



Helping women but hurting ourselves? Neck and upper back musculoskeletal symptoms in a cohort of Australian Midwives

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ABSTRACT

Objective: To determine the prevalence of neck and upper back musculoskeletal symptoms in a group of Australian midwives and explore individual characteristics and workplace exposures associated with these symptoms.

Design: cross-sectional, using data from the Nurses and Midwives e-Cohort Study, a longitudinal, electronic survey of midwives and nurses in Australia, New Zealand and the United Kingdom.

Setting: data were collected via an online survey in 2006–2008.

Participants: qualified Australian midwives aged 23–70 years.

Measurements and findings: We undertook descriptive analysis of the sample, calculated prevalence and examined associations between individual and workplace variables and neck and upper back musculoskeletal symptoms. Variables achieving $p < 0.1$ in bivariate analysis were entered simultaneously into logistic regression models. Overall prevalence rates were 48.8% for neck and 28.2% for upper back musculoskeletal symptoms; work-related prevalence was 40.8% (neck) and 24.5% (upper back), comparable to reported rates among nurses and physicians. Presence of symptoms in the adjacent area was associated with greater than a fourfold increased risk for neck and upper back symptoms. Participants with care responsibility for an adult dependent were 36% more likely to report neck symptoms. Current shift work and total physical activity were associated with decreased likelihood of neck and upper back symptoms, respectively. Psychological job demands were only weakly associated with upper back symptoms, possibly because the survey tool could not capture a sufficiently broad range of psychosocial exposures to present a complete picture. A striking finding was that work in awkward postures conferred an increased risk of 35% for neck and nearly 50% for upper back symptoms.

Key conclusions: neck and upper back musculoskeletal symptoms were prevalent in this sample. Both individual and workplace factors were significantly associated with neck and/or upper back symptoms. Psychological job demands and work in awkward postures are potentially modifiable exposures that deserve further examination.

Implications for practice: midwives who are or may become carers for adult dependents should be aware of a possible increased risk for neck symptoms. It may be prudent for midwives and those who employ/supervise them to monitor and, where possible, jointly develop strategies to mitigate psychological job demands. The potential hazard posed by work in awkward postures warrants consideration of how midwives may minimize time spent working in these postures.

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Introduction

The publication of the World Health Report in 2006 drew attention to the worldwide shortage of health-care workers (World Health Organization, 2006). Globally, the age profile of the health-care workforce demonstrates a large bulge

representing workers in their fifth and sixth decades of life who are rapidly approaching retirement, while young people who could replace them are attracted to careers in other fields (WHO Europe, 2010). Adverse working conditions (McKinlay and Marceau, 2008; Estryn-Behar et al., 2010) and geographic maldistribution (Gerein et al., 2006; International Council of Nurses, 2006; Latham, 2010) also affect the supply of health-care workers.

The midwifery profession is subject to these same trends. Recent data indicate that the average age of midwives is 45.1 years in Australia (Australian Institute of Health and Welfare, 2010), 47 in New Zealand (NZ) (O'Connor, 2006), about 43 in the

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United Kingdom (UK) (Midwifery 2020 Programme Workforce and Workload Workstream, 2010), and over 50 in Norway (Midwife shortage looms, 2010) and among certified nurse-midwives in the United States of America (USA) (Schuiling et al., 2010). New midwives are having little impact on the age trend, with the average age of students in the UK at 34 years (Midwifery 2020 Programme Workforce and Workload Workstream, 2010) and in the USA at 36.3 years (certified nurse-midwives) (Schuiling et al., 2010). Studies examining workforce participation indicate that demanding work hours and schedules, heavy workloads, poor remuneration, limited opportunities for advancement, lack of autonomy, support and collegiality, and the inability to provide woman-centered midwifery care are associated with attrition from midwifery practice (Ball et al., 2002; Kitzinger, 2004; Shen et al., 2004; Curtis et al., 2006a,b; O'Connor, 2006).

Musculoskeletal disorders (MSDs) have been associated with attrition from nursing (Geiger-Brown et al., 2004; Fochsen et al., 2006) and physiotherapy (Cromie et al., 2000) practice. Fochsen et al. (2006), in a retrospective cohort study, indicated that presence of a neck/shoulder MSD at the baseline assessment was associated with a 50% greater likelihood (after adjustment) of having left nursing employment at the follow-up assessment, while neither upper nor lower back MSDs showed such associations. In a large study of nurses, neck and back MSDs triggered job change in 6% and 11%, respectively (Trinkoff et al., 2003a). Among physiotherapists, Cromie et al. (2000) found that 17% changed their specialty area or left the field as a consequence of MSDs. A 2006 survey showed that 59% of nurses with chronic pain or injury had considered leaving nursing while for radiology technicians, the comparable proportion was 40% (Hart, 2006). Thus, even though MSDs are common in health professions, attrition may be greater in nursing.

At present little is known about the impact of MSDs on attrition from midwifery. In a 2002 UK-based study, MSDs were cited as a reason for midwives leaving practice, but the proportion of midwives who left for this reason was unclear (Ball et al., 2002). There is evidence of an awareness that midwives are at risk for MSDs. Dimond (1994) believed that 25% of midwives had taken time off from work due to back problems, and Amos (2005) recommended that midwives avoid bending or twisting at the waist to protect their backs, enjoining them to consider their own well-being when discussing birth plans with their clients. Knee damage attributed to assisting at births has also been reported (Topping, 2007), but no English-language published research has examined the relationship between the exposure of midwifery practice and the outcome of MSDs (Long et al., 2011).

MSDs of the lower back have frequently been studied in nurses as well as in other health professionals. In an extensive review (Sherehiy et al., 2004), 17 studies reported on lower back MSDs, as contrasted with ten discussing neck MSDs and four, upper back MSDs. Hignett (1996) reviewed work-related lower back pain in nurses, finding annual prevalence rates of 40–50%; similarly, in hospital physicians, Oude Hengel et al. (2011) observed annual prevalence rates of lower back pain ranging from 33% to 68%. A 2011 systematic review of neck and upper back musculoskeletal symptoms in nurses and physicians prepared by the authors revealed annual prevalence rates of 30–60% (neck) and 20–45% (upper back) (Long et al., unpublished data). Given the parity between lower back and neck/upper back demonstrated by these figures and the limited studies exploring the latter, for the present study we elected to focus on the neck and upper back.

Risk factors for MSDs may be classified according to domains (individual or workplace-based) or whether or not they are modifiable. We chose the Bone and Joint Decade Model of neck pain (Côté et al., 2008), detailed in the section 'Methods', as the study framework. Based on an extensive and recent literature review, this model posits an interaction of risk factors that could

bring about progression from an asymptomatic state to a state of neck pain, and is organized by domains. However, in our approach we call attention to modifiable factors within these domains. The objectives of the present study were: (1) to document the prevalence of neck musculoskeletal symptoms (NMS) and upper back musculoskeletal symptoms (UBMS) in Australian midwives and (2) to explore the risk factors associated with NMS and UBMS in this population.

Methods

In the absence of data on midwives, a cross-sectional study design was chosen for this initial exploration. The study methodology was informed by the STROBE criteria for cross-sectional studies (von Elm et al., 2008). Doubly de-identified data were obtained on participants in the Nurses and Midwives e-Cohort Study (NMeS), an electronic, longitudinal study of over 7,000 midwives and nurses in Australia and NZ, of whom 6,222 were registered in Australia (<http://www.e-cohort.net>). The NMeS methods and study population have been described in detail elsewhere (Turner et al., 2008; Schluter et al., 2011). Ethical clearance was granted by the sponsoring institutions' ethics committee. The baseline NMeS survey was accessible online between April 2006 and March 2008 and was the data source for this study. Participants in the NMeS who indicated they were qualified midwives registered in Australia were eligible for inclusion in the study.

In the Bone and Joint Decade Model (Fig. 1), risk factors for musculoskeletal symptoms are categorized broadly as workplace or individual factors and each of these is further divided into two categories. Workplace factors are psychosocial or physical, and we labeled the categories of individual factors 'foundational' and 'developmental' for ease of description. Foundational factors are primarily demographic and often non-modifiable, for instance age and gender. Developmental factors, some of which are modifiable, include health behaviors such as smoking; occupation; general health/co-morbidities; and individual psychological factors, such as depression or anxiety.

The two outcome measures were the presence of NMS or UBMS as determined by self-report from study participants' responses to one question from the Standardized Nordic Musculoskeletal Questionnaire (NMQ) (Kuorinka et al., 1987). We opted to use 'symptoms' rather than 'disorders' because the survey instrument did not include questions on frequency or duration of symptoms from which to construct a robust case definition for an MSD, as others have done (see, for example, Camerino et al., 2001; Lipscomb et al., 2004). The NMQ was adapted for the survey by including a text definition of body parts instead of an accompanying diagram. NMS was defined as an ache, pain or discomfort in the area extending from the base of the skull to the top of the trunk and shoulder region while UBMS was defined as an ache, pain or discomfort in the area between the top of the trunk and shoulder region and the bottom of the rib cage. Participants who indicated they had experienced NMS or UBMS in the preceding 12 months comprised the affected group. Those who attributed their symptoms to work activities were deemed to have work-related NMS or UBMS.

We examined individual and workplace exposure variables that were significantly associated with work-related neck, shoulder or upper back MSDs in a recent systematic review of risk factors for these disorders in nurses and physicians (Long et al., 2011). All exposures were measured by self-report in the baseline NMeS.

Age, gender, presence of young children in the home, and care responsibility for adult dependents were the foundational variables considered for inclusion in the regression model. Age

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