Occupational therapy intervention with burns. A rapid review

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Occupational therapy practice and intervention with burn injuries. A rapid review

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ABSTRACT

Introduction: The Occupational Therapy Association of South African commissioned a task team to gather evidence that would inform the 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 burns injuries, at all levels of care, for all age groups.

Method: Using the South African Department of Health template and the Cochran 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 though 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 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 the review.

Results: Eleven articles were selected and their quality assessed. Seven categories of evidence of occupational therapy interventions was extracted from selected articles: pain, oedema, scaring 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. All intervention 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 are 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 in primary preventative and community interventions.

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

Implications for practice:

- Occupational therapists are members of multi-disciplinary burns teams addressing the functional ability and participation in activities of burn injury victims.
- There is level 1 evidence that confirms occupational therapy burn injury intervention with pain, oedema, scaring 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.
- Occupational therapists work with children and adults who had burn injuries.
- Clinical occupational therapy practice and intervention within the field of burn injury, in South Africa, at all levels of healthcare needs to be researched and disseminated in the form of systematic reviews and randomised control trails.

INTRODUCTION

The World Health Organisation (WHO) constitution states that *"health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" 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"* [1:1]. This ethos is also enshrined in the South African Constitution[2] and, with a specific focus on rehabilitation, in the National Rehabilitation Policy (NRP)[3]. The NRP emphasises the creation of equitable, accessible and quality rehabilitation services for all in South Africa. The policy describes the components of rehabilitation as prevention and health education, identification and diagnosis, medical rehabilitation and therapeutic devices, education, assistive devices, vocational rehabilitation and psychosocial rehabilitation[3]. The Occupational Therapy Association of South Africa (OTASA) further focuses on the role of occupational therapy in its position statement on rehabilitation[4]. This position statement sees rehabilitation as the link between healthcare and the resumption daily occupations. Occupational participation which brings purpose, meaning and satisfaction in life and that allows the realisation of potential[4]. To achieve such ideals, legislation[5] and strategies such as the National Health Insurance (NHI)[6] were effected and associations representing rehabilitation profession, were approached to provide evidence for best practice. OTASA was asked to provide evidence for the role of occupational therapy with specific medical conditions.

Occupational therapy is a healthcare profession that focuses on preserving, maintaining and enhancing the function of individuals whose health affects their engagement in occupation related activities. The World Federation of Occupational Therapists' (WFOT)[7] defines occupational therapy as a client-centred health profession, promoting health and well-being through occupation. The primary goal of occupational therapy is to enable participation in activities of everyday life. This outcome is achieved by working with people and communities, enhancing their engagement in occupations they want to, need to, or are expected to do, or by modifying the environment and/or the occupation to support occupational engagement. The Occupational Therapy Association of South Africa (OTASA) state that occupational therapists work with people across the human lifespan in a range of settings[4]. Although predominantly situated in healthcare facilities, occupational therapists also work in other contextually relevant spaces such as communities, schools and places of employment. This includes hospitals, rehabilitation centres, private practices, corporate and insurance settings, aged care facilities, schools, community health centres, government, and non-governmental organisations. Occupational therapy is thus practiced at primary-, secondary- and tertiary levels of healthcare. For occupational therapists to practice from an evidence base that has been informed by high quality research is important[8].

To provide evidence for best practice, OTASA commissioned the development of standard operating procedures (SOP's) for various health conditions 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.[9], 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. [10] suggests the use of a rapid review. This is a form of knowledge synthesis that accelerates the process of conducting a review through streamlining or omitting specific methods to produce evidence for stakeholders in a resource-efficient manner. Rapid review methodology is selected to produce evidence for decision-making purposes, and to address urgent and emergent health issues and questions deemed to be of high priority. This rapid review focuses on occupational therapy intervention for burn injuries. 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 injuries[11], the South African rehabilitation policy[3] and the OTASA's burns SOP[12].

The World Health Organisation[11] defines a burn injury as an injury to the skin or other organic tissue, caused by heat, radioactivity, electricity, friction or chemical contact. Burn injuries are a global public health problem and most occur in the home or workplace. Living in low- and middle-income countries (LMICs) puts people are 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.

Summary of the focus for this rapid review

This rapid review aimed to identify 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 reviews[13] and the Cochran Rapid Reviews method guide[10] 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 1and 2 evidence exists for occupational therapy intervention across the human life span?***

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. *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 - 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, on 13 March 2023: CINAHL (EBSCO), MEDLINE (EBSCO), the Cochrane Library (Wiley) and OTSeeker. A hand search was done of the references of articles that were selected after screening.

The OTASA Burns SOP document[12], 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.

Table I Search strings used in the rapid review

Burh 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" OT "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 Mendeley[14] 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

Rayyan[15] software was used to screen articles and generate a PRISMA flow diagram (Figure 1). 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) [16,17] appraisal tool, which offers healthcare professional various checklists to check the quality of articles, was used. The CASP Systematic Review[16] and the CASP RCT[17] 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 article.

Step 5: Evidence Synthesis

Quantitative data was analysed in Excel predominantly with frequencies/percentages. The qualitative data was analysed using Taguette[18]. During weekly group discussions the results of 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 was encouraged. These were considered and used to enrich and refine the review's discussion and conclusion.

RESULTS

The PRISMA 2020 diagram[19], Figure 1 (below), shows the results of the search, screen and selection of burn related evidence for occupational therapy.

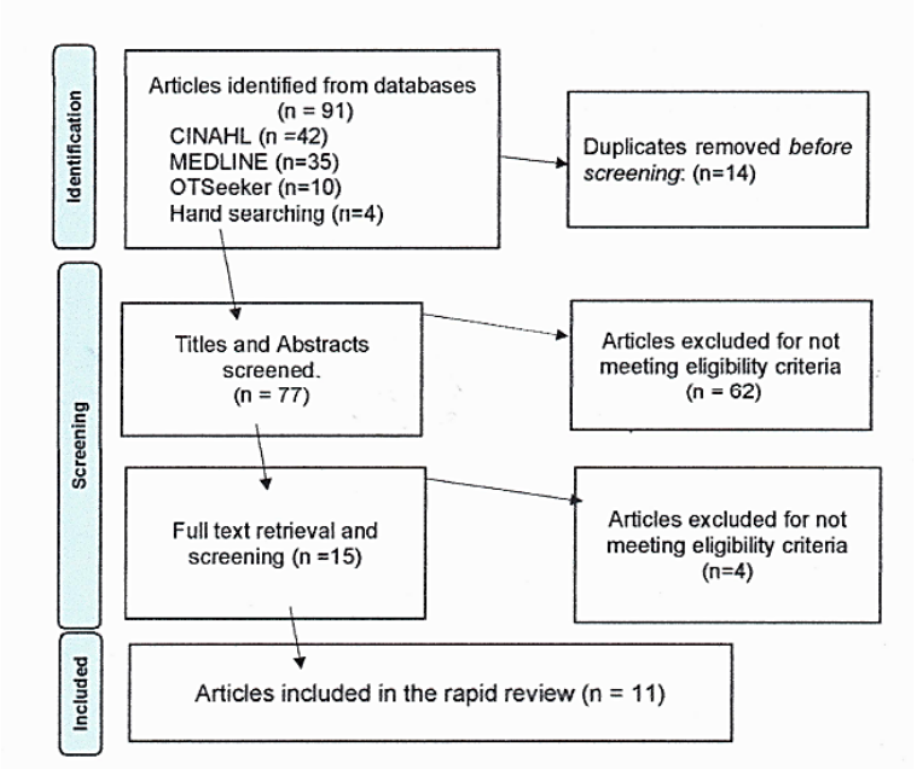

Figure 1. PRISMA2020 the results of the searching, screening and selection of articles.

Table II (page…) lists the 11 included articles, in order of latest 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/s affiliation
Edger-Lacoursière, Z. Deziel, E. and Nedelec, B. (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 [20]	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 [21]	Iran Iran University of Medical Sciences Shahid Motahhari 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 [22]	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. [23]	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 [24]	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 [25].	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 [26]	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 [27]	China Hongkong Polytechnic University Sichua University
Wiechman, S. A, Carrougher 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 [28]	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	Australia Burn Care Centre, Royal Hospital University of Queensland

International Society for Burn Injuries, 40 (2), 204–213. https://doi.org/10.1016/j.burns.2013.11.024 [29]	
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 [30]	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 checklist[17] and Systematic Review checklist[16] for the articles ratings expressed in percentage are presented in Table III (page…). 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. [20]	Systematic review	35	80%
Khanipour, M. et al.[21]	RCT	20	80%
Wiseman J, et al. [22]	RCT	152	85%
Parry IS, et al. [23]	Systematic review	50	100%
Crofton, E. *et al.* [24]	Systematic review	5	90%
Novak, I. et al. [25]	Systematic review	129	90%
Scapin, S. et al. [26]	Systematic review	34	80%
Zhang, Y et al. [27]	Systematic review	9	80%
Wiechman, S. A,et al.[31]	RCT	81	85%
Brown, N. J., et al. [29]	RCT	75	80%
Omar MTA,et al. [30]	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 for 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 exercises[30]. Using virtual reality games and

devices within this context was reported in several studies. The Ditto™ (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 procedures[29]. Virtual reality goggles were also used effectively for adjunctive pain control during occupational therapy in paediatric burn injury patients[26]. Occupational therapists used the following tools to rate the pain of service users' with burn injuries: Adolescent Paediatric Pain Tool[26], Numeric Pain Rating Scale (NPRS)[26], Faces Pain Scale[26,30], Face, legs, activity, cry, consolability (FLACC)[26], Wong-Baker faces[26], Pain Behaviour Scale[26], Visual analogue scale[30] and the Children Trauma Screening Questionnaire[26].

Oedema, scar and skin sensation management reported occupational therapy intervention. The use of compression (adhesive compressive wrap, compression bandage or intermittent compression pump) to decrease hand oedema and increase hand function[20] 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[30,20]. Intervention related to scaring 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 therapists[27]. Massage and splinting after burn injuries was defined as conservative scar management techniques used by occupational therapists[27]. Topical silicone gel and pressure garment therapy were interventions used for the prevention and management of abnormal post-burn scarring in children[22], adults[24] and to reduce hand scar thickness[20]. With burn injures 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 behaviours[24]. Occupational therapy's concern was reported about the impact of such sensory factors on function. They 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 techniques[24].

Occupational therapy intervention for joint range of motion and the prevention of contracture management was achieved predominantly though splinting, casts and positioning [20,23,30]. 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 occupational therapy intervention[20,26]. Occupational therapy also incorporated the use of virtual reality-based rehabilitation to increase hand function and hand strength[20]. Playing and games which reduce pain, improve hand movement and function as well as being reusability and versatility, are a suggested option in the rehabilitation of children with hand burn injury[30]. 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[30,20].

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 affected mental health, led to sleep deprivation, feelings of unattractiveness and lowered self-esteem and social acceptance[30,31,24]. 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 victims[21]. 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 burns[21]. This protocol along with traditional occupational therapy rehabilitation proved an effective intervention on improving anxiety, depression, and sleep quality[21]. Virtual reality technology used during rehabilitation was associated with increased enjoyment, the reduction of pain, anxiety and stress[26]. Ditto™ provide procedural distraction and self-management education with reduction of pain and anxiety being achieved in acute paediatric and adult burn injury victims[29,25]. Tests and tools used to assess psychosocial components were the Beck Anxiety Inventory (BAI), Self-Rating Depression Scale (SDS) and the Pittsburgh Sleep Quality Index[21].

Patients with burn injuries reported reduced participation in activities of daily living, or an inability to fulfil premorbid roles[20]. Functional limitations caused by burn related injuries or resulting therapy were attended to by occupational therapists [24,30]. 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 table ware, and providing instruction for their use[20]. Interventions such as pressure garments however, were reported to cause restriction in homemaking, personal hygiene, shopping, leisure activities, and use of transportation[24]. The Canadian Occupational Performance Measure (COPM) was used to determine occupational performance level and satisfaction[21].. Quality of life and activities of daily living (ADL) was measured using: Barthel Index (BI)[31], Functional Independence Measure (FIM)[23], Burns Specific Health Scale-Brief (BSHS-B)[20].

Occupational therapist applied an education component in their rehabilitation to increase the level of burn knowledge in their patients and their care givers[20]. Collaboration with parents of children with burn injuries was found to be an effective occupational therapy intervention[25]. It was also found that education, feedback, practical and emotional support from occupational therapists could aid adherence to wearing of pressure garments[24].

Vocational rehabilitation intervention by occupational therapists in the form of an outpatient work hardening program was reported as effective. The work hardening program was a 4–6-week program, 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 the final week[20]. Valpar 9 whole body range of motion work sample test was used to evaluate the outcome[31].

All interventions of the randomised control trials and those systematic reviews that did mention setting were reported to take place in healthcare facilities. These included burn units or centres in general hospitals[30] [29], outpatient departments [31,22], children hospitals [31], and specialised burns centres and hospitals [21,31]. No mention was made of occupational therapist 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 children [22] and the following age categories were specified: 4–12 years [29], 8-14 years[30]. They also worked with adults who had burn injuries and only one article reported biographic information; 18-65 years[21]. The types of which were reported, were hand and upper extremity burns [30] [20] [21] acute burn stage [22] [29], superficial and deep partial and full thickness thermal burns[30], second to third degree burns[21], hypertrophic scars caused by burns[27] and burn injuries which had been skin grafted[22] [21].

DISCUSSION

Rehabilitation is included in the WHO definition of comprehensive healthcare[1], and is positioned within preventive, promotive, curative and palliative care[32] but remains poorly understood by healthcare managers and workers in South Africa[33]. 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 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 policy[3] and the OTASA standard operating procedure for burn injuries[12] the following three sectors of intervention were used in 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

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, 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 rehabilitation[4] 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. This 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 granted 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[3].

The OTASA SOP document which outlines[12] 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.[8] 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.

Gate keeping 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

That evidence from levels 3 and 4 research should be considered. Systematic reviews and randomised control trial 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 al[34] 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.

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

The South African National Rehabilitation Policy acknowledges that policymakers and funders, both nationally and provincially, have historically regarded rehabilitation as low priority or an unaffordable luxury[3]. 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.

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Conflicts of Interest

The authors have no conflict of interest to declare

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Data availability statement

Upon reasonable request from the first author.

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REFERENCES

1. World Health Organization. Constitution of the World Health Organization. 2020:244. https://www.who.int/about/governance/constitution

2. The Republic of South Africa. The Constitution of the Republic of South Africa, 1996. Republic of South Africa. 1996;(May):1–182. https://housingfinanceafrica.org/app/uploads/Constitution-of-the-Republic-of-South-Africa-Act-108-of-1996.pdf

3. Republic of South Africa. Rehabilitation for all: National Rehabilitation Policy. Government Publishers, Pretoria; 2000.

4. OTASA. Occupational Therapy Association of South Africa Position Statement on Rehabilitation. South African Journal of Occupational Therapy. 2017;47(3):63–64. doi:http://dx.doi.org/10.17159/2310-3833/2017/v47n3a10

5. The Republic of South Africa. National Health Act 61 of 2003. 2003. https://www.gov.za/documents/national-health-act

6. National Department of Health. White Paper: National Health Insurance Policy - Towards Universal Health Coverage. Department of Health. 2017:1–67. https://www.gov.za/documents/national-health-act-national-health-insurance-policy-towards-universal-health-coverage-30

7. World Federation of Occupational Therapists [WFOT]. Definitions of occupational therapy from member organisations. 2013:74. http://www.wfot.org/ResourceCentre.aspx.

8. Soeker M, Olaoya O. Determining the research priorities for the profession of occupational therapy in South Africa. South African Journal of Occupational Therapy. 2023;53(1):6–7. doi:https:/doi.org/http://dx.doi.org/10.17159/2310-3833/2023/vol53n1a2

9. Burns PB, Rohrich RJ, Chung KC. The levels of evidence and their role in evidence-based medicine. Plastic and reconstructive surgery. 2011;128(1):305–310. doi:https://doi.org/10.1097/PRS.0b013e318219c171

10. 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.

11. World Health Organisation. Burns. Fact Sheet. 2018. https://www.who.int/news-room/fact-sheets/detail/burns

12. Pillay R, Flieringa H, Powell N. OTASA Burns Rehabilitation Standard Operating Protocol for Occupational Therapy. OTASA, Pretoria; 2023.

13. South Africa Department of Health. Methods Guide for Rapid Reviews for COVID-19

Medicine Reviews. 2021.

14. Mendeley Ltd. Mendeley Reference Manager. Elserivier. 2020:https://www.mendeley.com/reference-management/mend.

15. Rayyan Sytems I. Rayyan Intelligent Systematic Review. Rayyan https://rayyan.qcri.org/. 2020.

16. Critical Appraisal Skills Programme. CASP Systematic Review. 2018. https://casp-uk.net/images/checklist/documents/CASP-Systematic-Review-Checklist/CASP-Systematic-Review-Checklist_2018.pdf

17. Critical Appraisal Skills Programme. CASP Randomised Control Trial. 2021. https://casp-uk.net/images/checklist/documents/archive/CASP-Randomised-Controlled-Trial-Checklist-2018.pdf

18. Rampin R, Rampin V, DeMott S. Taguette Version 0.10.1. hi@taguette.org. 2020:BSD-3-Clause license, ©. doi:https://www.taguette.org/

19. Page M, McKenzie J, Bossuyt P, Boutron I, Hoffmann T, Mulrow C. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ open. 2021;372(71). doi:https://doi.org/10.1136/bmj.n71

20. Edger-Lacoursière Z, Deziel E, Nedelec B. Rehabilitation interventions after hand burn injury in adults: A systematic review. Burns. 2023;49(3):516–553. doi:https://doi.org/10.1016/j.burns.2022.05.005

21. Khanipour M, Lajevardi L, Taghizadeh G, Azad A, Ghorbani H. 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. 2022;48(7):1645–1652. doi:https://doi.org/10.1016/j.burns.2022.02.014

22. Wiseman J, Simons M, Kimble R, Ware RS, McPhail SM, Tyack Z. Effectiveness of topical silicone gel and pressure garment therapy for burn scar prevention and management in children 12-months postburn: A parallel group randomised controlled trial. Clinical Rehabilitation. 2021;35(8):1126–1141. doi:https://doi.org/10.1177/02692155211020351

23. Parry IS, Schneider JC, Yelvington M, Sharp P, Serghiou M, Ryan CM, Richardson E, Pontius K, Niszczak J, McMahon 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. Journal of Burn Care and Research. 2020;41(3):503–534. doi:https://doi.org/10.1093/JBCR/IRZ150

24. Crofton E, Meredith P, Gray P, O'Reilly S, Strong J. Non-adherence with compression garment wear in adult burns patients: A systematic review and meta-ethnography. Burns. 2020;46(2):472–482. doi:https://doi.org/10.1016/j.burns.2019.08.011

25. 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. doi:https://doi.org/10.1111/1440-1630.12573

26. Scapin S, Echevarría-Guanilo ME, Boeira Fuculo Junior PR, Gonçalves N, Rocha PK, Coimbra R. Virtual Reality in the treatment of burn patients: A systematic review. Burns. 2018;44(6):1403–1416. doi:https://doi.org/10.1016/j.burns.2017.11.002

27. Zhang Y, Li-Tsang CWP, Au RKC. A Systematic Review on the Effect of Mechanical Stretch on Hypertrophic Scars after Burn Injuries. Hong Kong Journal of Occupational Therapy. 2017;29:1–9. doi:https://doi.org/10.1016/j.hkjot.2016.11.001

28. Wiechman SA, Carrougher GJ, Esselman PC, Klein MB, Martinez EM, Engrav LH, Gibran NS. An expanded delivery model for outpatient burn rehabilitation. Journal of Burn Care and Research. 2015;36(1):14–22. doi:https://doi.org/10.1097/BCR.0000000000000153

29. Brown NJ, Kimble RM, Rodger S, Ware RS, Cuttle L. Play and heal: Randomized controlled trial of Ditto™ intervention efficacy on improving re-epithelialization in pediatric burns. Burns. 2014;40(2):204–213. doi:https://doi.org/10.1016/j.burns.2013.11.024

30. 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(2):261–268. doi:https://doi.org/10.1016/j.burns.2011.08.004

31. Wiechman SA, Carrougher GJ, Esselman PC, Klein MB, Martinez EM, Engrav LH, Gibran NS. An expanded delivery model for outpatient burn rehabilitation. Journal of Burn Care and Research. 2015;36(1):14–22. doi:https://doi.org/10.1097/BCR.0000000000000153

32. World Health Organization. Rehabilitation. Newsroom. 2020:https://www.who.int/news-room/fact-sheets/detail/r. https://www.who.int/news-room/fact-sheets/detail/rehabilitation

33. Sherry K. Disability and rehabilitation : essential considerations for equitable, accessible and poverty-reducing health care in South Africa. South African Health Review. 2014;2014/2015(1):89–99. doi:https://doi.org/10.10520/EJC189294

34. Graham JE, Karmarkar AM, Ottenbacher KJ. Small sample research designs for evidence-based rehabilitation: Issues and methods. Archives of Physical Medicine and Rehabilitation. 2012;93(8 SUPPL.):111–116. doi:https://doi.org/10.1016/j.apmr.2011.12.017

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