

# Human Factors in Midwifery: impact of Musculoskeletal Symptoms on Patient Safety

Kubra Okuyucu<sup>1</sup>, Sue Hignett<sup>1</sup>, Diane Gyi<sup>1</sup> and Angie Doshani<sup>2</sup>

<sup>1</sup> Loughborough University, Loughborough, UK

<sup>2</sup> University Hospital of Leicester NHS Trust, Leicester, UK  
k.arslan@lboro.ac.uk

**ABSTRACT:** This paper presents an investigation of musculoskeletal disorders and its consequences in midwives in order to improve the quality and effectiveness of maternity care and patient safety. A mixed method approach was used to collect data starting with a survey (n=633) and then followed with interviews (n=15) and a confirmatory focus group (n=7). A very high prevalence of MSD (92%) was reported by midwives which resulted in functional limitations at work (51%) and sick leave (30%). However, 'sickness presenteeism' was suggested to be common for this occupational group, potentially putting mothers', babies' and midwives at risk. This high level of discomfort should be reduced to support the delivery of better and safe maternity care.

**Keywords:** work related musculoskeletal disorders; maternity care.

**Presentation Preference:** Oral

## 1. INTRODUCTION

It has been well documented that musculoskeletal disorders (MSDs) are experienced by many people across a variety of occupational groups, resulting in high costs due to sickness absenteeism and management procedures (Boorman, 2009; Office for National Statistics, 2018). This also has a negative impact on productivity at work. In healthcare, it is highly possible that limitations in productivity and functionality at work will influence patient care and safety.

In the UK, 921 babies (out of 800,000) were lost or had severe brain damage in 2015 due to problems during labour (RCOG, 2016), and increased to 1,123 babies in 2016 (RCOG, 2018). Staff shortages are an issue in midwifery in the UK due to increasing work demands (RCM, 2016), and a recent survey revealed that 62% of midwives were absent from work most commonly due to MSDs and stress (Royal College of Midwives, 2016).

The principles and practices of Human Factors (Ergonomics) focus on optimizing human wellbeing and overall system performance through understanding the

individuals' behaviors, interactions with each other, tasks, products and environment to make them compatible with human limitations and needs (IEA, 2001).

This project aimed to investigate the prevalence, severity and impact of musculoskeletal symptoms in UK midwives, with the subsequent aim of improving the quality and effectiveness of maternity care and patient safety.

## 2. METHODS

In order to understand the extent of MSD in midwives, research started with an online survey to assess the prevalence and severity of symptoms with respect to the effect on work activities, work modifications and missed days of work over a 12-month period using the Nordic Musculoskeletal Questionnaire (Kuorinka et al., 1987). The anonymized survey was distributed through the Royal College of Midwives (RCM) and the Consultant Midwifery network. The survey responses were uploaded into IBM SPSS Statistics 23 and analyzed descriptively to present frequencies.

Secondly, semi-structured interviews (n=15) and a confirmatory focus group (n=7)

were conducted to explore the midwives' perceptions about the impact of MSD on patient care and safety. 15 midwives were recruited using snowball and purposive sampling. The questions asked included

- 'Have you ever felt that you could not support the mother due to symptoms?'
- 'What is your coping strategy if the mother wants to deliver in a particular position that you don't feel able to support her?'

The interview data were recorded, transcribed and imported into NVivo10 for thematic analysis where text was coded, labelled and grouped as a theme (Robson & McCartan, 2016).

Ethical approval was granted by Loughborough University Ethics committee and UK Health Research Authority.

### 3. RESULTS

The survey results found that of the 633 midwives, 92% suffered from MSD, most commonly in the low back (71%), neck (45%) and shoulder (45%). Just over half of the respondents (51%) thought that their symptoms caused activity reduction at work; 45% had to change their jobs/duties; and 30% required sick leave due to their discomfort.

From the interview data, most interviewees attributed their symptoms to work-related activities and/or exacerbation by working tasks. The most commonly used self-management process was medication. Many tended not to ask for sick leave and carried on at work due to feeling overly responsible for their colleagues. They were also reluctant to report their discomfort: *'...why I haven't reported it, because it is time consuming, nothing really gets done (M10)'*.

Limitations in normal work activities were mentioned by many of interviewees: *'There is no way I will crawl around the floor or bend over for pool birth or something. (M03)'* and *'I go very slowly. Everything just take longer, so the women are waiting longer. (M01)'* Some midwives felt that their symptoms did not impact on the care they provided or patient

safety because they would prioritize the mother: *'If she really wanted to be in a certain position, I wouldn't say 'no'. I would try to manage it best I could. I would hope it [my pain] did not impact on my patients. (M07)'* The coping strategies included; asking assistance from colleagues, negotiating with the mother for support or alternative choices: *'If you can't lean then you get the women in...say you are in the pool and it is impossible for you to lean over because you hurt your back or shoulder, then you give the woman the doppler and she does it. (M10)'*

Others felt that their discomfort would have a negative impact: *'Because I have chronic pain and sleep badly I cannot cope with night duties – I consider myself unsafe at night due to the level of exhaustion I face. (M05)'* and *'...my capabilities would be reduced, therefore risking my patient. (M13)'*

### 4. DISCUSSION

With a high prevalence of MSD reporting, (only 30% having sick leave), it is suggested that many midwives were remaining at work and continuing the caring activities despite their symptoms. The interview data also confirmed this with little tendency to report symptoms or request sick leave. One of the underlying reasons was feeling responsible for any additional workload for their work colleagues. This was also reported in nurses by Tveten & Morken (2015) and suggested to be related to the caring nature of the nurses including more sympathy to patients and the attribution a meaning to caring activities more than a checklist of work requirements. Another underlying reason for not taking sick leave may have been the perception of *'musculoskeletal symptoms are part of the job'* as reported by Long, Bogossian, & Johnston (2013) in Australian midwives.

Sickness absence data have generally been used as a measure of health status at work places (Black & Frost, 2011). Recently, sickness presenteeism has also been widely accepted as an indicator of the health state, despite the fact that it is difficult to measure reliably (e.g. number of days unwell at work and/or productivity) (Whysall, Bowden, &

Hewitt, 2018). Sickness presenteeism is very common in healthcare compared to other sectors (Aronsson, Gustafsson, & Dallner, 2000) and leads to the question ‘How well can a sick person perform the job?’ referring to work disability (Gilworth et al., 2003) which could put mothers’ and babies’ lives at risk and contribute to future sickness absence and wellbeing of staff (Skagen & Collins, 2016). Additionally, staff shortages have been an issue for UK midwives due to various factors such as recruitment, increased work demand and increased sick leave (RCM, 2016). Lack of staff also increases workload for the rest of the workforce.

A supportive culture in an organization, where workers are more open about their limitations, has crucial role to reduce the risk of MSD and its consequences (Hignett, 2001).

## 5. CONCLUSIONS

MSD are very common in midwives, which impact on the quality of care, patient safety and staff wellbeing. There are many MSD-related factors that contribute to these detrimental conclusions including working patterns, communication, staffing, fatigue, team-work and culture. These can be represented by the ‘Swiss Cheese Model’, where sequential and concurrent minor hazards result in major damage, by lining up the ‘cheese’ holes. In order to improve care in maternity and decrease avoidable deaths and injuries, the importance of Human Factors principles should be widely recognized.

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