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Review Paper

Work-related Musculoskeletal Disorder Among Physiotherapists in Sub–Saharan Africa: A Scoping Review

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ABSTRACT

Background and Objectives: Physiotherapists are prone to developing work-related musculoskeletal disorders (WRMSDs) because of the high physical demands of their profession. This scoping review aimed to map the evidence on the prevalence, effects, and methods for mitigating WRMSDs among physiotherapists in sub-Saharan Africa (SSA).

Methods: The methodological framework proposed by the Joanna Briggs Institute guided the scoping review. Four databases were searched: Cochrane, PubMed, Scopus, and Web of Science. An expert librarian assisted in the search strategy. Published research on WRMSDs among physiotherapists was searched from 2005 to November 2024. Keywords and related Medical Subject Headings terms were used to search for prevalence, patterns, effects, and methods of mitigating of WRMSDs among physiotherapists in SSA.

Results: Seven studies were included in the review with sample sizes ranging from 45 to 126 participants. WRMSD prevalence was notably high, with the lower back being the most affected (77.1%), followed by the neck (41.9%), and the shoulder (30.5%). Physiotherapists adopted different coping strategies such as modifying body mechanics or treatment modalities, taking frequent breaks, and adjusting patient positioning to mitigate WRMSDs. However, ergonomic training and the use of mechanical lifting devices were limited in the region.

Conclusion: There is a high prevalence of WRMSDs among physiotherapists in SSA which negatively impacts clinical practice.

Keywords: Physiotherapists, Sub-Saharan Africa (SSA), Work-related musculoskeletal disorder

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What is "already known" in this topic:

Physiotherapists are prone to developing WRMSDs; WRMSDs constitute a significant occupational health hazard globally among physiotherapists; WRMSDs increases work attrition among Physiotherapists.

What this article adds:

High prevalence of WRMSDs among physiotherapists across the SSA; The lower back is the most affected region among physiotherapists in SSA; Most Physiotherapists remained in the profession nor changed their area of practice, despite high prevalence; Many physiotherapists adopt self-initiated coping strategies such as modifying posture and delegating tasks.

Introduction

Work-related musculoskeletal disorders (WRMSDs) are injuries or pain in the musculoskeletal system, resulting from repetitive tasks, awkward postures, or excessive physical exertion during work [1]. These disorders constitute a significant occupational health hazard globally, especially among healthcare professionals, such as physiotherapists. The physical demands of manual therapy, prolonged static postures, and repetitive movements put physiotherapists at higher risk of WRMSDs than other healthcare professionals [1–3].

Global studies on WRMSDs show that up to 90% of physiotherapists develop WRMSDs at various points in their careers, with the lower back, neck, and shoulders being the most commonly affected body areas [4–6].

There is limited evidence from sub-Saharan Africa (SSA) regarding the prevalence and risk factors associated with WRMSDs among physiotherapists, which have been extensively studied in high-income countries [5, 7–9].

The challenges faced by physiotherapists in this region include limited resources, high workloads, and diverse work environments, which may aggravate the burden of WRMSDs in this population, underscoring the need to consider the prevalence, associated risk factors, and prevention strategies in the sub-Saharan context [2, 3, 10]

The health of physiotherapists is critical to ensure quality patient care and maintaining a sustainable workforce because they play a crucial role in providing rehabilitation care, particularly in low- and middle-income countries where access to specialist care is limited [11]. Understanding the burden of WRMSDs among physiotherapists in SSA is essential to develop targeted interventions and inform occupational health policies [12].

This scoping review aimed to map and synthesize the existing evidence on WRMSDs among physiotherapists in SSA, focusing on prevalence, pattern, effects and methods of mitigating WRMSDs among physiotherapists in the region. In addition, this review aimed to reduce the burden of WRMSDs in this region by identifying research gaps and providing a basis for future research.

Materials and Methods

A scoping review was conducted following the methodological framework of the Joana Briggs Institute guidelines. In accordance with this framework, the five steps used were: Identifying the research question; identifying relevant studies; study selection; charting the data; and collating, summarizing, and reporting the results.

Identification of the research question

The overall aim of the study underpinning the scoping review was to determine the efficacy of an educational program for mitigating WRMSDs among physiotherapists in southwest Nigeria

They were specifically identified as follows:

1) What is the framework of prevalence of WRMSDs among physiotherapists in SSA? 2) What are the patterns of WRMSDs among this population? 3) What are the effects of WRMSDs among SSA physiotherapists? 4) What are the methods used to mitigate WRMSDs among physiotherapists in SSA.

The population, concept, and context framework was used to define the eligibility criteria for the studies for the primary research question. The population included physiotherapists. The concept is on WRMSDs, while the context is within SSA.

Identifying relevant studies

The following electronic databases were used to conduct a search for literature: PubMed, Cochrane Library, Web of Science, and Scopus; the search was from 2005 to November 2024. A search strategy was conducted using the following keywords: 'physiotherapy', 'physical therapy', 'physiotherapist', 'musculoskeletal disorder,' 'Intervention', 'SSA'. The Boolean terms 'AND', 'OR,' and 'NOT' were used to separate keywords. An expert librarian at the University of KwaZulu-Natal was consulted during the literature search (Appendices 1 and 2). Rayyan reference manager was used to manage all the citations.

Eligibility criteria

Inclusion and exclusion criteria were developed to identify key areas of interest.

The inclusion criteria included studies published in peer-reviewed journals, written in English, from 2005 to November 2024, both qualitative and quantitative studies assessing the effectiveness, outcomes, challenges, and best practices of these programs. Also, grey literature, conference abstracts, editorials, letters, and reference lists. The exclusion criteria included studies not directly related to physiotherapists, studies focusing solely on treatment rather than prevention, articles not in the English language, and articles published before 2005.

Study selection

Eligible articles were identified and uploaded to Rayyan, and all duplicate articles were removed. Two independent reviewers screened the titles and abstracts, and the full texts of retrieved articles relevant to the research objectives. A third reviewer screened any excluded citations and resolved any differences between the two reviewers to make a final decision. The library service at the University of KwaZulu-Natal was used to access full-text articles from non-open-access publications.

Charting the data

Relevant data from the included articles were extracted using a piloted Google Form to corroborate the study characteristics and their relevance. The data charting form was regularly updated to include new information that addressed the research question. The following variables were extracted from included studies: Author name(s), publication date, study title, study design, study setting, population, number of males and females, patterns/anatomical distributions, effects, and coping strategies.

Collating, summarizing, and reporting the results

Thematic content analysis was used to analyze the narrative accounts derived from the included studies. Data were extracted on the prevalence, patterns, effects, and methods of WRMSDS mitigation among physiotherapists. The results of this proposed study are presented according to the preferred reporting items for systematic reviews and meta-analysis: Extension for scoping review (PRISMA-ScR) [13].

Results

A total of 732 eligible studies (Cochrane-57, Scopus-49, Web of Science-142, PubMed-467, reference list-7) were identified from the databases and reference lists (Figure 1). After duplicate removal and title screening of articles from the databases, 609 studies were selected for the review. Thereafter, abstract screening was conducted, of which 604 studies were excluded for not meeting the inclusion criteria, thus reducing the eligible articles for screening to 5 articles. After the full-article screening, three studies were excluded for the following reasons: Two of those three studies made a report on undergraduate students [14, 15], and one study did not report on the prevalence, pattern effect, and method of mitigation of WRMSDs [16] leaving only two [10, 12] eligibly for data extraction. Also, two references [17, 18] out of the seven studies obtained from the reference lists were excluded for not meeting the inclusion criteria, leaving five studies [2, 3, 19–21] that met the inclusion criteria and were included from the reference lists. Ultimately, seven articles were included in the review for data extraction, as they met our inclusion criteria (Table 1). Figure 1 shows the preferred reporting items for systematic reviews and meta-analyses (PRISMA) flowchart for the screening and selection of studies in this review (Table 1 and Figure 1).

Characteristics of the included studies

A total of 7 published articles between 2005 and 2024 were found eligible for inclusion in our scoping review. The included studies were conducted in different hospital settings, and the population was drawn from male and female physiotherapists.

In this study, 57.1% (4/7) of the included studies were conducted in Nigeria [2, 3, 10, 12] while other studies were from Gambia [19], Ghana [20], and Rwanda [21]. A total of 717 participants included in the included studies.

All 7 included studies were cross-sectional surveys. Of the seven included studies, all of them, as presented in Table 1, showed evidence on the prevalence and pattern of WRMSDs among physiotherapists [2, 3, 10, 12, 19–21]. Only one of the studies provided evidence on effect of WRMSDs [12], and four described coping strategies or methods to mitigate WRMSDs [12, 19–21] (Figure 2 and Table 2).

Gender distribution

Gender distribution varied across studies, though in most samples, male physiotherapists constituted the majority, such as in Adegoke et al. (63.5% male) [12] and Abaraogu et al. (65.7% male) [10], while some, such as Nkhata et al. [19], reported a predominantly female workforce (61.7%).

Prevalence/pattern and anatomical distribution of WRMSDs

There was a high prevalence of WRMSDs among physiotherapists across the SSA studies included in this scoping review. Although this prevalence was not consistently reported as single percentage values across studies, anatomical site-specific prevalence figures provide a reliable estimate of the widespread nature of these disorders among physiotherapists in the region.

Based on the anatomical distribution of WRMSDs, our findings revealed that the lower back is the most affected region among physiotherapists in SSA. The reported prevalence rates were 69.6% [18], 77.1% [19], and 69.8% [12]. Similarly, Nkhata et al. [19] found that 52.4% of physiotherapists in Zambia reported lower back symptoms.

Neck and upper back pain were the next most commonly reported symptoms. In Abaraogu et al. [10] study, neck pain was reported to be 41.9% while in Sagahutu and Nuhu's study, there was a prevalence rate of 34.3% [21]. Meanwhile, a higher prevalence rate of upper back pain was reported in Sagahutu and Nuhu (57.1%) [21] and Plange (38.2%) [20]. These results underscore a recurrent theme across studies: concentrated musculoskeletal strain in regions heavily involved in manual therapy and patient handling.

Upper back symptoms were also common, with a higher percentage of samples observed in Sagahutu and Nuhu (57.1%) [21], followed by plange at 38.2% [20]. A moderate prevalence rate of musculoskeletal complaints was reported for the shoulder, wrist/hand, and thumb. For instance, wrist/hand symptoms were reported to be 28.3% in Abaraogu et al. [10] and 31.4% in Sagahutu and Nuhu [21]. In comparison, shoulder discomfort was reported to be 30.5% of respondents in Nkhata et al. [19] and 30.1% in Abaraogu et al. [10].

Distal upper limb symptoms were extensively reported in the wrist/hand and thumb. For example, wrist/hand disorders were reported to be 31.4% [21] in Sagahutu and Nuhu's sample and 28.3% [10] in Abaraogu's et al. A less commonly reported symptom site is thumb strain. However, there was a high prevalent rate of this in Sagahutu and Nuhu at 31.4% [21]. In Plange at 15.7% [20], this could probably be due to repetitive manual therapy practices, such as joint mobilizations and manipulations when handling patients.

Symptoms in the lower limbs (hip, knee, and ankle) were rarely reported, yet significant. Abaraogu et al. [10] indicated that 16.1% of participants experienced hip pain and 20.7% had knee pain. Plange similarly noted a 16.7% [20] prevalence of knee pain, while the Sagahutu and Nuhu [21] study documented no cases of lower ankle involvement (0%) but observed a higher incidence of knee involvement (14.6%) [21]. Overall, these prevalence patterns underscore the physically demanding nature of physiotherapy in these contexts and the strain placed on various anatomical regions during clinical practice.

Effects of WRMSDs

Despite the high prevalent rate and widespread distribution of WRMSDs among physiotherapists, most remained in the profession or changed their area of practice. According to a study by Adegoke et al. a greater percentage (62.6%) of physiotherapists modifies or changes their treatment techniques due to the effect of WRMSDs. However, despite these health challenges, 88.4% did not change their area of specialization, and 87.0% remained in the profession (Figure 2). This may be because each physiotherapist loves the area of practice in which they specialize. Furthermore, these results highlight the professional resilience of physiotherapists in SSA. However, they also pinpoint the potential risk of ongoing physical strain if adequate interventions and institutional support are deficient [12].

Table 1. Summary of the seven included studies

Author	Sample	Setting	Design	Outcomes	Case Definition	Prevalence Estimates	Major Findings
Mbada et al. 2015 [2]	98	Tertiary hospitals in southwest Nigeria	Cross-sectional survey	Knowledge, attitude, and perception of manual handling techniques; WRMSDs	Self-reported WRMSDs associated with manual handling	24.5% lifetime prevalence	Participants had good knowledge but a negative attitude toward manual handling techniques due to a lack of appropriate equipment; there was a theory-practice gap
Abaraogu et al. 2016 [10]	126	Teaching, general, private, and government hospitals in southeast Nigeria	Cross-sectional survey	Job stress dimensions, WRMSDs	WRMSDs in at least one body region in the last 12 months or 7 days	82.1% in the last 12 months & 22.8% in the last 7 days	High WRMSDs prevalence; no specific job stress domain linked to WRMSDs
Adegoke et al. 2008 [12]	126	26 accredited secondary and tertiary health institutions across Nigeria	Cross-sectional survey	Prevalence, work factors, and coping strategies for WRMSDs	WRMSDs were defined as discomfort, injuries, or pain due to work. It lasted more than three days in the last 12 months in any part of the body.	91.3% in the last 12 months	Higher prevalence in females and those with lower BMI; most affected: Low back; main risk: Treating many patients/day; most cope by modifying position
Nkhata et al. 2010 [19]	120	Government, private, and rehabilitation centers in Zambia	Cross-sectional survey	Prevalence, contributing factors, coping strategies for WRMSDs	WRMSDs were defined as the experience of work-related pain or discomfort that lasted for more than 3 days in any body part in the last 12 months.	68.3% in the last 12 months	The high prevalence of WRMSDs is in the low back.
Obembe et al. 2008 [3]	100	Tertiary, secondary hospitals and private clinics in southwest Nigeria	Cross-sectional survey	Nature, prevalence, risk factors, consequences of occupational injuries	Occupational injuries with focus on musculoskeletal injuries.	78% in the last 12-month	High injury rate; low back and hands most affected; muscle strain most common
Plange 2019 [20]	102	Tertiary, general, and military hospitals.	Cross-sectional survey	Prevalence, causes, and coping strategies for WRMSDs	WRMSDs are inflammatory and degenerative conditions that affect muscles, tendons, ligaments, etc., and are influenced by the execution of work or workstation design.	76.5% in the last 12-month	The most affected is the lower back, 69.6%, and the least affected is the elbow/forearm 1.0%. There is an association between age/work experience and WRMSDs.
Sagahutu and Nuhu 2019 [21]	45	All hospitals and rehabilitation centers in Kigali, including private clinics.	Cross-sectional survey	Prevalence, risk factors, and preventive strategies for WRMSDs	WRMSDs was defined as discomfort, injuries, or pain due to work and lasted more than three days in the last 12 months in any part of the body.	77.8% in the last 12-month	Main risks: static posture (40%), high patient load (31.1%); prevention: Avoid prolonged sitting/standing, adjust plinth/bed height

Table 2. Prevalence pattern distribution of wrmds in different body parts and coping strategies of physiotherapists in Sub–Saharan Africa

Author	Population	Country	Sex	No. (%)										
				Neck	Upper Back	Mid Back	Lower Back	Shoulder	Elbow	Wrist/ Hand	Thumb	Hip	Knee	Ankle
Mbada et al. 2015 [2]	98	Nigeria	Male=59.2 Female = 40.8	3(3.1)	2(2.0)	-	14(14.3)	3(3.1)	-	5(5.1)	-	-	-	-
Abaraogu et al. 2016 [10]	126	Nigeria	Male=65.7 Female=34.3	49(41.9)	34(29.8)	-	67(57.8)	34(30.1)	12(10.8)	32(28.3)	-	18(16.1)	23(20.7)	11(10.0)
Adegoke et al. 2008 [12]	126	Nigeria	Male=63.5 Female=36.5	43(31.1)	18(14.3)	-	88(69.8)	28(22.2)	7(5.6)	26(20.6)	-	8(6.3)	20(15.9)	12(9.5)
Nkhata et al. 2010 [19]	120	Zambia	Male=38.3 Female=61.7	21(25.6)	22(26.8)	-	43(52.4)	25(30.5)	6(7.3)	13(15.9)	2(2.4)	1(1.2)	8(9.8)	7(8.2)
Obembe et al. 2008 [3]	100	Nigeria	Male=55 Female=45	7(6.7)	-	11(10.6)	47(45.2)	5(4.8)	(0.9)	27(26.0)	-	3(2.9)	3(2.9)	-
Plange 2019 [20]	102	Ghana	Male=59.3 Female=46.1	23(22.6)	39(38.2)		71(69.6)	14(13.7)	1(1.0)	18(17.7)	16(15.7)	8(7.8)	17(16.7)	9(8.8)
Sagahutu and Nuhu 2019 [21]	45	Rwanda	Male=66.7 Female=33.3	12(34.3)	20(57.1)	-	27(77.1)	9(25.7)	2(5.7)	11(31.4)	11(31.4)	2(5.7)	5(14.6)	0
Author	I get someone else to handle a heavy patient	I modify patient's position/ my position	I use a different part of my body to administer a manual technique	I warm up and stretch before performing manual Techniques or physiotherapy duties	I use electrotherapy instead of manual techniques	I pause regularly so I can stretch and change posture	I adjust the plinth or bed height before treating a patient	I select techniques that will not aggravate or provoke my discomfort	I stop the treatment if it causes or aggravates my discomfort	Seek treatment from my colleagues or other health professionals	Have training on ergonomics and how to prevent occupational hazards	Use mechanical lift equipment when lifting dependent patients		
Abaraogu et al. 2017 Nigeria [10]	-	-	-	-	-	-	-	-	-	-	-	-		
Adegoke et al. 2008 Nigeria [12]	88(76.6)	105(91.3)	58(50.4)	33(28.7)	56(48.7)	87(75.7)	80(69.5)	92(80.0)	78(67.8)	-	-	-		

Author	Popula-tion	Country	Sex	No. (%)										
				Neck	Upper Back	Mid Back	Lower Back	Shoulder	Elbow	Wrist/ Hand	Thumb	Hip	Knee	Ankle
Mbada et al. 2015 Nigeria [2]	-	-	-	-	-	-	-	-	-	-	-	-		
Nkahata et al. 2010 [19]	73(89.0)	80(97.5)	67(81.7)	39(47.5)	54(65.9)	65(79.3)	67(81.7)	76(92.7)	64(78.1)					
Obembe et al. 2008 [3]	-	-	-	-	-	-	-	-	-	-	-	-		
Plange 2019 [20]	74(72.6)	86(84.3)	53(52.0)	18(17.7)	8(7.8)	58(56.9)	55(53.9)	40(39.2)	42(41.2)	-	-	-		
Sagahutu and Nuhu 2019 [21]	26(57.8)	32(71.1)	20(44.4)	13(28.9)	25(55.6)	35(77.8)	35(77.8)	34(75.6)	14(31.1)	18(40.0)	26(57.8)	26(57.8)		

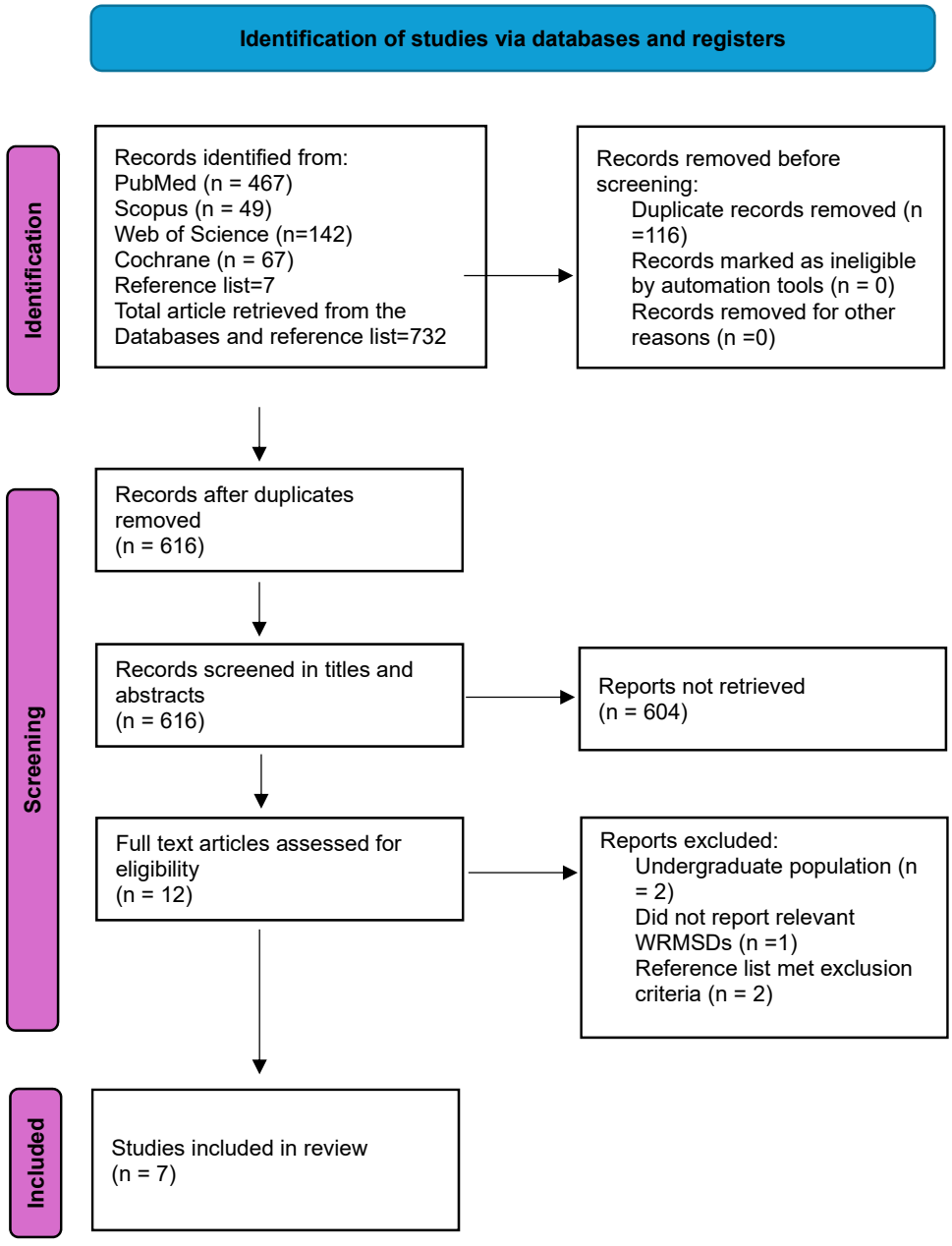

Figure 1. PRISMA flowchart for the scoping review process [13]

When it comes to coping mechanisms in the case of WRMSDs, physiotherapists mainly modify their clinical practice settings rather than withdrawing from the profession, adapting their techniques or work routines to accommodate the various discomforts experienced or to reduce the risk of further injury. Nevertheless, the implications of persistent WRMSDs, such as reduced quality of care, absenteeism, and long-term disability, remain underreported and warrant further longitudinal research.

Coping strategies and methods of mitigation

Physiotherapists adopted numerous strategies to mitigate the impact of WRMSDs (Table 2). The most common strategy across multiple studies was modifying patient or therapist position, reported by 97.5% of respondents in Nkhata [19], 91.3% in Adegoke et al. [12], 84.3% in Plange [20], and 71.1% in Sagahutu and Nuhu [21]. This high incidence rate reflects an immediate and

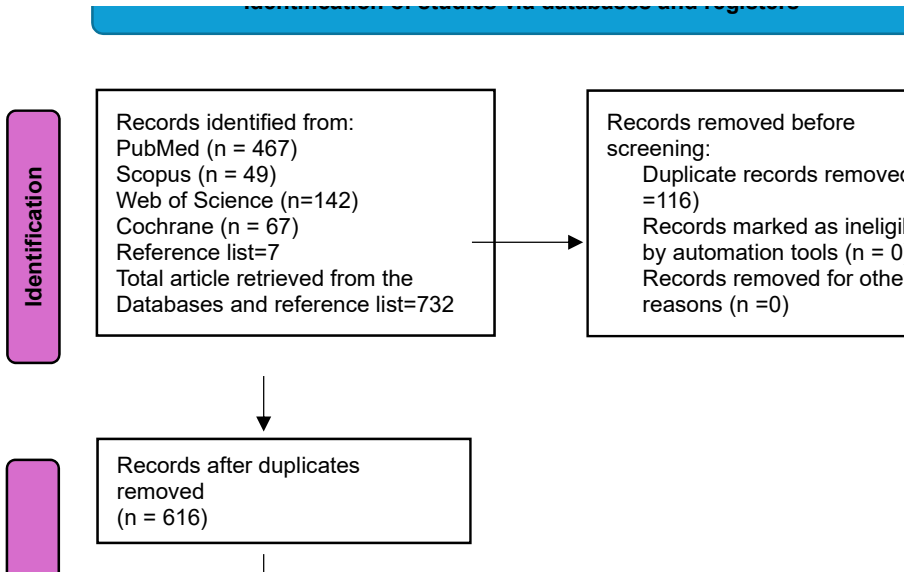

Figure 2. Bar chart showing the effects of WRMSDs on physiotherapists

practical adaptation that can be implemented during treatment to reduce physical strain.

Another prevalent coping strategy was pausing regularly to stretch or change posture. This was reported by 79.3% in Nkhata et al. [19], 75.7% in Adegoke et al. [12], 77.8% in both Plange [20] and Sagahutu et al. [21], stressing the recognition of microbreaks as a means to prevent prolonged musculoskeletal load.

Adjusting the treatment plinth or bed's height was also frequently reported, with 81.7% [19], 69.5% [12], and 77.8% [21] employing this strategy. This adjustment reduces awkward postures and the risk of cumulative musculoskeletal trauma.

Selection of procedures that minimize discomfort was another frequently employed strategy. For example, 92.7% of physiotherapists in Nkhata et al. [19] and 80.0% in Adegoke et al. [12] reported adapting their techniques to prevent exacerbation of pain. Also, 78.1% [19], 67.8% [12], and 31.1% reported stopping treatment when discomfort arises [21].

Adoption of alternative techniques such as electrotherapy in place of manual therapy was less often reported, with only 7.8% of respondents in Plange [20] and 48.7% in Adegoke et al. [12] indicating such substitutions.

Getting assistance from colleagues for handling heavy patients was reported by 76.6% [12], 89.0% [19], 72.6% [20], and 57.8% [21], revealing interprofessional cooperation as a significant mitigation method. Warming up or stretching before duty was less consistently reported, with only 28.7% [12] and 47.5% [19] using such preventive measures.

Sagahutu and Nuhu's study was the only one to report ergonomic training and occupational hazard prevention, with 57.8% receiving such training. Also, mechanical lifting equipment was reported by only 57.8% in the same study, suggesting limited institutional support or infrastructure for ergonomic practice [21].

Formal treatment interventions, such as seeking treatment from colleagues or health professionals, were reported by only 40.0% [21], indicating a relatively low uptake of such services, possibly due to lack of accessible care, cultural norms, or workload.

Discussion

This scoping review explored evidence from seven studies conducted across SSA on the prevalence, anatomical distribution, effects, and coping strategies associated with WRMSDs among physiotherapists. The findings reiterate the extensive physical toll of clinical physiotherapy practice in this region, reflecting global trends while also revealing region-specific patterns fashioned by systemic, cultural, and infrastructural factors.

Prevalence and Anatomical Distribution of WRMSDs

The included studies corroborate findings from international literature that WRMSDs were highly prevalent among physiotherapists in the region. There is consis-

tently high reported WRMSD prevalence among physiotherapists globally, often exceeding 80% annually [5, 6, 10]. Similarly, the present review found widespread musculoskeletal symptoms, with the lower back being the most affected anatomical region. The prevalence of lower back pain ranged from 14.3% [2] to 77.1% [21], aligning with the 50%–80% range reported by physiotherapists in other regions except the lowest range [4–6, 22]. The varied prevalence reported by the included studies may be due to differences in methodologies and WRMSD case definitions. Only three studies have similar case definitions, while the remaining studies have varied in their definitions.

The predominance of lower back, neck, and upper back pain exacerbates the ergonomic challenges inherent in patient handling, prolonged static postures, and manual therapy, which are fundamental components of physiotherapy. These anatomical patterns are consistent with findings from studies in Europe and Asia [4, 6], indicating that, despite contextual differences, the physical demands of physiotherapy universally predispose practitioners to spinal WRMSDs.

Commonly reported in the review of upper limb symptoms (e.g. wrist/hand and thumb pain) were marked by [21] and [10]. The findings support previous international research emphasizing that manual therapy techniques, repetitive tasks, and sustained grip force contribute significantly to upper extremity strain among physiotherapists [5, 6]. Additionally, the prominence of thumb disorders in [21] (31.4%) reflects similar reports in American and Asia contexts, where joint mobilizations and manipulations are routine practice [5, 23].

Lower limb symptoms, though less frequently reported, were still evident in non-negligible proportions (e.g. 16.1% for hip pain and 20.7% for knee pain [10]). This likely results from prolonged standing and dynamic movement during therapy sessions. However, unlike the high burden of spinal and upper limb WRMSDs, lower limb symptoms may reflect more generalized musculoskeletal fatigue rather than work-specific mechanisms. This result was also observed among Egyptian physiotherapists [22].

Gender and professional distribution

Across the studies, gender distribution varied, with some reporting a male-dominated sample [10, 12] and others signifying a female majority [19]. While this disparity may reflect employment patterns within the establishment or national workforce demographics, previous studies have identified gender as a possible risk factor for WRMSDs. Female physiotherapists have been found to report higher WRMSDs prevalence, due to differences in muscle mass, height, ergonomic fit of tools, and job assignments [12]. However, there is a limitation in the direct interpretation of sex-related risks in this context because gender-specific WRMSD analyses were not consistently separated in the reviewed studies.

A reflection of the predominance of inpatient and outpatient clinical practice was observed across all included studies, which were cross-sectional surveys conducted in hospital settings among the physiotherapy workforce in SSA. This clinical setting is vastly essential, as hospital-based physiotherapy often involves time-sensitive workloads, intensive manual therapy and rehabilitation of dependent patients, which are all contributory to cumulative physical stress in the profession [2, 16].

Effects of WRMSDs on professional practice

In a study by Adegoke et al. only a few physiotherapists were reported to have left the profession or changed their area of specialization, despite the high prevalence of WRMSDs. The author further noted that there is a high degree of professional resilience, with 87% of respondents remaining in the profession and 88.4% retaining their specialization [12]. These findings are inconsistent with a study by Khairy et al. among Egyptian physiotherapists, where a greater number (40%) were willing to leave their work because of the high prevalence of WRMSDs [22].

However, it was reported that 62.6% of participants in Adegoke et al.'s study modified and adjusted their treatment techniques due to musculoskeletal symptoms [12]. There is a great deal of adaptability in clinical practice which is found to be common among healthcare workers with WRMSDs, despite the fact that it can lead to suboptimal therapeutic delivery, reduced clinical confidence, and increased cognitive burden, which in turn can affect treatment outcomes [1, 20, 22]. Moreover, the long-term sustainability of continued practice under physical duress is questionable, particularly in resource-constrained systems where workforce shortages may inhibit the redistribution of physically intensive duties. WRMSDs have several occupational consequences. In most reviewed studies, data on the broader professional repercussions of WRMSDs, such as productivity loss, absenteeism, economic cost, and burnout were remarkably omitted. This lapse mirrors a gap in sub-Saharan occupational health research and confines the scope of understanding the systemic effects of WRMSDs.

Coping strategies and mitigation methods

The methods of mitigation adopted by physiotherapists in SSA reflect those recommended in international ergonomic and occupational health guidelines [7, 8, 16]. A universally most prominent reported strategy to cope with WRMSDs was modifying therapist or patient position, with uptake of over 70% in all four studies addressing coping strategies [12, 19–21]. This strategy is supported by the literature, showing that small ergonomic changes, such as repositioning the patient closer or adjusting hand positioning, can significantly reduce biomechanical load [24]. This shows the importance of ergonomic adjustments in workplaces to reduce the negative impact of WRMSDs and enhance productivity and outcomes.

Other coping strategies were also practiced extensively, such as adjusting plinth height, regular microbreaks, and technique modification. These are consistent with preventive frameworks that emphasize task variability and posture alternation to reduce cumulative strain [1, 25]. For instance, studies from Europe and North America show that stretching and posture shifts during treatment have been associated with decreased WRMSD symptoms [5, 24].

However, various vital interventions, such as mechanical lifting devices or ergonomic training, were less frequently reported. This shows limited institutional investment in WRMSD prevention infrastructure, as only one [21] documented its use. These dissimilarities are higher-income settings, where regular ergonomic assessments and access to lifting equipment are often embedded in physiotherapy departments [24].

According to Sagahutu and Nuhu, there is a relatively low rate of physiotherapists (40%) seeking professional treatment for WRMSDs [21]. This is similar to the report from Egypt, where 38.6% physiotherapists consulted a physician for their WRMSDs [22]. This may reflect accessibility, cultural, or financial barriers. Self-care and informal peer consultation may be preferred in some sub-Saharan settings, due to distrust of institutional systems or fear of professional stigma. These results underscore the need for workplace health promotion and confidential reporting pathways to reassure physiotherapists to seek care without fear of reprisal.

Recommendations for practice and policy for low-resource clinical settings

To reduce the incidence and impact of WRMSDs among physiotherapists in SSA, the following recommendations are proposed based on this review:

Integration of Ergonomics Training: Ergonomics should be incorporated into both undergraduate and postgraduate physiotherapy curricula, as well as through continuing professional development [24].

Policy development: Prevention guidelines, mandating periodic workplace safety assessments, and enforcement of occupational health legislation can be developed by national professional bodies and ministries of health to mitigate the effects of WRMSDs.

Promoting a safety culture: Encouraging early reporting, reducing stigma, and fostering collaborative support systems can help mitigate emotional impacts and facilitate timely intervention.

Establish “lift teams” to assist with heavy lifting, promote on-site fitness and stretching programs, and optimize workload management by balancing demanding tasks with less intense activities. The use of low-cost assistive aids, such as gait belts and friction-reducing sheets, should be encouraged. Additionally, fostering a culture of peer support and early reporting of discomfort can facilitate preventive care and help mitigate long-term issues.

Recommendations for practice and policy in high-resource clinical settings

To reduce the incidence and impact of WRMSDs among physiotherapists in SSA, the following recommendations are proposed based on this review:

1) Incorporate occupational health and safety and ergonomics into facility design and integration of ergonomics training: When constructing new facilities or remodeling existing ones, incorporate ergonomic concepts into the design to guarantee sufficient room around beds, suitable floor surfaces, broad doorways, and appropriately positioned fixed equipment. Ergonomics should be incorporated into both undergraduate and postgraduate physiotherapy curricula, as well as through continuing professional development [24]. 2) Institutional Reforms: To reduce exposure to physical stressors, healthcare facilities should invest in lifting equipment, redesigning workspaces to support neutral postures, and instituting

job rotation and workload limits. 3) Policy development: Prevention guidelines, mandating periodic workplace safety assessments, and enforcement of occupational health legislation can be developed by national professional bodies and ministries of health to mitigate the effects of WRMSDs.

4) Advanced data gathering and intervention assessment: Make use of resources to carry out thorough research and surveillance on the prevalence and risk factors of WRMSD, using the results to improve and assess the efficacy of preventative measures. 5) Promotion of a safety culture: Promoting early report, reducing stigma, and encouraging collaborative support systems can help mitigate emotional impacts and foster timely intervention. 6) Establish a formal, dedicated safe patient handling (SPH) Program: Create a program with specified guidelines, qualified SPH specialists (also known as "lift-teams"), and the entire array of suitable patient transfer tools (such as ceiling lifts and portable hoists). 7) Required, periodic medical monitoring and fitness-for-work evaluations: Perform routine health and fitness evaluations to spot possible problems early and offer focused assistance or work adjustments. 8. Provide All-Inclusive Support Systems: To guarantee a speedy recovery and return to work following job-related accidents, make occupational health specialists, counseling, and possibly even on-site physiotherapy treatment accessible.

Conclusion

The considerable burden of WRMSDs among physiotherapists in SSA is highlighted by this scoping review, with the lower back, neck, and shoulders most commonly affected. The physical demands of manual therapy, poor ergonomic conditions, and limited access to assistive equipment contribute significantly to the prevalence of WRMSDs. Many physiotherapists adopt self-initiated coping strategies such as modifying posture, delegating tasks, and using electrotherapy, but formal institutional support, including ergonomic training and access to mechanical aids, remains limited. Despite the high incidence of WRMSDs, most physiotherapists continue practicing without changing their specialty or leaving the profession; this may reflect both resilience and the potential for chronic strain-related complications. Structured ergonomic education, policy reforms, and investment in occupational health infrastructure are required to safeguard the well-being and productivity of physiotherapists in the region.

Strengths and limitations of the review

To our knowledge, this is the first scoping review to map the prevalence, patterns, effects, and methods for mitigating WRMSDs among physiotherapists in SSA. This scoping review is not without limitations as the number of studies available from SSA is limited and mainly cross-sectional, restricting causality inference and possible recall bias. In addition, the geographic distribution of studies was uneven, with more than half conducted in Nigeria, potentially skewing region-wide conclusions. Also, language and publication bias may have excluded relevant studies published in non-indexed local journals.

Data availability

Data sharing does not apply to this article as no new data were created or analyzed in this study.

Disclaimer

The views, opinions, assumptions, or any other information presented in this manuscript are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of University of KwaZulu-Natal, Durban, South Africa. (Code: HSSREC/00007376/2024).

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Authors' contributions

Supervision: Thayananthee Nadasan and Oladapo Olagbegi; Writing the original draft: Grace Emmanuel; Funding acquisition and Resources: Grace Emmanuel; Conceptualization, methodology, investigation, review & editing: All authors.

Conflict of interest

The authors declared no conflicts of interest.

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Appendix 1. Search term strategies

Search	Keywords and Mesh Terms
1	"Physical therapy"[Mesh] OR Physiotherap* OR "physical therapists"
2	"Musculoskeletal disease"[Mesh] OR WRMSDs OR MSD OR MSDs OR "repetitive motion" OR "Repetitive strain injury" OR "cumulative disorder" OR "Occupational injury" OR "upper limb pain" OR "lower limb pain" OR "Regional musculoskeletal disorder" OR "Soft tissue disorder" OR "Muscle injury" OR "Nerve injury" OR "Tendon injury" OR "Back pain" OR "Low back pain" OR lumbago OR spondylolisthesis OR "lumbar spondylosis" OR "lumbar spine disease" OR "Orthopedic injuries" OR sprain OR strain* OR fracture OR Bursitis OR "Joint instability" OR "Joint dislocation" OR Synovitis OR "Shoulder impingement syndrome" OR "Compartment syndrome" OR Ankylosis OR Arthritis OR Arthralgia OR Osteoarthritis OR "musculoskeletal pain" OR "Muscle cramp" OR "Shoulder impingement syndrome" OR Radiculopathy OR "Ankylosis spondylitis" OR "Degenerative spondylolisthesis" OR "Intervertebral disk degeneration" OR "Sacro iliac joint dysfunction" OR "Spinal disk Degeneration" OR "Spinal stenosis" OR "Cervical Radiculopathy" OR "neck pain" OR "Cervical spondylosis"
#3	Intervention OR "Prevention strategies"[Mesh] OR Mitigate OR "Educational program*" OR "Educational intervention*" OR "Health education" OR Ergonomic* OR Self-care OR "Early medical intervention" OR "Early intervention, educational" OR "Internet based intervention"
#4	"Africa South of the Sahara"[Mesh] OR "sub-Saharan Africa" OR Angola OR Benin OR Botswana OR "Burkina Faso" OR Burundi OR Cameroon OR "Cape Verde" OR "Central African Republic" OR Chad OR Comoros OR Congo OR "Cote d'Ivoire" OR Djibouti OR Eritrea OR Gabon OR Gambia OR Ghana OR Guinea OR Kenya OR Lesotho OR Liberia OR Madagascar OR Malawi OR Mali OR Mauritania OR Mauritius OR Mozambique OR Namibia OR Niger OR Nigeria OR Rwanda OR "Sao Tome" OR Principe OR Senegal OR Seychelles OR "Sierra Leone" OR Somalia OR "South Africa" OR Sudan OR Swaziland OR Tanzania OR Togo OR Uganda OR Zambia OR Zimbabwe OR "west Africa" OR "east Africa" OR "Southern Africa" OR "central Africa"
#5	#1 AND #2 AND #3 AND #4

Appendix 2. Search action details

Search	Actions	Details	Query	Results	Time
			#5		
			Search: #1 AND #2 AND #3 AND #4	233	07:05:21
			#4		
			Search: "Africa South of the Sahara"[Mesh] OR "sub-Saharan Africa" OR Angola OR Benin OR Botswana OR "Burkina Faso" OR Burundi OR Cameroon OR "Cape Verde" OR "Central African Republic" OR Chad OR Comoros OR Congo OR "Cote d'Ivoire" OR Djibouti OR Eritrea OR Gabon OR Gambia OR Ghana OR Guinea OR Kenya OR Lesotho OR Liberia OR Madagascar OR Malawi OR Mali OR Mauritania OR Mauritius OR Mozambique OR	536,504	07:01:54
			#3		
			Search: Intervention OR "Prevention strategies"[Mesh] OR Mitigate OR "Educational program*" OR "Educational intervention*" OR "Health education" OR Ergonomic* OR Self-care OR "Early medical intervention" OR "Early intervention, educational" OR "Internet-based intervention"	11,375,642	07:00:54
			#2		
			Search: "Musculoskeletal disease"[Mesh] OR WRMSDs OR MSD OR MSDs OR "repetitive motion" OR "Repetitive strain injury" OR "cumulative disorder" OR "Occupational injury" OR "upper limb pain" OR "lower limb pain" OR "Regional musculoskeletal disorder" OR "Soft tissue disorder" OR "Muscle injury" OR "Nerve injury" OR "Tendon injury" OR "Back pain" OR "Low back pain" OR lumbago OR spondylolisthesis OR "lumbar spondylosis" OR "lumbar spine disease" OR "Orthopedic injuries" OR sprain OR strain* OR fracture OR Bursitis OR "Joint instability" OR "Joint dislocation" OR Synovitis OR "Shoulder impingement syndrome" OR "Compartment syndrome" OR Ankylosis OR Arthritis OR Arthralgia OR Osteoarthritis OR "musculoskeletal pain" OR "Muscle cramp" OR "Shoulder impingement syndrome" OR Radiculopathy OR "Ankylosis spondylitis" OR "Degenerative spondylolisthesis" OR "Intervertebral disk degeneration" OR "Sacro iliac joint dysfunction" OR "Spinal disk Degeneration" OR "Spinal stenosis" OR "Cervical Radiculopathy" OR "neck pain" OR "Cervical spondylosis"	2,327,771	06:59:28
			#1		
			Search: "Physical therapy"[Mesh] OR Physiotherap* OR "physical therapists"	88,361	06:57:58