1

Available in paperback. Cost: ZAR 350.00 (excluding delivery fees).

The book can be ordered from www.helenroome.co.za or info@helenroome.co.za

Available as an eBook: Cost ZAR 323.66 and is available on all Amazon platforms at:

https://www.amazon.com/dp/B0CB8YXPZY/ref=mp_s_a_1_1_crid=1QAPAHAWNLI0H&keywords=your+pain+playbook+helen+roome&qid=1688742923&sr=8-1

Number of pages: 250 pages

HOW TO CITE THIS ARTICLE

Van Biljon HM. A review of the book YOUR PAIN PLAYBOOK written by Helen Roome. South African Journal of Occupational Therapy. Vol 54 No1, 2024.

DOI: <https://doi.org/10.17159/2310-3833/2024/vol54n1a12>

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Declaration of bias: The reviewer has no bias to declare. The Large Language Model (LLM), ChatGPT, was used to edit the language and grammar of the review.

DATES

Submitted: November 2023

Reviewed: Not peer reviewed

Accepted: December 2023

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A review of the book YOUR PAIN PLAYBOOK written by Helen Roome

Information on the author

Helen Roome, BSc OT (Wits), PG Dip. Int. Pain Mgt, Prac. Dip Labour Law, MA (VP) (Prac.Theology), is a South African occupational therapist with many years of experience working in the field of complex pain management. Her occupational therapy practice focuses on offering therapy and support to adults (18+ years) who need to manage the daily challenges of chronic pain and/or fatigue. Her special interest is Fibromyalgia/chronic widespread pain, ME/Chronic Fatigue Syndrome (CFS), chronic low back pain, chronic primary pain, Long-COVID/post-COVID syndrome, chronic pelvic pain, chronic headaches and painful arthritic conditions (like Osteoarthritis, Rheumatoid arthritis and Lupus/SLE). She is the chairperson of the Occupational Therapy Pain Management Group of South Africa.

THE REVIEW

The book is a practical guide for persons living with persistent pain, aiming to help them understand and manage their pain while living more functional lives. The author notes: this book is *meant to compliment, not replace, sound medical advice from qualified (and pain informed!) healthcare practitioners* (page 1). In a practical, creative, and enjoyable manner, the book is a product of the author's 25 years of clinical occupational therapy practice, knowledge, and experience in pain management. The guide is structured into six weeks, each consisting of seven days, referred to as a 'section'. Each day of the 'section' comprises information, captivating vignettes or stories to illustrate concepts, reflective prompts, practical activities or tasks, and concludes with a key take-home message. The book can be completed either in groups or individually.

With the exception of the first week, which serves as an introduction and background, the other weeks need not be followed chronologically. The subject matter for each week is:

Week 1: Understanding my pain. Explaining the reason for pain, the author compares the human pain system to the Go-away bird (the Grey Turaco). *"Our pain system perceives and protects us from physical threats (such as physical injuries, illness or infections) or psychological threats (like traumatic experience or chronic stress) or pervasive threats relating to our social and environmental context (such as racism, poverty or pollution)." (page 15)*

Week 2: Sleeping better. Addressing the complex and responsive relationship between pain and sleep, the author explains the science of sleep and pain. Practical actions such as getting enough sunshine during the day, being active and managing stress are suggested and explained. Organising a sleep routine and establishing a wind-down ritual are among the recommendations. The pros and cons of sleep medication are discussed, with advice such as: *"You can surrender to a sense of rest rather than fighting to fall asleep."* (page 75).

Week 3: Moving more. *"Although moving is the last thing you want to do when you have persistent pain, it is probably the best thing you can do!"* (page 83). The positive impact that physical activity and an active lifestyle can have on pain is explained. Encouraging a fun approach to exercise, starting at a low intensity and gradually increasing it (page 95), exercising with a partner, and practicing mindful movement (page 110) are some examples of sessions designed to help people with pain become more active.



Week 4: Managing stress. This section addresses physical, psychological and social stressors. It covers identifying the causes of stress, the dietary impact on stress, gardening, laughter, time management, setting boundaries, letting go and focusing on the future.

Week 5: Embracing rhythm and rest. “Pain can be replaced with purpose” (page159). Setting goals and working smarter are discussed. Consulting an occupational therapist for vocational rehabilitation is explained and recommended. The section emphasizes working hard and with focus, while also allowing time for relaxation and resetting.

Week 6: Being fully present. The final session focuses on mindfulness. It offers simple mindfulness meditations, practices, and activities, as well as discussions on relaxation exercises and breathing techniques. Topics include sexuality, relationships with individuals and communities, journaling, social support, and spirituality.

Upon completing the six-week programme, participants can consider drawing up a daily routine and having a flare-up plan. The author is multi-talented and the text is full of stories and metaphors. She also ends the book with a prayer-poem (page 227) that she wrote during the pandemic, which to me was the highlight of the read:

Today, may you see the sun break
through and glint off green and golden things;
the new
the hidden
paths to pass through this storm.

Today, may you feel the warmth beam down
and steam the hope from soggy ground;
the scent
the promise
of better growing in this dark.

-Helen Roome, 2 April 2020

The book is evidence-based and client-directed. Using the critical reflective method¹ and combining it with everyday practical strategies in laymen’s terms, it equips individuals with pain to take control of their lives and situations. It is also uniquely African with heading such as *Baboons and bedtime habits* (page 66), *About Hippos and sitting disease* (page 113), *Cheetahs and cutting your energy costs* (page166), drawing analogies and comparisons from authentic African contexts.

Relevance to occupational therapy

Written for people living with pain, their families, friends, and caregivers, it is a highly valuable resource for occupational therapists working with adults in all fields of practice, whose occupational performance and profiles are affected by pain. The entertaining and easy-to-read style makes it much more than just a guide or a how-to book. I can envision students and especially community service occupational therapists finding it helpful, offering a refreshing departure from the textbooks and journals they typically rely on to gather evidence for their practice.

One aspect that doesn't sit well with me is the title of the book: “Your Pain Playbook.” This feels like a contradiction in terms. I understand the author's intention to de-catastrophize pain, to convince individuals that their pain is something they can take ownership of instead of being a hostage to it. The author also chose the title as a pointer to emerging research on the necessity for 'play' amongst adults and as a contrast to work books that often feel like 'hard work' to get through and apply practically. However, in general, as an occupational therapist, I associate *play* with the field of paediatrics. Furthermore, the intended readership – individuals who have chronic pain - might perceive the word *play* as dismissive or trivializing of their experience. In the worst case, considering the book's potential global audience on the internet, the title might inadvertently attract interest related to self-harm, masochistic tendencies, or related matters.

Having read the book to review it, I promised myself that I was going to read it again purely for enjoyment. I was also left with an intense desire for similar resources in the fields of palliative care, substance abuse, dementia, and especially for parents raising children with severe disabilities. The researcher in me also insisted that I have to inform the occupational therapy academia that: “*This is a randomized controlled trial begging to happen.*”

REFERENCES

1. Rolfe G, Jasper M, Freshwater D. Critical Reflection In Practice: GeneratingKnowledgeforCare.2ndEdition.London:RedGlobe;2019.225p.



SOUTH AFRICAN JOURNAL OF OCCUPATIONAL THERAPY

VOLUME 54, NUMBER 1, APRIL 2024, ISSN ONLINE 2310-3833