

L E T T E R E I N R E D A Z I O N E

Work-related musculoskeletal disorders in nursing: current knowledge and ongoing challenges for occupational health

Work-related *Musculoskeletal Disorders* (MSD) represent a major occupational health concern for the nursing profession and one which has been increasingly studied in recent years, Serranheira et al. 2012 (1), Smith et al. 2006 (2). Nurses' MSD is often divided into two categories relating to: (i) patient lifting and moving (often involving high physical demands), and (ii) patient treatment that includes static or repetitive tasks (both with and without the use of upper limbs). From an epidemiological perspective, nurses are known to be one of the health care professions most often affected by MSD, especially *Low Back Pain* (LBP), Lorusso et al. 2007 (3), Trinkoff et al. 2003 (4). This probably relates to heavy physical work tasks such as lifting and transferring patients (which may require sudden movements), spending considerable time working in non-neutral postures (often using awkward postures), working under organizational strain, and the operation of hazardous equipment, Kee et al. 2007 (5). Various MSD risk factors have been documented, including prolonged working hours, physical job demands, and demographic items Attar 2014 (6), Heiden et al. 2013 (7). Aside from professional nurses, an increasing body of research suggests that nursing students may also be at risk, with relatively high MSD prevalence rates reported in some studies Backåberg et al. 2014 (8), Smith et al. 2005 (9).

The most frequently reported MSD body sites associated with nursing work tend to involve the back, neck and shoulders, Alexopoulos et al. 2003 (10). In occupational health, it is often suspected that muscular discomfort and/or pain indicates an impending MSD episode, Hamberg-van Reenen et al. 2008 (11), Wahlstrom 2005 (12), which in turn, flags this issue for more detailed work-related risk assessment. The etiology of MSD is multifactorial, Larsson et al. 2007 (13), with various reported associations between work-related MSD and specific factors such as poor posture (including awkward and static postures), lifting patients, transferring patients in and out of bed, and other factors. There has also been an increasing focus on psychosocial and organizational issues in nursing during recent

years, including reductions in the number of staff, high perceived workloads, time pressure, job stress and hospital safety climate, Camerino et al. 2008 (14); Alexopoulos et al. 2003 (10), Smith et al. 2006 (2), Smith et al. 2011 (15). Indeed, it has been suggested that effort-reward imbalance may have an even greater influence on MSD rates than some physical factors, Lee et al. 2014 (16).

Not all MSD research in the nursing profession has documented consistent results, however, and various epidemiological challenges remain. Some studies on the relationships between nursing work demands and MSD that have been conducted in different wards, hospitals, and among different countries have reported different findings, Alexopoulos et al. 2006 (17), Fonseca et al. 2006 (18), Kee et al. 2007 (5), Serranheira et al. 2012 (1), Smith et al. 2006 (2). Some of the underlying issues have been epidemiological in nature, such as a lack of random sampling, suboptimal follow-up, focusing on nurses undergoing education and training, and not properly identifying the different work tasks and equipment demands between different workplaces. It has also been suggested that variations in the definition of MSD can have a major impact on MSD prevalence rates, Hegmann et al. 2014 (19).

Despite these methodological caveats, it is reasonable to suspect that various tasks which nurses regularly perform might be hazardous to the musculoskeletal system. There remains, therefore, an urgent need for more comprehensive task analysis in nursing, Silverwood et al. 2006 (20), and one which should aim to develop more specific intervention programs to reduce this worldwide burden. Another issue concerns the intrinsic differences between theory and practice, given that under the real world conditions of working hospitals, MSD risk assessment is not necessarily straightforward and theoretical assessment methods may be impractical and unrealistic. Relatively few ergonomics studies have examined the association between real-world work tasks in nursing (incorporating multiple factors such as workplace layout, equipment, organizational demands, and individual characteristics) and the frequency in which

they are performed, with respect to work-related MSD. Perhaps by necessity, a large proportion of research on this topic has utilized questionnaire surveys and other post-facto, self-reporting data collection methods. All data is still important however, given that it contributes to the increasing body of knowledge and understanding of nurses' MSD.

Some questions that remain to be fully investigated include: Are nurses' work-related musculoskeletal symptoms and injuries dependent on the wards, the hospital organization and even the national occupational health policies where they work? Is their MSD related with workplace demands, equipment, and nurse-patient ratios? Do these factors highlight different nursing exposures to MSD hazards? What are the individual and psychosocial contributions to nurses' MSD in different nursing contexts? With these questions in mind, a revised approach which integrates the assessment of more realistic working conditions, including real hospital equipment, workplace features, and individual information; will be an ideal way forwards in the addressing the current MSD epidemic among hospital nurses, worldwide.

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