



Observational study

Pain-related factors associated with lost work days in nurses with low back pain: A cross-sectional study

Saurab Sharma^{a,*}, Nischal Shrestha^b, Mark P. Jensen^c^a Department of Physiotherapy, Kathmandu University School of Medical Sciences, Dhulikhel, Nepal^b Department of Physiotherapy, Dhulikhel Hospital Kathmandu University Hospital, Dhulikhel, Nepal^c Department of Rehabilitation Medicine, University of Washington, Seattle, WA, USA

HIGHLIGHTS

- Low back pain (LBP) a leading cause of disability and lost work days (LWDs).
- LWDs in nurses can lead to staff shortages – jeopardizing optimal patient care.
- Presence of constant pain and pain alleviated by rest are associated with LWDs.
- Severity of low back pain is only weakly associated with LWDs in nurses.
- LBP treatment may need to focus on more than just reduction of pain intensity.

ARTICLE INFO

Article history:

Received 31 July 2015

Received in revised form 9 October 2015

Accepted 13 November 2015

Keywords:

Constant pain
Health Personnel
Nursing
Passive coping
Sick leave
Sickness absence

ABSTRACT

Background and aims: Chronic low back pain is known to contribute to lost work days (LWDs) in nurses. However, there is a limited understanding of the factors that moderate the impact of low back pain (LBP) on LWDs – in particular factors that are modifiable and that could therefore be the treatment targets of interventions designed to help nurses more effectively manage LBP.

This study aims to identify pain-related factors that are associated with LWDs in nurses with LBP, in order to inform the development of interventions that could reduce LBP-related work dysfunction and improve patient care.

Methods: A cross sectional study was conducted on 111 female nurses who were asked to answer questions regarding demographic information, work history, presence or absence of LBP, number of LWDs due to illness, and a number of factors that could potentially be related to LWDs including: (1) average and worst pain intensity; (2) the temporal pattern of LBP (constant versus intermittent); (3) pain aggravating factors (lifting, bending, walking, and standing); and (4) pain alleviating factors (medications, rest, exercise).

Results: Sixty-five percent ($n = 72$) of the sample reported LBP. Constancy of pain and having a LBP problem that was alleviated by rest were significantly associated with the number of LWDs, while maximum and average LBP intensity were only weakly associated.

Conclusion: The findings provide important new information regarding what is (and of equal importance) what is not associated with LWDs in nurses with LBP.

Implications: To effectively reduce LBP-related work disability, interventions may need to teach nurses how to better manage constant pain and remain active despite pain, rather than focus on pain reduction. Research to examine the potential efficacy of such treatment approaches for nurses with LBP is warranted.

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1. Introduction

Low back pain (LBP) is one of the most common causes of disability and sixth in overall burden among all health conditions, based on the 2010 Global Burden of Disease study [1]. LBP is particularly prevalent among nurses [2], ranging from 61% to 84% around the world [2–6]. LBP in nurses is also associated with reduced effi-

* Corresponding author at: Department of Physiotherapy, Kathmandu University School of Medical Sciences, Dhulikhel Hospital Kathmandu University Hospital, P.O. Box No. 11008, Dhulikhel, Nepal. Tel.: +977 9841634043; fax: +977 1 490707.

E-mail address: saurabsharma@kusms.ku.edu.np (S. Sharma).

¹ Saurab Sharma (link.physio).

ciency at work and early retirement [5]. LBP is associated with professions that require bending or twisting [7], manual lifting [8], working in awkward postures [9] or high levels of psychological stress [10]. LBP is also more common among women than men [11,12]. These factors may help explain why nurses are at a high risk to develop LBP, as this is a profession that tends to have a higher percentage of women and involves a great deal of manual lifting [13].

LWDs is a major public health and economic problem and in nurses leads to shortage of staff at work which can jeopardize optimal patient care [14]. LWDs has been shown to be associated with trunk bending and rotation, lifting activities at work, low job satisfaction and high levels of work load [15]. Physical fatigue has also been shown to be associated with LWDs among nurses. For new nurses psychological support and supervision at work can reduce the number of LWDs [16].

Various factors are known to have association with LWDs in nurses. Among those that are known, work overload, psychological job demand, organizational and social work factors such as night shift, perceived lack of support from seniors, and perceived lack of relaxing or supporting and encouraging culture in the work unit have been found to be associated with LWDs among nurses [16–18]. Despite the research that has identified psychosocial factors associated with LWDs in nurses in general, there remains a great deal that is not known about the LBP-related factors that contribute to work absence in this population. For example, although it might be assumed that overall pain severity might play a role, we do not know how important LBP intensity may be as a predictor of work absence, relative to other factors. In addition, if pain intensity is found to be important, we do not yet know *which* intensity domains are most important to work dysfunction (e.g., average versus worst pain). We also do not yet know the relative importance of temporal characteristics of pain (e.g., intermittent versus constant pain) as it may be related to LWDs, nor do we know the extent to which factors that are thought to exacerbate LBP (e.g., lifting, bending, walking, or standing) or that might alleviate LBP (e.g., resting, medications, exercise or any other factors) are associated with work dysfunction. Information regarding the characteristics of LBP most closely associated with LWDs is needed to develop more effective interventions that could determine both (1) who might benefit most from interventions designed to reduce the impact of LBP on work dysfunction and (2) the factors that should be targeted in treatment.

To address these knowledge gaps, we aimed to assess the incidence of LBP, number of LWDs in the past year, and the presence, severity, and temporal pattern of LBP in a sample of nurses working in a tertiary care hospital in Nepal. For those reporting LBP, we also assessed the factors that made their LBP worse and that alleviated their LBP. We predicted that LBP would have high incidence among the nurses in our sample (i.e., somewhere between 61% and 84%) consistent with previous research. We also predicted that, among the nurse participants with LBP, those who (1) reported higher level of pain intensity, (2) reported having constant (instead of intermittent) pain, and (3) reported that pain was worsened by the physical activities involved in nursing work (e.g., lifting, bending, walking, and standing) would report more LWDs. Finally, and based on biopsychosocial models arguing that passive coping responses to pain contribute to greater disability [19–21], we predicted that participants who reported that rest and medications alleviated their pain, and who did not endorse exercise as a coping response that alleviated their pain, would report more LWDs. Understanding the factors that contribute to lost work days (LWDs) among nurses – in particular modifiable factors – is important, because it could inform the development of interventions that could reduce the impact of LBP on work-related disability.

2. Methods

2.1. Participants and methods

The study participants were nurses working in Dhulikhel Hospital, Nepal. Participants were required to be working full-time (7h shift at least five times a week) as a nurse at the hospital for the inclusion in the study. Exclusion criteria included (1) being pregnant or (2) reporting a history of any trauma or medical illnesses that can contribute to LBP. To recruit the participants, the investigators obtained information regarding the work locations of different nurses within the hospital, and a research assistant went to each location and invited to participate. Those who agreed to participate completed the measures (described below) at the time of study consent or were given the questionnaires to complete at another time. Those who did not complete the survey at the time of consent were contacted again one week later, and asked to provide the completed survey, if they had completed it in the meantime. In all, 127 nurses were approached, and 111 (87%) agreed to participate. The study procedures were approved by the Institutional Review Committee of Kathmandu University School of Medical Sciences, Dhulikhel Hospital, Nepal (reference number 75/14) and all participants provided informed consent prior to completing the study measures. Data were collected from September to December 2014.

2.2. Measures

2.2.1. Demographic and descriptive variables

All study participants were asked to provide demographic information (sex, educational level), work history (years of experience in nursing, duration of work every week, usual work shift [i.e., day versus night shift], and work setting [out-patient versus in-patient departments]), and presence or absence of LBP.

2.2.2. Pain variables

All participants were asked to indicate whether or not they experienced LBP in the past year. Those participants who indicated that they had LBP were then asked to rate their average pain in most of the days and worst pain intensity in the past week on 0–10 Numerical Rating Scales (NRS), with 0 = “No pain” and 10 = “Worst imaginable pain”. A great deal of evidence supports the reliability and validity of such scales as accurate estimates of actual average and worst pain intensity [22].

The participants were also asked to indicate whether or not their LBP was constant or intermittent. Next, they were asked to indicate whether or not one of four physical activities associated with the job of nursing made their pain worse; that is, if their pain was or was not made worse by lifting, bending, walking, and standing. They were also allowed to indicate if there was or were any other factor or factors that made their pain worse not on this list, and to indicate what that factor was (or what those factors were). They were asked to indicate whether or not three factors alleviated their LBP: rest, medications, or exercise. They were also allowed to indicate if there was any other factor or factors that alleviated their LBP, and to indicate what that factor was (or what those factors were).

2.2.3. Number of LWDs due to illness

All participants who reported LBP were asked to indicate the number of days they were unable to work in the last year because of illness (i.e., the reason could be LBP or any other illness). The participants were not required to be experiencing pain at the time they responded to the survey in order to participate in the study.

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