



# Nurses' Knowledge and Practice toward the Prevention of Low Back Pain Related to Work in Al-Diwaniya Teaching Hospital



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## ABSTRACT

**Aims** Nurses are more susceptible to low back pain rather than other Healthcare workers. The present study aimed to assess nurses' knowledge and practice toward the prevention of low back pain related to work and to find out the association between nurses' knowledge and practice with their demographic characteristics.

**Instruments & Methods** This descriptive analysis study was conducted on nurses at Al-Diwaniya Teaching Hospital, Diwaniyah City, Iraq, from 1 March 2022 until 30 October 2022. Fifty nurses were selected by a purposive sampling (non-probability) method. Data were collected using a self-administered questionnaire regarding nurses' knowledge of prevention low back pain related to work and an observational checklist to assess nurses' practice. Data were analyzed using a Chi-square test by SPSS 23 software.

**Findings** The majority of nurses (60.0%) had a fair level of knowledge, and the mean score of nurses' knowledge was  $0.48 \pm 0.21$ . Also, 50.0% of nurses had a low level of practice, and the mean score of nurses' practice was  $1.75 \pm 0.45$ . There was a significant relationship between nurses' knowledge and education level ( $p=0.003$ ). However, there was a significant relationship between nurses' practice and gender, education level, years of experience in nursing, and the workplace in hospital ( $p<0.05$ ).

**Conclusion** Most of the nurses in Al-Diwaniya Teaching Hospital, have a fair level of knowledge and a low level of practice in the prevention of low back pain related to work.

**Keywords** Nurses; Knowledge; Practice; Prevention; Low Back Pain

## CITATION LINKS

[1] The health and fitness profiles of nurses in Kwa-Zulu ... [2] Effect of educational program on performance of intensive care ... [3] Low back pain--from definition to ... [4] Nonspecific low back pain: evaluation and ... [5] Interventions to prevent back pain and back injury in nurses ... [6] Causal assessment of occupational sitting and low back pain: results of a ... [7] Low back pain and methods of coping with low back ... [8] The effect of an educational intervention program on the adoption of low back pain preventive behaviors in ... [9] Low back pain and coping strategies' among nurses in ... [10] Treatment and ergonomics training of work-related lower back pain ... [11] Low back pain among nursing professionals in Jeddah, Saudi Arabia ... [12] Prevalence of low back pain and associated factors among ... [13] Course of low back pain among nurses: a longitudinal study across eight ... [14] Low back pain and work-related factors among nurses in intensive ... [15] Occupational back pain in Iranian nurses: an ... [16] Prevalence and risk factors of Low Back pain among ... [17] Work factors as predictors of intense a disabling low ... [18] Nurses' experiences, expectations, and preferences for mind-body ... [19] Competency-based training for patient ... [20] The problem of lower back pain in nursing staff and its effect ... [21] Prevalence and risk factors of low back pain among ... [22] Assessing and preventing low back pain in ... [23] State of knowledge about low back pain associated with ... [24] Lost-worktime injuries and illnesses: characteristics and resulting days away from ... [25] Reducing the costs of work-related musculoskeletal disorders: targeting strategies ... [26] Low back pain in ... [27] Determination of the prevalence of low back pain among nurses working in ... [28] Nursing fundamentals: caring & clinical ... [29] Preventing back injuries in healthcare ... [30] Prevalence of back pain among nurses working in governmental health clinics and ... [31] Evaluation of frequency and factors affecting low back pain in health care ... [32] New low back pain in nurses: work activities, work stress and sedentary ... [33] Occupational back pain among rehabilitation nurses in Saudi Arabia: The influence of knowledge and ... [34] Low back pain at work: knowledge and attitude of sectional heads at the University College Hospital ... [35] Effectiveness of an education program to prevent nurses' low back pain: an interventional study ... [36] Frequency and severity of low back pain in nurses working in intensive care units and influential ...

## Introduction

Musculoskeletal Disorders (MSDs) are one of the most public health issues at present that are directly tied to working situations [1]. Back problems are among them. Low Back Pain (LBP) has been recognized as the most widespread MSD and a leading contributor to disability in both high and low-income nations [2]. LBP is described as discomfort and pain located lower costal margin and over the inferior gluteus together or without limb pain. Neck pain, middle back pain, and lower back pain are the three anatomical categories of back pain [3]. According to duration, LBP can classify as acute (less than 6 weeks), sub-acute (6 to 12 weeks), and chronic (more than 12 weeks), and according to causes as back pain without a known cause, back pain associated with spinal stenosis, and back pain resulting from an extra-known cause such as cancer and infections [4]. Nurses have an essential function in the healthcare system by delivering and aiding in providing primary, secondary, and tertiary-level healthcare. Nurses frequently help patients mobilize, change positions, and perform daily activities such as toileting and showering. So they physically depend on their back [5]. LBP is the most public musculoskeletal work-related hazard, with 90% lifespan incidence [6]. Nurses are vulnerable to experiencing back pain. Nurses have a more risky of back pain than other occupations [5]. Nurses are more susceptible to LBP rather than other Health Care Workers (HCWs) due to standing and working for long periods [7]. Nurses are among the occupational categories most susceptible to LBP in the healthcare industry [8]. LBP is a condition that affects 60% to 80% of the overall population at a specific point in their lives. The lifespan incidence was a little greater among nurses, ranging between 56% and 90% [9]. According to epidemiologic research, between 60% and 80% of general nurses experience LBP [10]. Studies found that approximately 40%-97.9% of nurses experience LBP, and this great percentage is considered to be a work-related issue [11]. The prevalence of LBP among nurses in South Korea is 90.3%, in Switzerland 75.6%, and in Taiwan 82.03% [12]. Additionally, 18% of nurses left their professions due to back problems [13]. There are regional differences in the occurrence of LBP between nurses, with 47% in the United States, 40-60% in Asia, and 41-75% in European nations [14]. According to studies, more than 50% of Iranian nurses have an LBP yearly prevalence of 59.6% and a lifespan prevalence of 62% [15]. In a study done by Mehammed-Ameen *et al.* in Iraq, most responding nurses (52%) reported experiencing LBP in the preceding twelve months of their lifespan [16]. LBP is a significant reason for morbidity in this population and is especially problematic for nursing staff. According to statistics ranging from 56% to 90%, it appears to be more common among nurses than the general population. The beginning of low

back pain is strongly influenced by work-related stress and physical and psychosocial factors [17]. Due to its severity, it is the leading cause of losing nurses' jobs, changing workplaces, absences, obtaining sick leave, disability, using health services, and reducing personal and routine activities. The effectiveness of the nursing workforce is significantly impacted by back pain and injury as well as by the quality of care given to the patients [5, 18]. Numerous risk factors have been identified in the literature as having the potential to cause work-related back pain, including recurrent patient communication, nurses' proficiency with patient treatment, keeping still positions for extended times, work-related stress, psychosocial factors, inadequate training regarding safe lifting techniques, and organizational factors [19]. In addition, the nursing staff was identified as having the highest rate of workers who are highly exposed to back problems among all HCWs because of manual treatment required for the job, for example, rising and moving patients. Studies revealed that such movements cause considerable spinal strains [20]. Some researchers have also concluded that the causes of LBP may not be well understood or, more precisely, have not been thoroughly reported. Yet, many widely mentioned risk factors apply to employed and unemployed people. These elements are strenuous work, repeated bending, gripping, lifting, tugging, and pushing, powerful motions, static postures like extended sitting, and uncomfortable postures [21].

Healthcare institutions worldwide are mainly concerned with preventing LBP among hospital nurses. Increasing research that supports strategies in institutions that contribute to concerns can reduce the incidence of LBP in healthcare organizations [22]. Therefore, regardless of the type of work done, the knowledge of preventative measures should be understood. Because "prevention is better than cure", it is essential to take care of all of the problems of the spine [23]. The workplace for nurses is constantly changing. They must choose the best techniques for carrying out patient care duties while minimizing LBP, taking activity and patient qualities into account [24]. Using rising devices has been found as a strategy that reduces LBP. Yet, evidence indicates that nurses rarely utilize lifting devices [25]. LBP is considered an employment disorder that is fully preventable, provided the proper precautions have been taken [26]. These precautions include sitting properly, lifting legs properly and with balance, engaging in exercises to strengthening low back and stomach muscle, correctly applying body mechanics principles, refraining from activities that put pressure on the low back, and taking breaks from jobs that require prolonged periods of sitting or bending forward. A healthy low back can also be preserved by keeping a balanced mental and physical lifespan through avoiding heaviness gain, quitting smoking, eating

healthy foods, and participating in regular exercise [27].

There are multiple strategies for hospitals, care institutions, and nursing staff to minimize the risk of LBP. They include utilizing lifting aids, using the proper tools, using the appropriate bedding, using back bands, implementing regular equipment routine maintenance, designing workplaces ergonomically, offering improved training, and giving practical staffing tasks that don't worsen problems [28].

Due to their significant risk of LBP, nurses need better preventative methods. Research to lower the occurrence, incidence, and costs of nurses with LBP have received particular attention of Centers for Disease Control and Prevention (CDC) [29]. Nurses may be recommended to exercise regularly to reinforce their muscles' back. Employers may be urged to make ergonomic adjustments to eliminate risk factors for back discomfort, such as manual handling, uncomfortable body positions, and managing stressful work postures [30].

However, for nurses to reinforce their basic correct to work in a safe and healthy environment, to continue their professions, and to improve the support of patients, they must take preventative measures for LBP [31]. The nurses' job is very hard. Some of the tasks of the nurse require them to use their backs. The nurses know preventing LBP is important to increase the quality of life, decrease institutions costs of back injury, and improve the quality of their work. However, this problem is widespread in Iraq. For this reason researchers are interested in this topic.

The present study aimed to assess nurses' knowledge and practice toward the prevention of low back pain related to work and to find out the association between nurses knowledge and practice with their demographic characteristics.

## Instruments and Methods

This descriptive analysis study was conducted on nurses at Al-Diwaniya Teaching Hospital, Diwaniyah City, Iraq, from 1 March 2022 until 30 October 2022. Fifty nurses were selected by a purposive sampling (non-probability) method.

The inclusion criteria were having LBP, willingness to participate in the study, at least one year of work experience or more, and working morning and afternoon shifts.

To achieve the aims of the study, the researchers constructed an instrument according to relevant literature and prior research, which was subsequently used to collect data for the study project relating to the prevention of LBP. The questionnaire consisted of two parts: the first part included a self-administered questionnaire to assess nurses' knowledge toward prevention low back pain related to work, composed of two sections: the first section was related to the nurse's demographic

characteristics (age, gender, level of education, years of experience in nursing, and the workplace in hospital), and the second section included 27 questions to assess nurses' knowledge toward prevention low back pain related to work. The participants were given 15-20 minutes to complete the questionnaire. There were four-option answers for each question. Questions with a correct answer were given a score of 1, and questions with a wrong answer were given a score of 0.

The second part was composed of an observational checklist to assess nurses' practice toward prevention of LBP related to work and consisted of two sections: the first section included the nurse's demographic characteristics (age, gender, education level, years of experience in nursing, and the workplace in hospital), and the second section included an observational checklist on nurses' practice toward prevention of LBP related to work. A Likert scale was used to assess nurses' practice ranging from 1 up to 3. This scale was made up of 20 items, and a three-point Likert scale was used to score these items: 1 (done correctly), 2 (done incorrectly), and 3 (not done).

Assessment of knowledge levels was as follows:  $<0.33$  = low,  $0.33-0.66$  = fair, and  $0.67-1.00$  = Good.

Assessment of practice levels was also as follows:  $1-1.66$  = low,  $1.67-2.33$  = fair practices, and  $2.34-3$  = good practices.

An expert panel of 13 was used to evaluate the validity of the study instrument. The specialists had at least five years of experience. They assessed whether the components that are included are complete, intelligible, relevant, and appropriate for achieving the study's objectives. Then, the required modifications were made. The reliability of the instrument was also determined with Cronbach's alpha coefficient of 0.88.

The collected data were presented as frequency and percentage for qualitative variables and mean and standard deviation (SD) for quantitative variables. Data were analyzed using a Chi-square test by SPSS 23 software.

## Findings

The majority of nurses (68.0%) were in the age group of 36-40 years old, and 70.0% of nurses were female. In terms of education level, the majority of nurses (50.0%) had a bachelor's degree in nursing, and 42.0% of nurses had 1-5 years of experience in nursing. Additionally, 66.0% of nurses suffering from lower back pain worked in surgical departments (Table 1).

The majority of nurses (60.0%) had a fair level of knowledge, and the mean score of nurses' knowledge was  $0.48 \pm 0.21$ . Also, 50.0% of nurses had a low level of practice, and the mean score of nurses' practice was  $1.75 \pm 0.45$  (Table 2).

**Table 1)** Frequency distribution of demographic characteristics of the studied nurses (n=50)

Demographic characteristics	Frequency	Percent
<b>Age (years)</b>		
20-25	7	14.0
26-30	6	12.0
31-35	3	6.0
36-40	34	68.0
<b>Gender</b>		
Male	15	30.0
Female	35	70.0
<b>Education level</b>		
Secondary school of nursing	9	18.0
Diploma in nursing	13	26.0
Bachelor in nursing	25	50.0
Postgraduate	3	6.0
<b>Years of experience in nursing</b>		
1-5	21	42.0
6-10	16	32.0
11-15	13	26.0
<b>Workplace in hospital</b>		
Surgical wards	33	66.0
Emergency department	9	18.0
Critical care settings	4	8.0
Medical wards	4	8.0

**Table 2)** Overall assessment of knowledge and practice among nurses (n=50)

Variables	Frequency	Percent	Mean±SD
<b>Level of nurses' knowledge</b>			
Low	12	24.0	0.48±0.21
Fair	30	60.0	
Good	8	16.0	
<b>Level of nurses' practice</b>			
Low	25	50.0	1.75±0.45
Fair	20	40.0	
Good	5	10.0	

There was a significant relationship between nurses' knowledge and education level ( $p=0.003$ ), but no significant relationship was observed between nurses' knowledge and their other demographic characteristics ( $p>0.05$ ). However, there was a significant relationship between nurses' practice and gender ( $p=0.028$ ), education level ( $p=0.004$ ), years of experience in nursing ( $p=0.001$ ), and the workplace in hospital ( $p=0.002$ ), but no significant relationship was observed between nurses' practice and age ( $p>0.05$ ; Table 3).

**Table 3)** Relationship between nurses' knowledge and practice with their demographic characteristics

Variables	$\chi^2$	df	p
<b>Nurses' knowledge</b>			
Age	8.701	6	0.191
Gender	3.611	2	0.164
Education level	19.587	6	0.003
Years of experience in nursing	5.271	4	0.261
Workplace in hospital	8.751	6	0.188
<b>Nurses' knowledge and practice</b>			
Age	11.958	6	0.063
Gender	7.143	2	0.028
Education level	19.410	6	0.004
Years of experience in nursing	19.690	4	0.001
Workplace in hospital	20.706	6	0.002

## Discussion

The present study aimed to assess nurses' knowledge and practice toward the prevention of low back pain

related to work and to find out the association between nurses knowledge and practice with their demographic characteristics.

The study's results displayed that the majority of nurses (68.0%) were in the age group of 36-40 years old. This result agrees with the studies of Salah *et al.* [2] and Yip [32]. The researchers noted that this age group is in the period of academic maturity as well as the capacity to learn new information and adapt their information.

Concerning gender, the results indicate that 70.0% of nurses were female. This result is comparable with the study of Al-Eisa & Al-Abbad [33]. The distribution of a large proportion of female nurses in the study is because colleges and institutions in Iraq admit more women than men (1 male to 4 female). Therefore, the number of female nurses working in hospitals is more than males.

Regarding the level of education, the majority of nurses (50.0%) had a bachelor's degree in nursing, which is consistent with the study of Al-Eisa & Al-Abbad [33]. It might indicate that nurses with bachelor's degrees in nursing are employed through health institutions.

42.0% of nurses had 1-5 years of experience in nursing. Additionally, the study's findings presented that 66.0% of nurses with lower back pain work in surgical departments. This result agrees with a study done by Salah *et al.* [2]. The researchers believe that nurses in surgical departments have a lot of work compared to nurses working in other departments, so they complained of back pain.

The findings of the present study showed that the mean level of nurses' knowledge was 0.48, and the majority of study samples (60.0%) had a fair level of nurses' knowledge. These results agree with the studies of Odole *et al.* [34] and Karahan & Bayraktar [35], who mentioned that more than one-half (57%) of nurses have a fair level of knowledge. Furthermore, one of the possible reasons for these findings is that there is less interest in developing their knowledge about LBP prevention to improve their lives. Also, the mean level of nurses' practice was 1.75, and the majority of study samples had a low level of practice. This result agrees with study of Ovayolu *et al.* [36].

There was a significant relationship between nurses' knowledge and education level, but no significant relationship was observed between nurses' knowledge and their other demographic characteristics. These findings are in line with the findings of Salah *et al.* [2].

On the other hand, there was a significant relationship between nurses' practice and gender, education level, years of experience in nursing, and the workplace in hospital. But no significant relationship was observed between nurses' practice and age. These findings are consistent with the findings of Karahan & Bayraktar [35].

According to the results of the present research, it is suggested to establish a training and development



unit in Al-Diwaniya teaching hospital and provide training courses on back pain prevention and guidance and counseling through posters and videos. Further studies on instructional programs effective in increasing nurses' knowledge and practice to prevent work-related LBP are suggested.

This study has some limitations. The first limitation is the small number of participants because some of the nurses who have LBP refused to participate in the study. And the second limitation is the lack of relevant literature and research on this topic.

## Conclusion

Most of the nurses in Al-Diwaniya Teaching Hospital, have a fair level of knowledge and a low level of practice in the prevention of low back pain related to work.

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