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Review

Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: A systematic review and meta-analysis

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ABSTRACT

Objectives: To estimate the association between psychosocial risk factors in the workplace and musculoskeletal disorders (MSD) in nurses and aides.
Design: Systematic review and meta-analysis.
Data sources: An electronic search was performed using MEDLINE (Pubmed), Psychinfo, Web of Science, Tripdatabase, Cochrane Central Controlled Trials, NIOSHTIC and Joanna Briggs Institute of Systematic Reviews on Nursing and Midwifery, to identify observational studies assessing the role of psychosocial risk factors on MSD in hospital nurses and nursing aides.
Review methods: Two reviewers independently assessed eligibility and extracted data. Quality assessment was conducted independently by two reviewers using an adapted version of the Standardized Quality Scale. Random-effects meta-analysis was performed by subsets based on specific anatomical site and the exposure to specific psychosocial risk factors. Heterogeneity for each subset of meta-analysis was assessed and meta-regressions were conducted to examine the source of heterogeneity among studies.
Results: Twenty-four articles were included in the review, seventeen of which were selected for meta-analysis. An association was identified between high psychosocial demands–low job control with prevalent and incident low back pain (OR 1.56; 95% CI 1.22–1.99 and OR 1.52; 95% CI 1.14–2.01, respectively), prevalent shoulder pain (OR 1.89; 95% CI 1.53–2.34), prevalent knee pain (OR 2.21; 95% CI 1.07–4.54), and prevalent pain at any anatomical site (OR 1.38; 95% CI 1.09–1.75). Effort-reward imbalance was associated with prevalent MSD at any anatomical site (OR 6.13; 95% CI 5.32–7.07) and low social support with incident back pain (OR 1.82; 95% CI 1.43–2.32). Heterogeneity was generally low for most subsets of meta-analysis.

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Conclusion: This meta-analysis suggests that psychosocial risk factors at the workplace are associated with MSD in hospital nurses and nursing aides. Although most preventive strategies at the workplace are focused on ergonomic risk factors, improving the psychosocial work environment might have an impact on reducing MSDs.

What is already known about the topic?

- Musculoskeletal disorders (MSD) are one of the leading causes of disability in hospital nurses and nursing aides.
- Traditionally, studies on risk factors for MSD have focused on physical activities like manual handling, and individual characteristics, such as sex and age.
- Recently, a growing body of evidence suggests that organizational factors might play an important role in the occurrence of MSD in nurses and aides.

What this paper adds

- Despite the small number of longitudinal studies available, our findings provide consistent evidence of an association between exposure to work-related psychosocial factors and MSD in hospital nurses and aides.
- Interventions to reduce MSD in hospitals should take into account not only ergonomics, but also the improvement of organizational aspects of the work environment.

1. Introduction

Work-related musculoskeletal disorders (MSD) are defined as symptoms caused or aggravated by occupational risk factors, including discomfort, damage or persistent pain in body structures, such as muscles, joints, tendons, ligaments, nerves, bones, and the circulatory system (Barboza et al., 2008; Cherry et al., 2001; Kee et al., 2007; Trinkoff et al., 2002). MSD are the most common health problem associated with work in Europe, affecting millions of workers. It has been estimated that 25% of European workers complain of back pain and 23% of muscle aches. MSD are the main cause of sickness absence in western European countries (Murray et al., 2012), and in the United States and Canada (Punnett and Wegman, 2004). In Europe, costs due to MSD represent approximately 2 per cent of their Gross Domestic Product (GDP) (Bevan et al., 2009), without considering productivity losses and social costs (Choobineh et al., 2010; Menzel, 2007; Podniece and Taylor, 2008). Furthermore, MSD is also one of the main causes of sickness absence among hospital nurses and nursing aides, although underreporting is common (Menzel, 2008).

Factors associated with MSD include individual characteristics, such as age and sex, occupational risk factors and non-work related exposures. Physical risk factors that arise from a worker's tasks (e.g. physical demands, handling loads, repetitive movements or vibration) are well established workplace risk factors for the occurrence of MSD. However, there is some evidence that occupational psychosocial risk factors, such as high psychosocial demands, low job control or low social support, could also have a role (European Agency for Safety and Health at Work, 2007; Magnago et al., 2007). Hospital nurses and nursing aides are occupational groups especially at risk of developing MSD (Magnago et al., 2007; Solidaki et al., 2010). The prevalence of MSD in nursing professionals has been documented in different studies (Choobineh et al., 2010; Smith et al., 2003) and varies across countries (Coggon et al., 2013). Karahan et al. found that hospital nurses and nursing aides had the highest prevalence of MSD (77.1%) in a sample of Turkish health care workers (Karahan et al., 2009). In Norway the prevalence of MSD in nursing aides has been found to be as high as 89% (Willy, 2003), whereas in Japan it is much lower at around 37% (Matsudaira et al., 2011). Several studies have shown a high risk of developing neck and low back pain in hospital nurses, attributed to both physical and psychosocial factors at work, such as shift work, long hours at work (Magnago et al., 2007; Menzel, 2007; Trinkoff et al., 2002) and the stress related to patient's management (Solidaki et al., 2010).

Although some previous systematic reviews have reported an association between psychosocial risks factors in the workplace and MSD in hospital nurses and nursing aides, to our knowledge no meta-analysis has yet been published. Thus, the aim of our study was to evaluate and quantify the association between exposure to psychosocial factors in the workplace and MSD in nurses and nursing aides in hospital settings.

2. Methods

2.1. Search strategy

An electronic search was carried out using MEDLINE (Pubmed), Psychinfo, Web of Science, Tripdatabase, Cochrane Central Controlled Trials, NIOSHTIC and Joanna Briggs Institute of Systematic Reviews on Nursing and Midwifery. Our search strategy was applied similarly to all databases and combined four blocks of keywords intended to capture different aspects of our review: (1) the outcome (prevalence and incidence of MSD), (2) the study population (nurses and nursing aides), (3) exposure (psychosocial risk factors, including high psychosocial demands/low job control, low social support (Karasek et al., 1981) and effort-reward imbalance (Siegrist et al., 1997)), and (4) occupational setting (hospital). The search terms used were: for study population and occupational setting "(((((“nurses”[MeSH Terms] NOT “breast feeding”[MeSH Terms] OR nurse[Text Word]) OR (“personnel, hospital” [MeSH Terms] OR hospital staff[Text Word])) OR aides [All Fields]) OR (“nursing staff”[MeSH Terms] OR “nurses”[MeSH Terms] OR nursing personnel[Text Word]))"; for psychological risk factors "((((“psychosocial factor-