

Prevalence Of Low Back Pain In Working Nurses In University Hospitals: An Epidemiological Study

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Abstract

Background: Nursing is associated with a heightened risk of low back pain (LBP) due to the combined physical and mental demands of the profession.

Objective: This study aimed to determine the prevalence of chronic LBP and identify associated risk factors among nursing personnel at University Hospitals.

Methods: This quantitative, retrospective, analytical, cross-sectional study involved 150 female nurses currently employed at University Hospitals. Participants completed a self-administered Oswestry Low Back Disability Questionnaire, and data on risk factors (age, height, weight, BMI, marital status, parity) and working conditions (employment duration, weekly working hours, job demands, absenteeism) were collected.

Results: LBP was prevalent in 79.3% of the nurses, with the highest prevalence in ICU nurses (95.0%) and the lowest in outpatient clinic nurses (64.0%). There was a significant association between LBP and BMI ($P < 0.001$). Lifting heavy loads, twisting, prolonged standing, sitting, walking long distances, and forward bending were identified as significant contributors to LBP incidence.

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 - 2- Nursing Technician, Al-Iman General Hospital
 - 3- Midwifery Technician, Al-Hanakiah General Hospital
 - 4- Nursing Specialist, Ghurnata Health Center
 - 5- Nursing technician, Arada Complex for Mental Health
 - 6- Nursing Technician, Ishbiliah Health Center
 - 7- Nursing Technician, Ghurnata Health Center
 - 8- Nursing Technician, Ghurnata Health Center
 - 9- Nursing Technician, Ghurnata Health Center
 - 10- Nursing Technician, Al-Iman General Hospital
 - 11- Nursing Specialist, Al-Nahda West Primary Health Care Center
 - 12- Nursing Technician, Ghurnata Health Center
 - 13- Nursing Technician, Western Yarmouk Health Center
 - 14- Nursing Specialist, Al-Hanakiah General Hospital
 - 15- Midwifery Technician, Al Ghadeer Health Center

Conclusion: *The high prevalence of LBP among nurses underscores the need for multidisciplinary interventions to mitigate its impact and associated costs.*

Keywords: *low back pain, nurses, prevalence,*

Introduction

Low back pain (LBP) is a common and complex condition that can arise from various factors, including inflammatory, degenerative, neoplastic, and occupational causes. It is a significant health issue globally, leading to substantial direct and indirect costs in many industrialized nations. (Vrbanić et al., 2011)

Nursing, as a profession, is particularly prone to back injuries, with one of the highest incidences of nonfatal work-related injuries in several countries, including the USA. The multifactorial nature of LBP among nurses is attributed to the diverse demands of their job, involving both physically demanding tasks like manual patient handling and mentally taxing responsibilities such as crisis management. (Zanoli et al., 2002)

Poor working conditions are often cited as contributors to LBP among nurses, especially in hospital settings where the workload is unpredictable and involves a wide range of tasks. Specific work postures, such as lifting heavy objects or transferring patients, are strongly associated with LBP occurrence. Additionally, nurses in developing countries face higher risks due to inadequate equipment and workspace design. (Eriksen et al., 2004)

Shift work, a common practice among nurses, can further impact their health and performance due to disruptions in circadian rhythms, leading to issues like sleep disturbances, fatigue, and reduced safety awareness. (Sikiru & Hanifa, 2009)

Individuals suffering from LBP often experience significant disruptions in physical, social, and mental well-being, affecting their daily activities and overall quality of life. (Wong et al., 2010)

Objective

This study aims to assess the prevalence of low back pain among nursing personnel at University Hospitals, identify associated risk factors, and analyze how individual and occupational characteristics contribute to the risk of LBP in this population.

Materials and Methods

Study Design:

This study employed a quantitative and analytical cross-sectional design, chosen for its utility, cost-effectiveness, and ability to achieve the study objectives within a short timeframe.

Target Population:

The study targeted 150 nurses currently working in operating departments, ICUs, and outpatient and inpatient clinics at University Hospitals. All nurses received detailed information about the study's purpose and provided verbal and written consent before participation. Institutional ethics committee approval was obtained.

Data Collection:

participants completed a self-administered Oswestry Low Back Disability Questionnaire at their workplace, with onsite verification for completeness by a research assistant. The

questionnaire, a validated tool for assessing permanent functional disability related to low back pain, comprises ten items covering various aspects of daily life.

Risk Factors and Working Conditions:

Data on risk factors for LBP (e.g., age, height, weight, BMI, marital status, parity), working conditions (employment duration, weekly working hours, work demands, absenteeism), and therapeutic modalities for LBP were collected.

Low Back Pain Assessment:

LBP was defined as pain in the lower back or associated with thigh or buttock pain radiating down the lower limb, lasting more than 12 weeks in a year (chronic LBP). Prevalence of LBP was determined for the preceding 12 months and classified based on pain duration into categories (no pain, mild, moderate, severe).

Clinical Examination:

Participating nurses underwent a thorough clinical examination, including inspection, palpation, range of motion, and specific tests like straight leg raising and femoral stretch tests. Neurological examinations and imaging (X-ray and MRI) were conducted when necessary.

Statistical Analysis:

Descriptive statistics and hypothesis testing were used for data analysis. Statistical software including Excel, R, and SPSS was utilized, with the χ^2 -test for examining variable associations and a significance level set at $P < 0.05$.

Results

Demographic Characteristics:

Among the 150 studied nurses, 119 (79.3%) reported experiencing low back pain (LBP). Chronic LBP (>3 months) was observed in 91 nurses (76.5%), followed by recurrent complaints in 21 nurses (17.6%), and acute complaints (<2 months) in 7 nurses (5.9%). Regarding LBP duration, 44 nurses (29.4%) experienced LBP for 1–7 days, 47 nurses (31.1%) had LBP for 7–30 days, and 47 nurses (39.5%) had LBP for more than 30 days. Morning stiffness lasting less than 30 minutes was reported by 46 nurses (38.7%), and nocturnal pain was reported by 96 nurses (80.6%).

Clinical Characteristics:

Mild-to-moderate LBP was associated with paravertebral muscle spasm and diminished lumbar lordosis in 81 nurses (68.1%). Severe LBP was typically associated with sensory or motor nerve root affection in the lower limbs.

Individual Risk Factors:

Age was significantly associated with LBP complaints ($P < 0.02$), with higher prevalence observed in nurses older than 40 years (86.5%) and those between 20 and 30 years (83.30%).

Body Mass Index (BMI) and LBP:

There was a highly significant association between BMI and LBP complaints ($P < 0.001$), with a higher prevalence of LBP in nurses with $BMI \geq 30 \text{ kg/m}^2$.

Work-Related Risk Factors:

LBP prevalence varied across departments, with the highest percentage in the ICU (95.0%). Heavy lifting, twisting, prolonged standing, sitting, walking long distances, and bending forward were identified as significant work-related risk factors for LBP.

Duration of Employment:

Nurses with longer employment durations had higher rates of LBP complaints, with the highest prevalence among those employed for 20 years or more.

Sickness Absence and Management:

LBP-related sickness absence was common, with durations ranging from 1–7 days to more than 30 days. Nurses sought medical advice and used various management strategies, including medications, physiotherapy, topical preparations, rest, and back belts.

Discussion:

Low back pain (LBP) is a prevalent issue globally, affecting a significant portion of the population and leading to substantial costs and disability. In this study, we found a high prevalence of LBP among nurses, consistent with findings in various countries. The prevalence of LBP among nurses in aligns with rates reported in Africa and developed nations, highlighting the widespread nature of this problem in the healthcare profession. (Wong et al., 2010)

Chronic LBP was the predominant form observed among nurses in this study, mirroring findings from other research indicating the cumulative effects of occupational stressors on LBP development. The persistence of LBP even with rest underscores the chronic nature of the condition and its impact on nurses' daily lives and work performance. (Lela & Frantz, 2012)

Age was significantly associated with LBP, with higher prevalence among older nurses. This age-related increase in LBP prevalence is commonly observed and can be attributed to factors such as prolonged exposure to physical demands and potentially reduced physical resilience with age. However, experienced nurses may also exhibit better coping strategies and injury prevention knowledge. (Sikiru & Hanifa, 2010)

Body mass index (BMI) emerged as another significant factor associated with LBP among nurses. Higher BMI was linked to increased LBP prevalence, consistent with previous studies highlighting the role of weight-related factors in musculoskeletal disorders. (Feng et al., 2007)

Work-related factors played a substantial role in LBP among nurses, with departments like the ICU and surgical units showing higher prevalence rates. Heavy lifting and awkward postures were notable risk factors, emphasizing the importance of ergonomic practices and workplace safety measures. (Mitchell et al., 2008)

Marital status also showed an association with LBP, with married nurses exhibiting higher prevalence rates. This could be due to additional domestic responsibilities and potential lifestyle factors affecting LBP. (Harcombe et al., 2009)

The duration of employment correlated with LBP, with longer-tenured nurses reporting higher rates. This suggests that cumulative occupational exposure contributes to LBP development over time. (Cunningham et al., 2006)

Despite the lack of significant associations with certain workplace factors like seniority or work hours, the impact of physical demands on LBP was evident. Strategies for reducing manual handling, promoting ergonomic awareness, and providing adequate support for nurses with LBP are crucial. (Mohseni-Bandpei et al., 2006)

LBP-related sickness absence highlighted the economic burden and healthcare utilization associated with this condition. Management strategies varied, including medication, physiotherapy, rest, and ergonomic aids like back belts, indicating the multifaceted approach required for addressing LBP among nurses effectively. (Karahan et al., 2009)

In conclusion, LBP remains a significant concern among nurses, influenced by various demographic, occupational, and lifestyle factors. Addressing LBP comprehensively requires a combination of preventive measures, ergonomic interventions, and targeted management strategies to improve nurses' well-being and reduce the impact of LBP on healthcare systems. (Roupa et al., 2008)

Conclusion:

The study revealed a concerning prevalence of low back pain (LBP) among nurses, highlighting its significant medical and socio-professional impact. Various risk factors were identified, emphasizing the need for a multidisciplinary approach to mitigate LBP incidence and its associated costs. Prolonged static positions, patient lifting and transfer tasks, and high patient loads per day were identified as the most prominent work-related risk factors contributing to LBP among nurses.

Addressing LBP effectively requires collaborative efforts involving healthcare providers, ergonomic specialists, and policymakers to implement targeted interventions. Strategies such as ergonomic training, workplace modifications, workload management, and early intervention programs can help reduce the burden of LBP on nurses and improve their overall well-being. Implementing evidence-based guidelines and promoting a culture of occupational health and safety are crucial steps towards mitigating LBP's impact on nurses and healthcare systems.

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