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Review Article

Allied Health Professionals and Work-Related Musculoskeletal Disorders: A Systematic Review

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ABSTRACT

Work-related musculoskeletal injuries and disorders (WMSD) are a significant issue in the health care sector. Allied Health professionals (AHP) in this sector are exposed to physical and psychosocial factors associated with increased risk of developing a WMSD. Clarification of relevant hazard and risk factors for AHP is needed to improve understanding and inform WMSD risk management. A systematic analysis of the literature was undertaken to determine prevalence and risk factors for WMSD in AHP. Databases of Ovid MEDLINE, CINAHL (EBSCO), EMBASE and the Cochrane Database of Systematic Reviews were reviewed. This quality of articles was low. Outcome measures were varied, with prevalence rates of WMSD reported from 28% to 96% over a one-year time period. The lower back was the most commonly affected body part. Relevant factors identified with the development of WMSD included inexperience in the role and area of employment. Future research needs to focus on undertaking high quality prospective studies to determine the factors associated with WMSD development in AHP.

1. Introduction

Work-related musculoskeletal injuries and disorders (WMSDs) are a significant issue in the health care sector [1]. Within this sector, allied health professionals (AHPs) are important providers of services for individuals who are sick or injured, or have a disability. AHPs comprise occupational groups that have similar job roles, levels of job satisfaction, and issues concerning work life balance and staff retention [2–8]. The allied health professions include those of physiotherapists, occupational therapists, speech pathologists, prosthetists and orthotists, dieticians, sonographers, social workers, osteopaths, audiologists, radiologists, exercise physiologists, perfusionists, and, under some definitions, chiropractors [9]. AHPs undertake a variety of work activities and are exposed to a range of hazards and risks associated with a higher chance of WMSD development [10,11]. Despite the large body of evidence that supports the role of physical and psychosocial factors in the development of WMSDs [12], the literature on allied health has largely focused on the former [13–18]. To date, a comprehensive examination of the literature relating to this professional group has not been undertaken in relation to WMSDs, a gap this review aims to address. The health care literature provides a useful lens to examine the relationship between work environment and development of WMSDs in AHPs.

A substantial overlap exists between a range of work activities undertaken by health care workers, such as nurses and AHPs. Both roles involve physically demanding work and exposure to a range of psychosocial hazards [10,11,19,20] such as high workloads, time pressure, or limited job control. However, strategies designed to prevent WMSDs in the health care sector have largely focused on minimizing physical hazards and risks, such as lifting or transferring of patients [19,21]. This mismatch between potential WMSD causal factors and risk management strategies may, in part, explain the high numbers of WMSDs reported in the health care sector, despite extensive efforts to reduce their prevalence.

The multifactorial nature of WMSD development requires identification of a range of causal factors relevant to the population group, in this instance AHPs. This information can then be used to guide the development of effective strategies to reduce hazards and risks for WMSD. The current focus on physical aspects of work necessarily limits the development of a multifactorial prevention approach. In the first instance, improved understanding of what are the key issues is needed to inform prevention strategies.

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An additional factor, not restricted to the health care sector, is the over-reliance on compensation data to inform risk management strategies [22]. In health care, previous research [11,23,24] has reported that health care workers are reluctant to report injuries, and as such compensation data are likely to under-represent actual injury rates. Furthermore, the complex and cumulative nature of WMSD development means that attribution of causation is challenging, and compensation data do not capture this information accurately [22].

To improve the understanding of key issues for AHPs in relation to the development of WMSDs, a systematic review of the available literature is needed. This systematic review has two aims: first, to determine the prevalence of WMSDs, and second, to identify hazard and risk factors associated with the development of WMSDs.

2. Materials and methods

2.1. Quality assessment

The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) checklist and diagram (see Fig. 1) were used to conduct the systematic review to ensure complete, transparent, and unbiased reporting. Quality assessments were undertaken using one of the following tools, depending on the study design: the Critical Review Form for Quantitative Studies [25], the Critical Review Form for Qualitative Studies [26] from McMaster University, and, for systematic reviews, the Critical Appraisal Skills Programme [27]. These quality checklists were used to assess the risk of bias, research design, and rigor of the included studies.

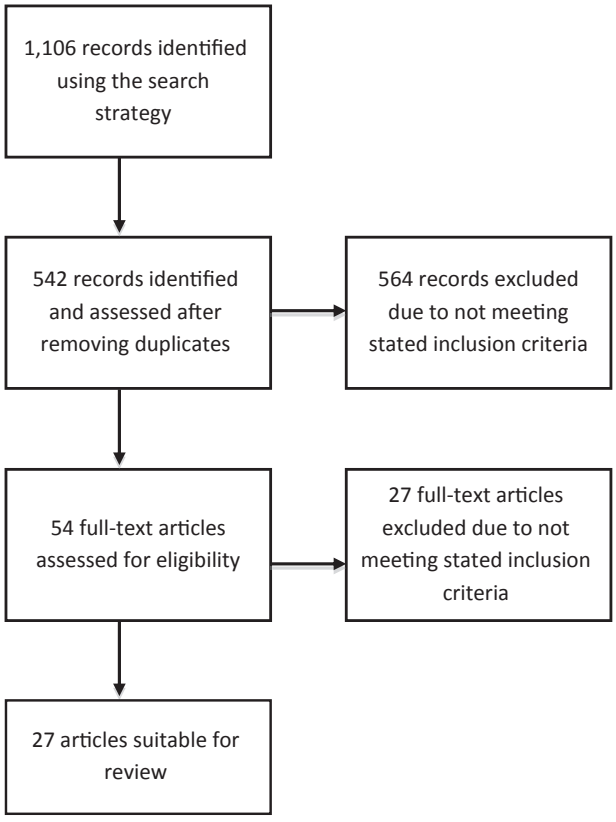

Fig. 1. Flow chart.

2.2. Data extraction

One reviewer (S.A.) assessed the title and abstract of each study to determine if it met the inclusion criteria. All excluded abstracts were then assessed by a second reviewer to ensure no accidental exclusion of relevant articles. Full papers were then reviewed and those that did not satisfy the inclusion criteria were excluded (Fig. 1).

The following characteristics of included studies were extracted and described: study design, occupation, location, sample detail, outcome measure, prevalence measure, risk factors identified, body area affected, and the consequence of injury for the individual.

2.3. Search strategy

Following the PRISMA guidelines, a search protocol was developed, identifying analysis and inclusion/exclusion criteria. A search of the literature was conducted in March 2016, using Ovid MEDLINE (1948–March 2016), CINAHL (EBSCO) (1937–March 2016), EMBASE (Ovid) (1947–March 2016), and the Cochrane Database of Systematic Reviews (1991–March 2016). Databases were searched from inception to March 2016, for articles in English language. Reference lists from identified papers were hand searched to ensure that all relevant papers were identified.

A search using Medical Subject Headings (MeSH) terms (exploded) and free text words was performed, including appropriate acronyms and synonyms, relevant truncations, and wildcard symbols, to ensure that all spellings and variations of root words were taken into account. The search terms used are listed in Table 1. Allied health titles were selected using definitions from the AHP Australia [9] (Table 1).

2.4. Inclusion criteria

For inclusion in the current review, studies required a focus on AHPs, to have reported WMSD prevalence rates or measured

Table 1
Key search terms and search strategy

Subject heading	(1) Exp. occupational health (2) Exp. occupational disease (3) Exp. occupational accident
Keywords	(4) Workplace or occupational injur* or occupational disease* or occupational health
Combine	(5) 1 or 2 or 3 or 4
Subject heading	(6) Exp. musculoskeletal disease (7) Exp. musculoskeletal injury
Keywords	(8) Musculoskeletal disease* or musculoskeletal disorder* or musculoskeletal injur* or MSI or MSD
Combine	(9) 6 or 7 or 8
Subject heading	(10) Exp. paramedical profession (11) Exp. physiotherapy (12) Exp. occupational therapy
Keywords	(13) "Allied health" or physiotherap* "physical therap*" or "occupational therap*" or podiatr* or "speech patholog*" or osteopath* or audiolog* or chiropractor* or dietic* or psychologist or "exercise physiology*" or prosthet* or orthot* or perfusionist* or "social worker*" or songograph* or "genetic counselor*" or "music therapist*"
Combine	(14) 10 or 11 or 12 or 13
Limit	(15) English language
Combine	(16) 5 and 9 and 14 and 15

Exp, exploded; MSD, musculoskeletal disorder; MSI, musculoskeletal injury.
* Truncation that allows a literature search to include multiple forms of a word including singular, plural and variable spellings.