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[RESEARCH ARTCLE]

Hand osteoarthritis rehabilitation practices in South Africa

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ABSTRACT

Background: Best-evidence recommendations guide the non-pharmacological management of patients diagnosed with hand osteoarthritis (OA) to manage function, quality of life, and pain based on the European League Against Rheumatism (EULAR) in their updated guidelines and recommendations. The current management approaches and use of these recommendations by occupational therapists and physiotherapists in South Africa for this condition have not yet been investigated. This study investigated the knowledge, patient load, and management practices used by occupational therapists and physiotherapists in South Africa, for individuals diagnosed with hand OA.

Methods: This quantitative, cross-sectional study, included 34 postgraduate occupational therapists and physiotherapists in public and private sectors in South Africa. Participants completed the questionnaire after providing informed consent on the first question of a Research Electronic Data Capture (REDCap) questionnaire. The questionnaire data were exported to Excel and analysed using descriptive statistics in STATA.

Results: Participants included 19 occupational therapists and 15 physiotherapists, 31 of whom were females. More occupational therapists obtained education in hand rehabilitation from accredited continuing education courses and reported more referrals and a higher patient load. Both occupational therapists and physiotherapists followed EULAR guidelines with a high percentage of occupational therapists providing intervention using splinting, activity modification, grip adjustment in activities of daily living, and exercise. Physiotherapists managed hand OA with exercise, pain education and joint mobilisations. Both professions provide education and home care programmes for patients with hand OA. Assessments for quality of life, and standardised outcome measures were infrequently used with limited referral of patients to a varied multidisciplinary team.

Conclusion: Best-evidence practice for hand OA according to international EULAR guidelines and recommendations were implemented by a higher percentage of occupational therapists.

Implications for practice:

- Best-evidence hand OA management recommendations are advocated and implemented by occupational therapists and physiotherapists in South Africa but further research on context specific intervention is required.
- Standardised hand function and quality of life assessments should be included in management approaches.
- Interdisciplinary practices, where the strengths of both occupational therapists and physiotherapists are highlighted, benefit individuals diagnosed with hand OA

INTRODUCTION

Osteoarthritis (OA), one of the top five most prevalent joint diseases among adults, leads to reduced quality of life and disability and costs global economies millions in lost productivity[1]. Globally, one in ten

adults over 60 years is affected by OA, most often in the hip, knee, spine, and hand joints[1] with the lives of one in three adults over 65 years, females more than males being impacted by this condition[2]. The prevalence of hand OA increased by 82.07%, to 194,284,754 in 2021 from 76,317,645 in 1990[3] peaking at 50–54 years[4]. Sub Saharan African countries recorded the lowest rate of hand OA but this may be due to underdiagnosis and limited healthcare access[3], However, compared to the other neighbouring countries, South Africa has a higher prevalence of hand OA of 2999.6 per 100 000 (2332.9–3757.3)[5]. Hand OA frequently affects the proximal interphalangeal joints (PIPJ), distal interphalangeal joints (DIPJ), and thumb base carpometacarpal joint (CMCJ) with erosive OA as discriminative subsets[6,7]. This condition negatively impacts individuals' quality of life due to joint stiffness, limitation in function, reduced grip strength and pain. Although mechanical loading and load bearing in hand OA was historically thought to relate to the extent of joint damage and inflammation[8] evidence shows that hand OA is multifactorial and heterogeneous involving aspects of the social domain, namely socioeconomic status, and the biological domain, namely obesity, pain sensitisation, and comorbidities, as well as the psychological domain[9,10,11]. Plotz et al. 2022 report cardiovascular disease, diabetes mellitus, obesity and gout share risk factors with hand OA[12]. Therefore, managing this condition in individuals with other chronic conditions, often referred to as multimorbidity, presents a pressing challenge for South African healthcare systems. This challenge becomes particularly pronounced in resource-constrained settings, where the burden of disease is high and compounded by other multiple long-term comorbid health conditions including human immunodeficiency viruses (HIV), and high blood pressure with over 80% of older adults reporting two or more chronic illnesses[13].

Due to the possible complexity of the management of patients with hand OA, an individualised, multidisciplinary, multicomponent management regime for this condition is supported by the European League Against Rheumatism (EULAR) in their updated overarching key principles for non-pharmacological management of hand OA[14]. All individuals presenting with this condition should receive information on the nature, disease course, self-management, and treatment options. The EULAR principles further recommend controlling pain and stiffness as well as optimising hand function to maximise quality of life and activity and participation levels[14]. Other recommendations include training and education on activity pacing, ergonomic principles, and the use of assistive devices. Exercises that address muscle strength, improve function, and reduce pain should be prescribed. Individuals presenting with thumb base also known as CMCJ OA, should be considered for orthoses to relieve pain, and long-term use is advocated[14]. Kolasinski et al.[15] when developing an evidence-based guideline, advocated for treatment of hand OA in line with EULAR principles and included weight management, physical activity and self-efficacy. They report that muscle strengthening, joint mobility and stretching exercises are best practice management strategies[15]. Details specifically guiding the exercise prescriptions such as type and dosage, remained lacking to inform interventions[15]. Sankah et al[16] in their systematic review of consensus recommendations and clinical practice guidelines however, concluded that stretching, strengthening, and joint mobility exercises should be prescribed either in weekly supervised in person or/and in home exercise sessions.

In South Africa an occupational therapy study describing management of CMCJ OA[17] did include EULAR principles and best evidence. The CMCJ Grind test to confirm OA the Eaton and Glickel classification[18] system was used with evaluation of other body structure and function domains as defined by the International Classification of Functioning, Disability and Health (ICF)[19] and function. Although this research considered the patients' unique goals and needs and directed interventions accordingly limited standardised outcome measures such the Disability of the Arm Shoulder and Hand Function (DASH), were used and not always fully implemented due to high workloads and time constraints[17]. This finding supports concerns expressed by de Klerk et al[20] that therapists focus on body function and structure rather than activity and participation domains of the ICF[19]. The lack of standardised assessment these latter two domains is also affected by unfamiliarity with or unavailability of outcome measures[20].

The South African study indicated occupational therapists followed no fixed intervention regime for hand OA even though acute versus chronic progression of the condition was considered. Acute or early interventions included rest, static splinting, and a home programme. For patients at chronic stage interventions focused on preventing further deformities and on maintaining independence[17]. However, this research reflects the role of only one rehabilitation profession and the management of OA in only one joint in the hand. When considering the overall management of hand OA, it is noted the practices of rehabilitation professionals in South Africa and their adherence to international clinical practice recommendations and guidelines and best-evidence recommendations remain unknown. The study aimed to investigate the knowledge, patient load, and management of individuals diagnosed with hand OA by occupational therapists and physiotherapists practising in public or private settings in South Africa. Due to the limited evidence on hand OA management in South Africa, this study's questionnaire followed the EULAR recommendations.

METHODS

Research design

A quantitative, descriptive cross-sectional questionnaire study was conducted to contribute to the current South African literature base and inform future research on the topic of hand OA management practices.

Population and sampling

The study population comprised postgraduate occupational therapists and physiotherapists, working in public or private sectors, who delivered rehabilitation to individuals diagnosed with hand OA. Occupational therapists and physiotherapists, not working in South Africa at the time of the study and assistants, were excluded from participation.

Purposive sampling was employed in recruiting occupational therapists and physiotherapists who deliver hand rehabilitation more frequently by targeting members of the South African Society of Hand Therapists (SASHT). The SASHT membership during 2025 was 121. A realistic expected questionnaire response rate for healthcare professionals is 30%[21]. The estimated sample size was set at 36 participants.

Research Measure

The study instrument was an online self-administered questionnaire created by the researchers using REDCap, a secure web-based software platform designed to facilitate research data collection[22,23]. The questionnaire included the following sections: socio-demographic information, clinician knowledge, patient load and management practices. According to the EULAR 2018 recommendations, the additional management approaches Table iv (page 7) were included. A pilot test of the REDCap questionnaire was conducted with two occupational therapists and two physiotherapists to ensure clarity, relevance, and functionality of items before the questionnaire was distributed.

Research procedure

Prospective participants were recruited through invitations sent via the SASHT membership bulk email to all members, as well as through social media posts in which the invitation and participation link were posted to the South African Society of Occupational Therapy and the South African Society of Physiotherapy social media groups by the primary researcher. Participants were given one month to complete the questionnaire

Data Analysis

After data collection, the questionnaire responses were exported from REDCap into a Microsoft Excel document in raw data format. The dataset was reviewed for consistency and completeness before being imported into STATA for statistical analysis[24]. Descriptive and non-parametrical statistical methods were employed to summarise the data. These included the calculation of means, frequencies, and percentages to describe participant demographics, knowledge, patient load and management approaches. Demographic variables analysed included age, gender, geographic location of practice, and years of professional experience. The average age of participants was reported using means. Frequencies and percentages were used to describe therapist confidence levels, preferred treatment modalities and referral patterns. Inferential statistics between groups were not employed due to a small sample size and missing data.

Ethical Considerations

Ethical clearance for the study was obtained from the Human Research Ethics Committee Faculty of Health Sciences, University of the Witwatersrand, with the number M221026 MED21-10-125. The participants received study information through the invitation letter, which included details about the study, and this information was repeated at the beginning of the REDCap questionnaire. When prospective participants clicked the REDCap link to open the questionnaire, the landing page displayed the study information. Only those who indicated consent after reading the information leaflets were able to complete the questionnaire. Anonymity was ensured since no names were collected.

Anonymity was ensured by not collecting any personal identifiers in the demographic section of the questionnaire and further by assigning numbers to each data record. Confidentiality was safeguarded through secure data storage on REDCap, with restricted access to only authorised researchers.

RESULTS

Demographics per occupation for the sample of 34 therapists, who completed the questionnaire were 19 occupational therapists, and 15 physiotherapists. All participants, except three physiotherapists, were female. Mean ages were similar for the occupational therapist and the physiotherapists. Years of experience after undergraduate education revealed a broader spread among the physiotherapists, as can be seen in Table I (below), with the occupational therapists equally divided between one to five years (52.63%) and five to eight years (47.37%) of experience. Participants work predominantly in Gauteng province for both professions. However, occupational therapists worked mainly in private outpatient practices (47,37%), whereas physiotherapy participants worked primarily in private hospitals (80,00%) with one missing entry.

Table I: Demographics (n=34)

		Occupational Therapists (n = 19)	Physiotherapists (n = 15)
Gender	Female	19 (100%)	12 (80,00%)
	Male	0	3 (20,00%)
Age	Minimum	25	23
	Maximum	54	48
	Mean	37.32	36.33
Years of experience	< 1 year	0	1 (6.67%)
	1-5 years	10 (52.63%)	4 (26.67%)
	5-8 years	9 (47.37%)	1 (6.67%)
	8-10 years	0	1 (6.67%)
	10-15 years	0	2 (13.33%)
	15-20 years	0	3 (20,00%)
	>20 years	0	3 (20,00%)
Geological Province location	Gauteng	10 (52.63%)	12 (80,00%)
	Mpumalanga	1 (5.26%)	1 (6.67%)
	North West	1 (5.26%)	0
	Eastern Cape	2 (10.53%)	0
	Western Cape	4 (21.05%)	0
	Limpopo	0	2 (13.33%)
	Kwa-Zulu Natal	1 (5.26%)	0
Workplace setting	Private hospital	4 (21.05%)	12 (80,00%)
	Government/Public hospital	4 (21.05%)	2 (13.33%)
	Private outpatient practice	9 (47,37%)	0
	Other	1 (5.26%) Learners with special education needs in school.	0

Knowledge of and current clinical practice for the management of hand Osteoarthritis

Knowledge, education in hand rehabilitation and the frequency of managing individuals presenting with hand OA were investigated Table II (below). More of the participating occupational therapists (78.95%), than of physiotherapists (46.67%) treated individuals with hand OA. The predominant reason for not treating individuals with hand OA reported by occupational therapists was that it was not applicable in their clinical setting (10.53%), and for physiotherapists (40.00%) was that they did not receive referrals of patients with hand osteoarthritis. Over 80% of both groups were confident in identifying hand OA but occupational therapists felt more confident in assessment and treatment than physiotherapists. Physiotherapists were more confident in giving appropriate advice on self-management (86.67%). Very few occupational therapists (15.80%) would refer the patient to another occupational therapist whereas more physiotherapists (40.00%) would refer to occupational therapy or to another physiotherapist (26.67%) for hand OA management when they felt they could not help a patient. Occupational therapists received their hand therapy training predominantly at accredited continued professional education (57.89%), undergraduate training at university (52.63%) and clinical training on the job (47.37%), whereas physiotherapists received their training at undergraduate training at university (46.67%), clinical training on the job (33.33%). Two questions, related to whether they worked in a practice that specialises in hand OA and osteoarthritis management, were not answered by eight physiotherapy participants. With the exception of confirming the diagnosis hand OA between 60%-70% of occupational therapists and 20%-45% of physiotherapist fulfilled all the roles in managing patients with hand OA.

Table II: Knowledge of and current clinical practice for the management of hand Osteoarthritis

		Occupational Therapists (n = 19)	Physiotherapists (n = 15)
Do you feel confident in the following aspects related to managing patients with hand osteoarthritis?	I know how to identify a patient with hand osteoarthritis.	16 (84.21%)	12 (80.00%)
	I know how to assess a patient with hand osteoarthritis.	16 (84.21%)	9 (60.00%)
	I know how to treat a patient with hand osteoarthritis.	14 (73.68%)	10 (66.67%)
	I know how to advise a patient with hand osteoarthritis.	15 (78.95%)	9 (60.00%)
	I know how to give appropriate advice related to self-management to patients with hand osteoarthritis.	14 (73.68%)	13 (86.67%)
	Do you treat patients with hand osteoarthritis?	15 (78.95%)	7 (46.67%)
Why do you not treat patients with hand osteoarthritis?	Not applicable in my clinical setting.	2 (10.53%)	1 (6.67%)
	I do not get referrals of patients with hand osteoarthritis.	1 (5.26%)	6 (40.00%)
	I am not confident in my ability to treat patients with hand osteoarthritis.	1 (5.26%)	1 (6.67%)
	I do not have the resources to assess and treat patients with hand osteoarthritis.	0	1 (6.67%)
	Managerial position	1 (5.26%)	0
If you have a patient with hand osteoarthritis referred to you and you cannot help them, where do you refer them to for management?.	Another physiotherapist	0	4 (26.67%)
	Another occupational therapist	3 (15.80%)	6 (40.00%)
	A general practitioner	0	1 (6.67%)
	A hand surgeon	1 (5.26%)	1 (6.67%)
	A rheumatologist	1 (5.26%)	0
	The nearest clinic	1 (5.26%)	0
Describe your hand therapy training	Undergraduate training at a university.	10 (52.63%)	7 (46.67%)
	Master's at a university	5 (26.32%)	0
	Postgraduate Diploma in Hand Therapy	5 (26.32%)	0
	Unaccredited continues professional development (CPD)/continues educational units (CEU) lectures	8 (42.11%	2 (13.33%)
	Accredited CPD/CEU lectures	11 (57.89%)	3 (20.00%)
	National conferences	7 (36.84%)	0
	International conferences	3 (15.80%)	0
	Clinical training on the job	9 (47.37%)	5 (33.33%)

	Started but did not complete the British Association of Hand Therapists certification	1 (5.26%)	0
	Hand fellowship in the United States of America	1 (5.26%)	0
	Advice and guidance from hand surgeons	1 (5.26%)	0
	Do you work in a practice that specialises in hand osteoarthritis management?	15 (78.95%)	1 (14.29%) (missing 8)
	Do you work in a practice that specialises in osteoarthritis management?	7 (36.84%)	4 (57.14%) (missing 8)
What is your role in managing a patient with hand osteoarthritis?	Prevention advice.	12 (63.16%)	3 (20.00%)
	Diagnosing hand osteoarthritis.	5 (26.32%)	3 (20.00%)
	Providing treatment.	14 (73.68%)	7 (46.67%)
	Providing a home exercise and care programme.	14 (73.68%)	7 (46.67%)
	Activity modifications.	14 (73.68%)	3 (20.00%)
	Referral to other services and professionals.	12 (63.16%)	6 (40.00%)

Patient load, treatment time, joint affected and referrals in the management of hand osteoarthritis

While more than half the occupational therapy participants receive between five and 40 new referrals of hand OA individuals a month the majority of physiotherapists who answered the question receive one to five referrals in the same time frame. Occupational therapists thus also spent more time managing individuals with hand OA per month than physiotherapists. Questions related to new referrals and the average time spent treating patients with hand OA had eight missing responses from physiotherapy participants.

The occupational therapists managed more patients with carpometacarpal joint OA (73.68%) relatively speaking more patients with wrist OA were managed by physiotherapists. Referrals of hand OA individuals to occupational therapists most frequently came from orthopaedic surgeons or self-referrals with most physiotherapists receiving their referrals from general practitioners. Referrals for co-management of patients were mostly to orthopaedic surgeons Table III (below).

Table III: Patient load, treatment time, joint affected and referrals in the management of hand Osteoarthritis (n=34)

		Occupational Therapists (n = 19)	Physiotherapists (n = 15)
How many new referrals of patients with hand osteoarthritis, on average, do you receive in a month?	1-5	5 (26.32%)	7 (100%) (missing participant response = 8)
	5-10	7 (36.84%)	2 (28.57%) (missing participant response = 8)
	10-20	2 (10.53%)	0
	20-40	1 (5.26%)	0
How much time, on average, is dedicated per month to treating patients with hand osteoarthritis?	< than 10%	3 (15.80%)	5 (71.43%) (missing participant response = 8)
	10%-20%	5 (26.32%)	0 (missing participant response = 8)
	20%-40%	5 (26.32%)	0 (missing participant response = 8)
	40%-50%	2 (10.53%)	0 (missing participant response = 8)

What type/area hand osteoarthritis do you see most in your practice?	Carpometacarpal joint	14 (73.68%)	1 (6.67%)
	Distal interphalangeal joint	5 (26.32%)	0
	Proximal interphalangeal joint	5 (26.32%)	3 (20.00%)
	Metacarpophalangeal joint	0	2 (13.33%)
	Wrist	5 (26.32%)	6 (40.00%)
Where do your hand osteoarthritis referrals come from?	Rheumatologists	4 (21.05%)	2 (13.33%)
	Orthopaedic surgeons	11 (57.90%)	3 (20.00%)
	General practitioners	7 (36.84%)	6 (40.00%)
	Physiotherapists	4 (21.05%)	0
	Occupational therapists	1 (5.26%)	2 (13.33%)
	Self-referrals	10 (52.63%)	3 (20.00%)
Where do you refer your patients with hand osteoarthritis to?	Rheumatologists	8 (42.11%)	2 (13.33%)
	Orthopaedic surgeons	14 (73.68%)	4 (26.67%)
	General practitioners	0	1 (6.67%)
	Physiotherapists	3 (15.80%)	0
	Occupational therapists	2 (10.53%)	5 (33.33%)
	Social worker	0	1 (6.67%)
	Dietician	0	1 (6.67%)

Management approaches for osteoarthritis of the hand

The management, including assessment and treatment practices used by occupational therapists and physiotherapists for hand OA are in Table 4 (page 7). The patient arriving with a diagnosis was reported just over half of occupational therapists and a third of physiotherapists. Clinical tools most frequently used to confirm or suggest hand OA by 47% to 68% of occupational therapists and 40%-27% of physiotherapists were area of pain, palpation and x-rays. The least frequent used by less than a third of participants were standardised questionnaires, the grind test for CMCJ OA and observations of deformity patterns.

Assessment tools frequently used were observation of deformity, pain, hand function and subjective assessments were used by more than 70% of occupational therapist and between 30% to 40% of physiotherapists. Assessment tools least frequently used during management of hand OA by 5% to 47% of occupational therapists and up to 13% of physiotherapists were quality of life, DASH, QuickDASH and other standardised questionnaires.

Between 73% and 78% of occupational therapists most often used the following treatment modalities: exercises, activity modification, adjustment of grips in activities of daily living, and splinting. Approximately 40% to 45% of physiotherapists most frequently used exercises, pain education and joint mobilisations as treatment modalities. Occupational therapists had four missing participant responses for the EULAR recommendations; however, they fared well with all the recommendations incorporated into their treatments Table IV (page 7).

Table IV: Management approaches for osteoarthritis of the hand (n=34)

		Occupational Therapists (n = 19)	Physiotherapists (n = 15)
Which of the clinical tools below do you use to confirm diagnosis of hand osteoarthritis?	Palpation	12 (63.16%)	4 (26.67%)
	Area of pain	13 (68.42%)	6 (40.00%)
	Standardised questionnaire	3 (15.79%)	2 (13.33%)
	X-ray	9 (47.37%)	5 (33.33%)
	Patient arrives with a diagnosis	11 (57.90%)	5 (33.33%)
	Special tests	5 (26.32%)	0
	Other:	3 (15.79%)	0
	Grind test for CMCJ OA	4 (21.05%)	0
	Observation of pattern of deformity e.g. MCPJ collapse with pinch tasks	1 (5.26%)	0
	Radial deviation/flexion/extension test for STT arthritis	1 (5.26%)	0
Select all the assessment tools you use for patients with hand osteoarthritis.	Pain	14 (73.68%)	7 (46.67%)
	Area of pain	13 (68.42%)	5 (33.33%)
	Hand function	14 (73.68%)	6 (40.00%)
	Disability of the arm, shoulder and hand (DASH) questionnaire	5 (26.32%)	3 (20.00%)
	QuickDASH questionnaire	5 (26.32%)	2 (13.33%)
	Other standardised questionnaires	1 (5.26%)	0
	Goniometer to assess range of motion	12 (63.16%)	5 (33.33%)
	Grip strength dynamometer	11 (57.90%)	0
	Pinch strength dynamometer	10 (52.63%)	1 (6.67%)
	Deformity	15 (78.95%)	3 (20.00%)
	Palpation	13 (68.42%)	3 (20.00%)
	Comparison to other side (hand)	11 (57.90%)	3 (20.00%)
	Subjective assessment/patient interview	14 (73.68%)	5 (33.33%)
	Quality of life	9 (47.37%)	1 (6.67%)
	Other	1 (5.26%)	0
Select all the treatment types you utilise for patients with hand osteoarthritis.	Activity modification	14 (73.68%)	1 (6.67%)
	Adjustment of grips in activities of daily living	14 (73.68%)	2 (13.33%)
	Splinting	14 (73.68%)	0

	Pressure garments	8 (42.11%)	0
	Exercises	15 (78.95%)	7 (46.67%)
	Pain education	13 (68.42%)	6 (40.00%)
	Other pain management tools or techniques	7 (36.84%)	2 (13.33%)
	Risk reduction education	4 (21.05%)	1 (6.67%)
	Electrotherapy	0	4 (26.67%)
	Wound care	3 (15.79%)	1 (6.67%)
	Kinesiotape	12 (63.16%)	2 (13.33%)
	Massage	11 (57.90%)	4 (26.67%)
	Reflexology	0	0
	Acupuncture	0	0
	Dry needling	0	1 (6.67%)
	Soft tissue release	10 (52.63%)	5 (33.33%)
	Joint mobilisations	6 (31.58%)	6 (40.00%)
Additional management questions.	Do you attempt to control hand osteoarthritis symptoms such as pain to optimise hand function and to maximise activity, quality of life and participation?	15 (100%) (missing 4)	7 (46.67%)
	Do you attempt to control hand osteoarthritis symptoms such as stiffness to optimise hand function and to maximise activity, quality of life and participation?	14 (93.33%) (missing 4)	7 (46.67%)
	Do you provide information about the nature of hand osteoarthritis, treatment options and self-management education?	14 (93.33%) (missing 4)	7 (46.67%)
	In your subjective assessment do you question your patients about possible comorbidities?	11 (73.33%) (missing 4)	7 (46.67%)
	Does your practice have a standardised hand osteoarthritis management protocol?	3 (20%) (missing 4)	2 (13.33%)
	Do you refer your patients with hand osteoarthritis to other multidisciplinary team members?	10 (66.67%) (missing 4)	7 (46.67%)
	Do you educate and train your patient with hand osteoarthritis on pacing of activities?	12 (80.00%) (missing 4)	6 (40.00%)

	Do you educate and train your patient with hand osteoarthritis on ergonomic principles?	14 (93.33%) (missing 4)	6 (40.00%)
	Do you educate and train your patient with hand osteoarthritis on assistive device use?	13 (86.67%) (missing 4)	3 (20.00%)
	Do you send the patient home with home care and materials for education following an outpatient consultation?	12 (80.00%) (missing 4)	7 (46.67%)
	Do you send the patient home with home care and materials for education following surgical intervention?	12 (80.00%) (missing 4)	7 (46.67%)
	Do you provide your patients presenting with hand osteoarthritis with exercises for pain?	13 (86.67%) (missing 4)	7 (46.67%)
	Do you provide your patients presenting with hand osteoarthritis with exercises for stiffness?	15 (100%) (missing 4)	7 (46.67%)
	Do you provide your patients presenting with hand osteoarthritis with exercises for increasing muscle strength?	9 (60.00%) (missing 4)	5 (33.33%)
	Do you provide your patients presenting with hand osteoarthritis with exercises to improve function?	15 (100%) (missing 4)	7 (46.67%)
	Do you routinely provide patients diagnosed with thumb base osteoarthritis with a splint?	8 (53.33%) (missing 4)	0
	Do you prefer topical ointment NSAIDs and/or oral/systemic NSAIDs for symptom relief?	3 (20.00%) (missing 4)	2 (13.33%)
	Celebrex	1 (5.26%)	0
	Voltaren	1 (5.26%)	0

DISCUSSION

In South Africa, limited research exists on rehabilitation management approaches for hand OA. The study aimed to determine the knowledge, patient load, management approaches and implementation of EULAR recommendations by South African public and private occupational therapists and physiotherapists for individuals diagnosed with hand OA.

Although the sample size was small the demographics of the participants reflected those of occupational and physiotherapists working in South Africa. According to Ned et al.[25] occupational therapists are predominantly young, female, and concentrated in urban areas of Gauteng and worked in private practice. Similar findings were reported by de Klerk et al[20], where 60.5% of occupational therapists treating hands worked in a private practice setting while results reported by Louw et al.[26] for physiotherapists for gender, experience and location reflect those in the current study where these professionals were more likely to work in private hospitals.

Physiotherapists with a wider range of experience levels, from less than one to more than 20 years, were treating hand OA which may be aligned with the lack of postgraduate hand therapy education in South Africa for physiotherapists[27] with most participants indicating their training came from undergraduate courses and on the job training. While a higher percentage of occupational therapists also had on the job training, more than half of this younger cohort had completed postgraduate or accredited continuing professional education courses and postgraduate hand therapy training. This can be considered as important as on job training in acquiring skill and knowledge[28]. Other hand therapy research in South Africa by Vorster and Buchanan[29], in 2024 report a similar finding for occupational therapists which may reflect the postgraduate training which was available to occupational therapists until recently at two universities in South Africa[27].

The greater opportunities for continued postgraduate training in hand therapy may support the higher percentage of occupational therapists who were confident in the assessment and treatment of hand OA. This may also be due to nearly 80% of the occupational therapists working

in practices that provided services for hand OA and which received a higher number of referrals for this condition on a monthly basis. The low referral rates reported by both professions relative to the reported prevalence rate however align with research which indicates hand OA is a "forgotten" condition[30]. Research in both high income[6,30] and low-middle income countries like South Africa[17,31] indicate patients with hand OA have poor access to recommended treatment due to lack of knowledge about non pharmaceutical intervention[17], patient belief nothing can be done[32] and focus on more life-threatening co-morbidities[31].

Teuchert et al.[17] in their qualitative study reiterated the value of a multidisciplinary team approach which was also highlighted by best-evidence recommendations[14]. They indicated most referrals to therapists for intervention for hand OA in South Africa, as in the current study, were received from general practitioners and orthopaedic surgeons. Referrals to and from other health professionals from the occupational therapists and physiotherapists confirmed limited involvement of the number of multidisciplinary team members. There were almost no referrals to dieticians and social workers and the inclusion of rheumatologists, recommended as important by the EULAR guidelines[14] in the management of hand OA[17,30] was limited. This may be due to the severe shortages of rheumatologists in low-middle income countries such as South Africa, limiting access to such specialised care[33].

However, literature suggests that referral to both occupational therapists and physiotherapists results improved quality of the care and effective treatment emphasizing that both professions play a crucial, often overlapping, role in the management for hand OA[34] Recommended first-line intervention[35] has resulted in occupational therapist-led care for hand OA has become a reality in some countries in the Global North[36] with physiotherapy leading intervention for other types of OA.

The current study found a greater involvement of occupational therapists in managing hand OA, since this profession had higher patient loads and spent more time treating patients, especially CMCJ OA, than physiotherapists. These results are similar to a survey in the USA reported by O'Brien and McGaha[37,] where 70% of participants providing intervention for CMCJ OA were occupational therapists and supported by a mapping review found that occupational therapists more commonly authored research and provided intervention for hand conditions[35]. When considering the area of OA, physiotherapists managed patients with wrist involvement. The physiotherapy group did, however, had a large proportion of missing data on the number of OA patients treated and the number of patients they see per month. Given that five participants spent less than 10% of their time treating patients with hand OA, the management practices should be considered with caution pending a larger sample study.

Management practice results revealed that occupational therapists and physiotherapists provide assessment and treatment that have similar goals, but these differ depending on the scope of the professions[27]. Thus, the study found there is a variation in services provided and intervention approaches and modalities used in South Africa when addressing hand OA. The intervention provided by the participants in the current study was aligned with the recommendations of the updated evidence, provided by EULAR[14.] Palpation and area of pain as well as x-rays were the tools most commonly used by both professions to confirm the diagnosis as suggested by Watt et al [38] as a starting point in the management of hand OA. There was however limited reported use of specialised tests and observation recommended for this for this purpose by occupational therapists with no use by physiotherapists compared to between 60% and 90% of therapists who use these tests for confirming hand OA in the United States[37].

In evaluation of hand OA the highest percentage of assessments used by both professions were for pain, hand function and range of motion. However, the percentage of therapists using these assessments and more than half the occupational therapists also assessed grip and pinch strength did not align with the 80%-90% of therapists in the United States who routinely evaluate these components[37] of body function and structures outlined in the ICF[19]. The use of standardised measures of activity and participation such as the DASH and QuickDASH, did however, reflect the results reported by O'Brien and McGaha[37] for therapists in the United States when assessing patients with hand OA. The limited use of these standardised assessments as well as occupations such as patient-rated activities of daily living was also reported by Teuchert et al.[17] in their South African study. Thus, the limited use of these measures internationally by both professions is a concern, given the importance of the hand in daily tasks and functioning[20] even if therapists included questions in the subjective assessment/patient interviews and quality of life assessment[14.]

The results for treatment implemented followed a similar pattern with emphasis on body function and structures as outlined in the EULAR guidelines to control symptoms, such as pain and stiffness, and to optimise hand function[14]. Occupational therapists utilised splinting, activity modification, grip adjustments, and exercise in their sessions with hand OA patients. Exercise, pain education and joint mobilisations were frequently used by the study's physiotherapists as per the recommendation of Sankah et al[16] to include strengthening and joint mobility exercises. Profession specific treatment such as splinting and pressure garments were not provided by physiotherapist while no occupational therapists used electrotherapy and dry needling. These findings were supported in 2025 by Watt et al. in the review of the management of hand OA[38].

The EULAR guidelines[14] suggest this intervention to maximise activity, participation and quality of life. Although not assessed using standardised tools, intervention to directly address activities and participation intervention was provided mostly by occupational therapists in terms of activity modification, grip adjustments and the use of ergonomic principles and assistive devices. However, intervention for specific occupations and occupation-based therapy was not addressed in the EULAR guidelines[14] or the current study.

Education on the nature of hand osteoarthritis and treatment options as well as home exercise programme consisting of pacing activities, range of motion and muscle strengthening exercises as recommended by the EULAR guidelines[14.] This intervention supported by Teuchert et al[17] as receiving detailed information, including a home programme, accessible in more than one language, was provided by a high percentage of occupational therapists, similar to that reported in a survey in the United States on the treatment of hand OA[37.] A lower percentage of physiotherapists provided education and home programmes or care although programmes provided by both professions supported self-management of hand OA and physiotherapists indicated more confidence in providing self-management advice to their patients. Experience with other long-term conditions may have supported the physiotherapists expertise in providing self-management interventions particularly for physical health in musculoskeletal conditions[39] and pain in treating hand OA.

Limitations of the study

Only the EULAR guidelines and recommendations[14] were included in this study. A limitation of the study includes a small sample size and missing responses, particularly among physiotherapists, which restrict generalisability of the findings. Recruitment challenges may reflect the limited number of therapists working in hand rehabilitation, high workloads, or questionnaire fatigue. The South African context and the impact of this on the management of hand OA were not considered directly in the survey.

Recommendations

When considering the EULAR recommendations[14] of individually tailored and multidisciplinary approaches in occupational therapy and physiotherapy for the management of hand OA, constraints and lack of access to health care services in low-middle incomes countries

need further research. Considering the burden of OA and other noncommunicable diseases rising in South Africa and Africa, an interdisciplinary rehabilitation approach[27] may be advantageous and have better outcomes for individuals with hand OA in South Africa.

A large-scale national study across all health sector levels in South Africa is recommended to validate the findings of the current study. Further research is required to develop and implement South African contextual intervention guidelines. Standardised hand OA assessments that include functional outcomes and quality of life measures are recommended. Increased advocacy is recommended for multidisciplinary and interprofessional care pathways, especially in resource-limited settings.

The different management approaches by occupational therapists and physiotherapist in this study, as supported by research evidence should be considered for beneficial hand rehabilitation delivery in the proposed National Health Insurance in South Africa[40].

Very few therapist participants commented on the use of topical ointment or oral/systemic NSAIDs in the treatment of hand OA indicating they are probably only involved in monitoring the condition and referring for the pharmacological aspects of treatment[38].

CONCLUSION

The results of this study highlighted that both professions, occupational therapists and physiotherapists, included most but not all non-pharmaceutical EULAR guidelines and recommendations[14], when providing intervention for hand OA. As reported internationally a higher percentage of occupational therapists provided services to patients with hand OA with referral rates indicating possible lack of access to these services. Assessment and treatment modalities between occupational therapists and physiotherapists support the high level of best evidence with the exception of the use of standardised assessments particularly for activity and participation and referral to a varied multidisciplinary team.

While it is encouraging that management of hand OA by occupational and physiotherapists in South Africa do follow practices, principles, and recommendations, contextually relevant South African evidence and perspectives to inform strategies suitable for low- to middle-income countries have not been considered in these guidelines. The impact of socioeconomic status, and comorbidities, as well as the psychological domain were not considered in the current study and Teuchert et al.[17] echoed the need for basic evidence-based guidelines for meaningful interventions tailored to the unique South African context including these factors.

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Conflicts of interest

The authors declare that there is no conflict of interest.

Author contributions

Monique Keller proposed the topic for the research, M. Keller, CM Thomas, T. Mukheli, J. De Kock, R. Muvhumbe, Motsele M, S. Bhyat and N. Mngoma wrote the protocol for ethical approval. M. Keller wrote the first version of the article. The protocol and article were read, elaborated upon, refined and approved by all listed authors.

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