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Received: 09 December, 2022

Accepted: 06 January, 2023

Published: 21 March, 2023

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CITATION

Lateef Alkhaqani A. Occupational low back pain among nursing staff: An overview. Atlantic J Med Sci Res. 2023;3(1):31-6. DOI: 10.5455/atjmed.2022.12.026

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Occupational low back pain among nursing staff: An overview

Abstract

Today, low back pain (LBP) in the workplace is a real and common problem among the nursing staff and can significantly impact their ability to work and perform their duties. Various factors can cause it, including incorrect lifting techniques, poor ergonomic design of workstations, and long periods of standing or sitting in one position. Some research has also suggested that psychological factors, such as job dissatisfaction and high-stress levels, may contribute to the development of low back pain in nursing staff. Consequently, more occupational or workplace diseases appear, including musculoskeletal diseases, stress, fatigue, chronic fatigue, and depression. Previous research has shown that lower back pain risks increase rapidly with higher physical and psychological stress but are inversely related to leisure activities. Various physical and psychological risk factors cause low back pain in nurses. Practices requiring heavy loads, such as patient transfer and transport as part of care, are the main factors driving LBP among nurses. Preventing low back pain in nurses is important for nurses to exercise their fundamental right to work under healthy and safe conditions and provide better patient support. Individual and institutional precautions are required to prevent LBP among nurses. This article highlights the need to develop institutional plans for low back pain reporting among the nursing staff. To prevent low back pain, it is important for nursing staff to be trained in proper lifting techniques and to use assistive devices when available. Workstations should be designed with ergonomics in mind, and breaks should be taken regularly to allow for stretching and movement. It may also be helpful for nursing staff to engage in regular exercise and stretching to improve their overall physical fitness and flexibility. If low back pain does occur, it is important for nursing staff to seek appropriate medical treatment and to follow a plan for managing their pain. This may include taking medications, undergoing physical therapy, or making lifestyle changes to reduce the risk of further injury. In some cases, it may be necessary for nursing staff to modify their duties or take time off work to allow for healing and recovery.

Keywords: Occupational fatigue, low back pain, nursing staff

INTRODUCTION

Low back pain (LBP) is one of the most common diseases in the world, with the results of the “Global Burden of Disease” (GBD) in 2020 study showing that the global prevalence of points was 9.4%. The World Health Organization further reported that up to 70% of the population in industrialized countries would experience non-specific LBP, “i.e., without a confirmed pathoanatomical cause as opposed to specific LBP that may be linked to intervertebral disc damage, such as herniation or fractures, vertebral infections, cancer including bony metastases and spondylarthritis” in their lifetime; however, there is increasing evidence showing that LBP prevalence is also increasing in the developing world. Moreover, studies of epidemiological monitoring of LBP in the USA have

reported a rising trend across age groups and in both men and women. The prevalence of LBP seems to increase with age, with the peak being between the ages of 35 and 55 years. LBP has a strong tendency to become chronic and is among the most commonly reported localizations for chronic pain issues (1).

Furthermore, studies have shown that between 45 and 70% of adults, on average, suffer from at least one mechanically induced LBP at least once in their lives. LBP negatively impacts a large population by inhibiting daily activities (ADLs) and preventing people from living a life with physical, psychological, economic, and social benefits. LBP is related to sedentary lifestyles, regardless of sex, ethnicity, and other associated factors (2). Approximately 80% of the world population experience low

back pain at some point in their adult life. LBP is a highly prevalent health problem responsible for more serious suffering and disability than other health conditions worldwide (3). Particularly in difficult environments in developing countries, nurses transport patient and heavy equipment with few or no lift aids. Lower back pain affects the health of nurses and the quality of care provided. It is the most common musculoskeletal disease that affects between 28 and 47.7% of dental staff and 50 and 85 percent of adults at a certain time in their lives (4).

Low back pain is one of the most common causes of muscle and skeletal diseases. This is a neglected health problem, which is the cause of severe suffering and disability among nurses. LBP accounted for an average number of disability-adjusted life years (DALYs) higher than different infectious diseases, non-communicable diseases, and road traffic injuries. According to the “Global Burden of Disease” (GBD) 2010, LBP was reported among the top ten high-burden diseases and injuries. The field pain of nurses with lower back pain has been studied worldwide. However, there is little evidence that nurses are aware of handling safety practices and comply with the standard guidelines for back pain. Occupational back pain among nurses has been the subject of research studies by many investigators in various countries. Nurses’ lifetime incidence of work-related back injuries ranges from 35% to 80% (5).

Chronic back pain is a widespread pain that affects all age groups, including the young. Nurses have not adequately understood chronic back pain. Although there has been some research into lower back pain prevalence and risk factors, there is no clear evidence of epidemiological reliability among nurses. This paper aims to identify the prevalence and factors associated with back pain in nurses. The article focuses on developing an institutional plan for reporting injuries and highlights the importance of including awareness in prevention strategies.

Background

Low back pain is a pain in the dorsal region between the lower costal margin and the upper abdominal curve and can extend to the legs. Due to their work, health professionals are susceptible to pain in the lower back. Back pain is one of the most common reasons for absence from work. Nurses are more vulnerable to back pain than other occupational groups due to the nature of their work. Hospital nurses are groups of healthcare workers who suffer a lot. The incidence varies between professions and countries. Pain is present in many workplace environments, and one of the most common causes is back pain. The incidence of LBP is considerably high among nurses working in many healthcare facilities, mainly in hospital settings. Moreover, it negatively impacts nurses’ productivity, which leads to the low quality of the provided care. In the world, low back pain is considered an occupational hazard among health care providers in hospitals, with a prevalence of 56.9%. In addition, about 34.1% of providers seek treatment, and 7.3% need to be on sick leaves or absent (6).

Low back pain epidemiology

In the world, low back pain prevalence is 12% momentarily, 23% monthly, 38% annually, and around 60% for adult life course. LBP is a common problem faced by many individuals. According to a study, about 60 to 80% of the adult U.S. population suffers from low back pain, making it the second most common reason people visit the doctor (7). According to studies carried out by the European Foundation for the Improvement of Living and Working Conditions, poor working conditions, rising demands, and strict timetables and deadlines lead to significant changes in the daily lives of members of the workforce, e.g., sleeping disorders, increased exhaustion, backaches, muscle pain, fractures, and cramps. The “European Foundation for the Improvement of Living and Working Conditions” in its “European Occupational Diseases Statistics-EOSD” states that the most significant health problems faced today by the workforce are musculoskeletal disorders, with a percentage of 35%, stress with a percentage of 28% and general exhaustion with a percentage of 23% (8).

According to the burden of the disease collaborators in the United States, back pain ranks third for all diseases and injuries that contribute to the year of disability adjustment; It is the main cause of the restriction of activities of people under the age of 45. In addition, it ranks fifth in hospital admissions and third in surgical procedures. In addition, staff suffering from such workplace injuries are not expected to lose their jobs. Sixteen percent of sick leave, which accounts for 28–146 million daily productivity losses, is due to back pain. It also affects daily activities such as walking, sleeping, and leaving the bed. On the other hand, the deterioration of nurses’ health may also affect the provision of care to patients (9). A survey revealed that hospital nurses lost 750,000 days per year due to back pain. A study in the United States on LBP workday loss revealed that nurses lost six workdays. Previous studies have shown that occupational restrictions and a lack of income can lead to dissatisfaction and depression (7).

In some Asian countries, more than half of nurses (54.4 percent) are out of work due to back pain during illness, while 10 percent are out of work within three months for at least one week. Nearly 44% could not perform their job properly because of LBP. In contrast, one-third became less productive and creative, and a quarter of respondents reported that it decreased the quality of care they provide to the patient. In the world, the prevalence of LBP among nurses was reported variably in different countries and settings. Hence, it was 73–76% in Switzerland, 62% in Dutch, 33–86% in Italy, 65.8% in Turkey, 90.3% in South Korea, 78% in Nepal, 63.1% in Malaysia, 54.3% in Qatar, 48.4–74.2% in Saudi Arabia, 74.5% in Yemen, 73.5–77.19% in Nigeria, 79.3% in Egypt, 78% in Rwanda, 57.7% in Tunisia, and 45.8–60% in Ethiopia (5).

Associations between low back pain and daily activity living

Daily activities life (ADLs) are a variety of functional activities ranging from basic activities. In other words, there are more

complex activities that enable you to move, bend, cook, bathe, and wear. Research seems to agree that LBP is related to ADL problems. A clear link was found in Austrian studies of the general population over 65 years of age between LBP and ADL problems adjusted to socio-demographic, lifestyle, and health parameters. Another cross-sectional study of elderly adults with or without osteoporosis, arthritis, and chronic back pain conducted in Austria using nationally representative data showed that the process was heavy household work, bending and kneeling, ascending and descending stairs without help, and walking 500 meters without assistance were the most difficult ADLs in all groups.

Interestingly, chronic LBP patients report more problems than people without other muscle and skeletal diseases. Furthermore, the LBP and the ADL deficits are very common and occur not only with each other. When chronic pain and ADL deficiencies are combined, they work toward negative results. People affected by ADL deficiencies and chronic pain showed strong synergistic effects on healthcare use. This means that healthcare utilization was significantly higher than expected, simply added to healthcare due to the ADL deficit and healthcare utilization due to chronic pain (1).

Association between low back pain and workability

Back pain is associated with nurse disabilities; as mentioned in the study, nurses' back pain and disability relationships have shown significant positive associations between back pain and disability. LBP is the most common chronic disease in the working population and one of the leading causes of disability and lack, resulting from high socioeconomic effects. As stated above, LBP is associated with high costs and indirectly (including productivity and working time losses) accounts for more than two-thirds of total costs. Two U.S. national surveys have shown that LBP causes more than 100 million lost working days per year. A study by Nordstoga et al., which did not include a specific LBP requiring primary physiotherapy, indicated that higher performance was associated with lower disability, lower pain, and higher quality of life. The increased psychological distress caused by LBP and more pain locations are associated with increased disability, increased pain, and decreased quality of life. The modified model of this study found that LBP-induced muscle fear (movement fear) was associated with higher presenteeism; there is a significant relationship between the kinesophobia score and all possible subscales, such as time management, interpersonal mental, physical needs, and output needs.

Low back pain in nurses

Nurses are probably essential healthcare professionals in most African hospitals, performing wide-ranging tasks. They did so in environments where other health workers were not public. These tasks are largely presumed to cause workloads. For these reasons and others, nursing is one of the highly risky professions experienced by LBP. Accordingly, nursing is one of the ten most

vulnerable jobs to LBP. Nurses who work to protect, develop, and improve health in people and families spend more time with patients than other health professionals; it directs patient care. Therefore, it is known that the frequency of LBP is higher in nurses when compared with other health professionals (10).

In addition, nurse pain experiences are associated with the nature of the work and influenced by various factors. The literature shows that social and demographic factors such as age, women's status, marriage, and long-term employment experience are related to LBP in nurses. Furthermore, lifestyle factors, including smoking, khat mutilation, and physical activity, have been found to have a significant impact on LBP development. Studies have also indicated that workplace conditions like standing and sitting for a long time, working awkwardly, night shifts, lifting heavyweight greater than 10 kg, transferring and repositioning the patient, and working units were risk factors for LBP (11).

Nurses are subjected to lifting and transporting patients or equipment in their daily practice. Such tasks are often undertaken in challenging environments, especially in developing countries where relief aid is unavailable or practicable. Such tasks severely affect the back and lead nurses to experience different musculoskeletal complaints. Biomechanical investigations reported that many strenuous activities on the back result in high spinal load.

Lower back pain affects nurses' productivity at work, reducing the overall quality of services provided by clients. Furthermore, LBP negatively impacts various aspects of the healthcare system. In addition, health workers do not work, lose optimal performance, have low job satisfaction, increase medical costs, and have disabilities at work. A literature review by Lorusso, Bruno & L'abbate, 2007, found that Italian nurses had 33 to 86 percent of LBP prevalence, and the prevalence is annually 73.5% for Nigerian nurses. In a 2014 study by Madan, Masoudi Alavi, and Tagzideh, nurses reported that lower back pain is the most common area in the body. For nurses, back pain is a common source of suffering and a leading cause of disability. One in five nurses reports back pain, and as many as one in three are on record as attributing their ongoing back pain to the physical demands of their job. With one in five nurses reporting back pain, it is easy to see how the nursing profession could benefit from a better understanding of the impact that their day-to-day physical demands have on their back and general well-being.

Despite numerous efforts and significant resources being allocated to developing strategies to reduce back pain in the workplace, no strong evidence for the efficacy of any specific intervention has been documented. In some studies, it appears that there is a correlation between back pain and changes in human behavior. If this problem occurs, the psychology of behavior, interpersonal relations, simple daily activities, and habits, such as sleeping on the way, seem to change considerably. Many researchers, including the 2001 study by Yip and Smedley J. and the 2004 study by Smedley J., have found that stress at work is one of the

most important factors causing back pain (9).

Risk factors for low back pain in nurses

Various risk factors include frequent patient contact, nurses' knowledge of patient management, long-term static posture, occupational stress, psychological and social factors, lack of training on safe lifting techniques, and organizational factors documented in literature as possible causes of back pain in the workplace. Patient handling tasks, including moving patients in bed or transferring patients from bed to chair, were the most common causes of occupational back injuries in nurses (12). The risks of LBP are divided into two major groups: individual risks and occupational risks. The occupational risk factors are two subgroups: physical and psychosocial factors. In a review of 40 studies examining the prevalence of LBP in Asia, Africa, and South America (n=80 076), Jackson found that chronic LBP is twice as common among formal and non-formal workers as among non-formal workers. Another study has shown that lifestyle, psychological, and social factors are related to LBP related to work. Studies show that some occupations are more likely to be affected by the LBP because of their nature of employment. Nursing is a physically difficult profession associated with long working hours, long-standing, frequent twists, drops, lifts, and other risk factors.

Individual risk factors

It is stated that the individual risk factors for LBP in nurses, such as an increase in age, according to a study El-Soud et al., 2014, low economic status and Kabatas et al., 2012 and smoking also Altinel et al., 2007 concluded in their study that increases the frequency of LBP and exercise protects low back health and reduces LBP Budhrani-Shani et al., 2016; Stieglitz, Vinson & Hampton, 2016 (3).

Occupational risk factors

Hospitals are health services facilities that contain a range of risk factors for the occupational safety of nurses and the physical, emotional, and social well-being of nurses (Kılıc & Keklik, 2014). Nurses who make up an important part of hospital life are exposed to several risks to their work and occupational responsibilities that threaten back health. In a 2014 study by Akinci and others, 92.9 percent of nurses experienced LBP after beginning work; Sikiru & Hanifa's study in 2010 indicated that as the working period increases LBP related to physical and psychological traumas also increase (1).

Nurses' workplaces are risk factors for back pain because they perform tasks that require manual patient management, such as physical work, stress, and staff shortages. However, 90 percent of the cause is related to forced body posture. Other risk factors include physical conditions, depression, mood disorders, obesity, etc. Nurses try to take measures to reduce back pain, such as asking for help, changing jobs, and exercising regularly to deal with back pain. Back pain is associated with disability, and nurses' efforts to improve back pain may effectively improve

their physical capacity at work (6).

Physical risk factors

The study suggests that physical factors and muscle and skeletal problems have a significant relationship Park, Cheong, Kim & Kim, 2010; repeated movements, inappropriate posture, and excessive force are three major factors causing muscle-skeletal problems. These factors cause excessive tendons, ligaments, muscles, static muscle loads, fatigue, and increase the likelihood of lower back trauma. The performance of tasks related to transport without support or support equipment can also lead to LBP (3).

Long work hours, excessive workload, insufficient staff and equipment, short breaks, prolonged standing, wrong posture, disrupting the sleep cycle, and change in eating habits and food habits are some of the occupational risk factors for nurses and can lead to LBP. Various occupational responsibilities, such as supporting patients' daily life, placing them in beds, transporting and lifting them or transporting medical equipment of different weights and sizes, and cleaning beds at different heights, also increase the risk of lower back injury to nurses. Also, the "American Nurses Association" (ANA) According to the statement the duty of nurses to transport patients is related to LBP. A 2012 study by Hinmikaiye & Bamishaiye of surgical nurses showed that the most likely cause of LBP is the transport of patients to other beds/stretchers. Nursing practices are described as a risk factor for LBP development in literature, and carrying patients is the most common factor that causes LBP. The study conducted by El-Soud et al. (2014) indicated that 85.7% of the nurses had experienced LBP stemming from carrying heavy loads, and it was found that carrying heavy loads increased the frequency of LBP. In studies conducted by Al-Samawi & Awad (2015), and Wong et al. (2012), it was also found that the transport of heavy medical equipment and patients is the leading cause of LBP (3).

Psychosocial risk factors

The literature review notes that psychological and social factors on health have increased and led to various physical problems, such as LBP (12). Psychological and social factors can increase muscle tension, mechanical tension associated with work, and symptom perception. Atmospheric pain associated with early physical damage can cause chronic disorders of the central nervous system, which can cause chronic pain. In some work environments, changes in psychological and social expectations are related to changes in physical properties and biomechanical stress. Stress and anxiety are the main psychological and social factors that can cause LBP. Nurses are dissatisfied with their work, lack workplace relaxation opportunities, a supportive culture, a monotonous working life, and a heavy workload. Passive measures and strategies can cause stress and anxiety in health professionals (4).

In addition, some negative situations, such as long work hours,

frequent night shifts, and family and children-related obligations, can cause nurses various psychosocial problems. The study conducted by Wong et al. (2010) found that dissatisfaction with work has shown that LBP increases in frequency. According to a 2008 study by Elmaz and Ozkan, nurses who were not satisfied with their work were more likely to have functional disabilities associated with LBP. The systematic review conducted by Kamper et al. (2015) indicated that multidisciplinary biopsychosocial rehabilitation interventions are more effective than usual care and physical treatments in decreasing pain and disability in people with chronic low back pain (2). Changing risk factors can be avoided by tailoring interventions to retain experienced nurses.

Diagnosis of low back pain

It is important to accurately diagnose the cause of low back pain to determine the most appropriate treatment. Low back pain can have a variety of causes, including muscle strains, herniated discs, spinal stenosis, and degenerative joint disease. In some cases, low back pain may be due to inflammatory conditions, such as inflammatory back pain or spondyloarthropathies. Diagnosing the cause of low back pain typically involves a combination of a physical examination, imaging tests (such as X-rays or MRI), and possibly laboratory tests. The characteristics of the pain, such as its location, intensity, and duration, can provide clues as to the underlying cause. For example, inflammatory conditions often cause pain that is worse in the morning and improves with activity, while muscle strains may cause pain that is worse with movement. There are no specific diagnostic criteria for low back pain, as the cause can vary widely. However, certain red flags may suggest the need for further evaluation and possibly more aggressive treatment. These red flags include pain that is severe or worsening; Pain that radiates down the legs; Numbness or weakness in the legs; Difficulty standing or walking; Loss of bowel or bladder control. If any of these red flags are present, it is important to seek medical attention as soon as possible (12).

It is important to consider all potential etiological factors when evaluating a person with low back pain. In addition to inflammatory conditions and musculoskeletal problems, other potential causes of low back pain include Infections; Tumors; Endocrine disorders (such as diabetes); Cardiovascular conditions (such as an aortic aneurysm); Psychological conditions (such as depression or anxiety). Evaluating all potential etiological factors allows the healthcare provider to identify the most appropriate treatment for the individual's specific condition. This may involve further testing, such as laboratory tests or imaging studies, to help confirm or rule out certain diagnoses. It is also important to consider any potential risk factors for low back pain, such as a person's age, occupation, and lifestyle. For example, nursing staff may be at increased risk for low back pain due to the physical demands of their job and the need to lift and move patients. Understanding these risk factors can help inform preventive measures and treatment strategies.

CONCLUSION

About three in five nurses working in public hospitals worldwide suffer from low back pain. This could fuel the burden of human resource shortage in nursing. Long-term experience in work, manually lifting weights above 10kg, and working awkwardly at work are important factors contributing to LBP. Nursing staff often need to take time off work due to back pain, significantly impacting them both professionally and personally. In addition, low back pain remains a common occupational disease for nurses. However, nurses must take precautions to prevent lower back pain and exercise their fundamental rights to work in a healthy and safe environment, preserve their profession, and provide better patient support. In general, nurses with important functions and responsibilities to improve and protect their health must first ensure adequate care and better care for patients to ensure their health.

Recommendation

One of the main characteristics of LBP is the fact that if we take all necessary precautions, it is a work disease that can be completely prevented. The literature explains that LBP is not linked to what duty it is doing but how it is doing it and the stomach muscles. Applying principles of body mechanics correctly, a necessary precaution is to refrain from activities that exert pressure on the lower back and take breaks during long-term work tasks that require you to sit or bend forward. Maintaining a well-balanced emotional and physical life by not gaining excessive weight, not smoking, following a healthy diet, and exercising effectively protect low back health. It is necessary to determine the impact of low back pain and nursing risk factors on daily activities and their effects on nurse managers and leaders to help prevent and minimize incidents and support nurses through training programs on the importance of good body mechanics and equipment that can reduce the incidence of back pain.

To reduce pain and increase productivity, exercise routines should be practiced for 20 minutes four times a day for a period of 4 weeks. Also, as back pain symptoms can sometimes be severe, getting help from the correct health professionals, like doctors, physiotherapists, etc., would be beneficial. If low back pain does occur, it is important for nursing staff to seek appropriate medical treatment and to follow a plan for managing their pain. This may include taking medications, undergoing physical therapy, or making lifestyle changes to reduce the risk of further injury. In some cases, it may be necessary for nursing staff to modify their duties or take time off work to allow for healing and recovery.

Conflict of interests

The author declares no conflict of interest to declare for publication.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical approval

Ethics committee approval is not required.

Patient informed consent

Informed consent was obtained from the patients after explaining the procedure.

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