

Socio-Demographic Characteristic of Low Back Pain among Nurses Working at a Medical College Hospital in Dhaka, Bangladesh

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Abstract

Background: Low back pain (LBP) is recognized as a major public health problem around the world and is one of the most frequently discussed health conditions among medical professionals, particularly in the field of nursing. In addition to the nature of nursing work, body mechanics and life style factors, nurses' socio-demographic characteristics plays a significant role in the causation of this condition. As a result, the purpose of this study was to investigate the socio-demographic characteristics of nurses so that policymakers and healthcare practitioners could gain a better understanding into the mitigation of LBP among nurses. **Methodology:** This descriptive cross-sectional study was conducted among 80 nurses working at Mugda Medical College Hospital, Dhaka, Bangladesh. Face to face interview was conducted through a self-administered questionnaire which had three parts relatable to socio-demographic profile, screening of musculoskeletal problems and pain intensity. Both descriptive and inferential statistics was applied through SPSS to measure the socio-demographic characteristics of nurses and other major variables. **Results:** Results showed that the mean age and BMI was 37.53 years and 26.77, respectively. Further, 1.68 person, 82754.72 Bangladeshi taka and 16.17 years were found as the mean number of children, family monthly income and working experiences of nurses, respectively. BMI, marital status, number of children and working experiences were found to be significantly ($p < .05$) associated with the low back pain. **Conclusion:** Regardless of socioeconomic status, all nurses experience some level of low back pain. However, BMI, marital status, job years, and the number of children all have an impact on the development of low back pain in nurses.

Keywords: Nurses, Low Back Pain, Social status, Demographic profile, Bangladesh.

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INTRODUCTION

LBP is defined as pain and discomfort in the area between the lower ribcage and the buttocks, which can also radiate to the feet [1]. It is clinically characterized by pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without leg pain (sciatica) [2]. Low back pain (LBP) is recognized as a major public health problem worldwide [3] and is one of the most discussed health conditions among medical professionals, especially in the field of nursing [4]. According to existing literature, the incidence of LBP in nurses' ranges from 40% to 97.9%, and it is more common in nurses than in the general population [5].

The prevalence of LBP among nurses varies by country. A prior author reported that the prevalence of musculoskeletal disorder symptoms among nurses was 79% in Turkey while in Africa it was found to be

44.1%-82.7% and 45.8-70.9% in Ethiopia [6]. An extensive literature review about the prevalence statistics of LBP in the field of nursing profession in different Asian countries presented that this rate was 74.2% in India, 87% in China, 76.5% in Malaysia [7-9]. In a hospital setting study in 2017 in Bangladesh, it was reported that about 72.9 % of nurses were suffering from chronic LBP at least for a day [10]. A recent study in a similar setting in Bangladesh depicted a prevalence rate of over 83%, although 60.4%, 29.7% and 9.9% nurses had severe, moderate and mild LBP, respectively [11].

Various factors contribute to developing LBP among nurses. Menzel and colleagues (2004) attributed the cause of LBP to nurses' use of their own body weight because nurses use it when moving or repositioning patients [12]. In addition to the nature of nurses' work, its duration and environment, the availability of nursing staff, and the physical and mental

state of nurses were identified by a previous researcher as factors in the development of LBP among nurses [13]. Similarly, a study in Bangladesh found that inadequate support staff, overtime, and manual lifting in the work environment were associated with LBP in nurses [14]. Recent studies have shown that work-related back pain in nursing staff is often influenced by sociodemographic characteristics such as gender, age, marital status, body mass index, and experience [15-20]. In addition, lifestyle habits such as smoking, obesity, and lack of exercise, as well as psychological factors such as stress and job satisfaction [21].

LBP has a significant impact on both the personal and professional lives of nurses. LBP-related studies conducted in 187 countries revealed that it was the leading cause of disability and absence from work [22, 23]. Persistent LBP can reduce workers' quality of life, particularly among nurses, and have a psychological impact [24, 25]. LBP affects not only the people who suffer from it, but also the organizations with which they are affiliated. According to a study conducted in the United Kingdom, rising absenteeism and bills for incapacity benefits due to back pain are shared by the United Kingdom and other developed countries [26]. It was also discovered that LBP can be a financial burden due to the high cost of workers' compensation, insurance for injured workers, recruitment or training costs, the time required to recover from LBP, and return-to-work rehabilitation [12]. Furthermore, the quality of patient care is compromised, which indirectly increases the workload of other nurses on the same ward.

The physical, emotional, financial and social burden of LBP on nurses can be prevented if the condition is stopped before it occurs. Literature suggests that sitting in a proper and controlled way, lifting legs correctly and well-balanced, exercising to strengthen low back and stomach muscles, applying principles of body mechanics correctly, abstaining from activities that presses low back area, taking breaks during occupational duties that require sitting or bending forward for a long time are important precautions against LBP. Maintaining a well-balanced emotional and physical life by not gaining excessive weight, not smoking, following healthy diet and exercise habits are also effective in protection of low back health. However, the application of these approaches may vary from person to person. Identification of socio-demographic heterogeneity characteristics may help in designing preventive strategies for LBP. Therefore, this study attempted to explore the socio-demographic characteristics of nurses so that policy makers and health practitioners can gain some insight into the prevention of LBP among nurses.

METHODOLOGY

This descriptive cross-sectional study was conducted among a group of nurses working at Mugda

Medical College Hospital, Dhaka, Bangladesh. For data collection, 150 nurses were conveniently chosen. The Nordic Musculoskeletal Questionnaire was used to screen 80 nurses (NMQ). Female nurses who had been experiencing LBP for more than 6 months, had pain scores ranging from 4 to 6 on the 11-point Verbal Rating Scale for Pain (VRSP), and had full-time working experience met the inclusion criteria for this study. Those with orthopedic and/or neurological diseases, those who had back surgery, those who were pregnant, unwilling to participate in the study, and those who had any pain management strategies were excluded from the study.

For data collection, the researcher gave the participants self-administered questionnaires. The researcher met with each participant at their workplace individually and collected data accordingly. The self-administered questionnaire was divided into three sections. Section I was created to collect information about the socio-demographic (SDQ) profile of nurses, Section II was created on the basis of Nordic Musculoskeletal Questionnaire (NMQ) to screen the musculoskeletal problems and Section III was created on the basis of 11 points of the Verbal Rating Scale for Pain (VRSP) to collect information regarding pain intensity. Following data collection, statistical analysis was carried out using SPSS (version 22.0). To measure the socio-demographic characteristics of nurses and other major variables, descriptive statistics such as frequency, percentage, mean, and standard deviation were used. To compare the association between nurses' socio-demographic characteristics and LBP score, an independent sample t test was used. $P < 0.05$ was considered as statistically significant.

Prior to data collection, the proposal was approved by the Institutional Review Board (IRB) of the National Institute of Advanced Nursing Education and Research (NIANER) and Bangabandhu Sheikh Mujib Medical University (BSMMU) in Dhaka, Bangladesh. A written order signed by the Directors of NIANER and Mugda Medical College Hospital, Mugda, Dhaka, was used to obtain permission from the selected University Medical College Hospital. After explaining the purpose of the study and ensuring confidentiality and anonymity, participants provided both verbal and written consent. To avoid data collection errors, both the consent form and the questionnaire were translated into Bengali.

RESULTS

The distribution of socio-demographic characteristics of nurses is shown in Table 1. The results showed that the average age of the nurses was 37.53 (SD = 6.00) years, with a range of 25 to 54 years. It reveals that more than half (67.9%) of the participants were under the age of 38. The nurses' mean BMI was 26.77 (standard deviation = 3.30). The majority of the nurses (69.5%) were found to be overweight. The

majority of the nurses (69.8%) were Muslims, and they were all married. The average number of nurses' children was 1.68 (standard deviation = 0.75). The majority of nurses (90.6%) had a diploma to a BSc in nursing degree. A large proportion of nurses (84.9%) worked as Senior Staff Nurses. Approximately half of

the nurses (51%) worked in the general ward, while nearly half (49%) worked in the specialized unit. The nurses' average monthly family income was 82754.72 Taka (SD = 24840.19), and their average working experience was 16.17 (SD = 5.56) years. The majority of nurses (60.4%) had less than 16 years of experience.

Table 1: Distribution of Socio-demographic Characteristics of Nurses, (N = 80)

Variables	Categories	N	%	Mean±SD
Age (Years)	< 38	54	67.9	37.53±6.00
	> 38	26	32.1	
BMI (Body Mass Index)	18.5 – 24.9 (Normal)	24	30.2	26.77±3.30
	25 – 39.9 (Obese)	56	69.5	
Religion	Islam	56	69.8	
	Others	24	30.2	
Marital Status	Married	80	100	
Number of Children	One children	27	34	1.68±0.75
	More than one children	53	66	
Highest level of professional education	Basic Education in Nursing	72	90.6	
	Higher Education in Nursing	8	9.4	
Professional designation	Senior Staff Nurse	68	84.9	
	Nursing Supervisor	12	15.1	
Working Area	Specialized Unit	39	49.1	
	General Unit	41	50.9	
Total monthly family income	< 83000	51	64.2	82754.72±24840.19
	> 83000	29	35.8	
Working experience	< 16	48	60.4	16.17±5.56
	> 16	32	39.6	

Table 2 depicts the frequency, percentage, mean, and standard deviation of nurses' responses to the NMQ. All of the participants had LBP and struggled with daily activities. Nearly half of the nurses (47.2%) sought medical attention for LBP treatment, and approximately 81% had experienced LBP symptoms in the previous 7 days during the data collection period.

The average length of LBP suffering was 5.15 (SD = 4.18) years. In terms of associated health problems, the majority of nurses (62.3%) had no underlying health issues. Some nurses, however, had health issues such as Diabetes Mellitus (11.3%), Hypertension (19%), Obesity (11.3%), and others (7.5%).

Table 2: Distribution of nurses baseline data by using NMQ, (N = 80)

Variables	Response (Yes)		Mean ± SD
	N	%	
Have LBP	80	100	
Have troubles normal activities for LBP	80	100	
Have seen a physician for LBP	38	47.2	
Have troubles last 7 days for LBP	65	81.1	
Duration of pain (year)			5.15±4.18
Diabetes	9	11.3	
Hypertension	15	18.9	
Obesity	9	11.3	
Nothing	50	62.3	
Others	6	7.5	

In referred to Table 3, Independent t-test was performed to examine the relationships between socio-demographic characteristics and VRSP. Results shows that the age (p=0.49), monthly family income (p=0.18), religion (p=0.79), professional education (p=0.50) professional designation (p=0.64) and working area

(p=0.64) were non-significant as the p values was found to be >.05. On the other hand, participants' BMI (p=0.029), marital status (p=0.035), working experience (p=0.32), and number of children (p= 0.036) were significant because the p value was found to be <.05.

Table 3: Relationship between nurses' socio-demographic profile and LBP

Variables	Categories	Statistics	
		Mean±SD	t(p)
Age (years)	< 38	5.44±0.69	0.68 (0.49)
	> 38	5.29±0.84	
BMI (Body Mass Index)	18.5 - 24.9 (Normal)	5.56±0.63	1.07 (0.029)
	25 - 39.9 (Obese)	5.32±0.78	
Marital status	Married		1.05 (0.035)
Monthly Family income	< 83000	5.29±0.79	-1.35(0.18)
	> 83000	5.58±0.61	
Working experiences	< 16	5.44±0.72	0.50(0.032)
	> 16	5.33±0.79	
Religion	Islam	5.38±0.79	-0.26(0.79)
	Others	5.44±0.63	
Number of children	One children	5.33±0.77	0.44(0.036)
	More than one children	5.43±0.74	
Professional Education	Basic Education in Nursing	5.42±0.71	0.43(0.50)
	Higher Education in Nursing	5.20±1.09	
Professional Designation	Senior Staff Nurse	5.33±0.77	0.48(0.64)
	Nursing Supervisor	5.75±0.46	
Working area	Critical unit	5.35±0.75	-0.48(0.64)
	General unit	5.44± 0.75	

DISCUSSION

This study attempted to explore the socio-demographic profile of nurses suffering from low back pain. According to the results of this study, the mean age of the participants was 37.53 years and LBP was more common among nurses under 38 years of age. This finding is somewhat consistent with a previous study conducted in Saudi Arabia in 2021 where the highest percentage of nurses with LBP were under 40 years of age [27]. In contrast, a Bangladeshi research reported that the average age of nurses who were suffering from chronic LBP is 37.7 years [10] which is exactly similar to our study results. Although the current study did not categorize the study participants on the basis of their LBP grade which may be considered as the limitation of this study. Similar to a previous author [13], this study did not find any significant relationship between age and LBP. However, a significant relationship was noticed between nurses' age and LBP in a study carried out in Sri Lanka in 2017 [28].

Evidences suggest that weighed nurses complain on more LBP compared to normal or low weighed nurses [13] and higher BMI increase the risk of LBP [29] which reflects the results of our study as most of the nurses with LBP in this study were obese and also the p value between BMI and LBP was found to be less than .05. This study found that less experienced nurses had a higher incidence of LBP than more experienced nurses. The potential reason behind this may be the less experienced nurses may do more manual work, whereas senior staff assume to do more organizational and managerial roles. Junior nurses may also be less knowledgeable about proper lifting and body mechanics techniques. Over time, senior nurses may have developed effective coping strategies. Gim

[13] and Chen [30] found a strong relationship among seniority level and LBP. Likewise, our study found a positive association among these two variables.

Marital status was found to be associated with the LBP among nurses of this study which upholds a prior study results [29]. Due to cultural beliefs, women, particularly married women, are subjected to strenuous activities and household tasks such as daily and nightly routine domestic tasks that include caring for their families in addition to their job-related activities. As a result, they are more likely to suffer from LBP. In addition, nurses having more than one child showed more incidence of LBP in this study which is supported by a prior author [29]. Unlike a previous research [29], this study found a strong relationship among LBP and number of children. Physical stress of children rearing may be the potential factors behind this incidence.

Findings from this study indicate that nurses working in the general unit had more LBP than nurses of critical unit. In contrast, a Malaysian study found that nurses working in the Intensive Care Unit and High Dependency Unit were more likely than other units to report current back pain [13]. Similar findings were obtained in 65 ICUs across 22 South Korean hospitals, and among 1345 subjects, 90.3% of whom had back pain [31]. In the case of relationship between working area and LBP of nurses, the current study did not observe any association among these two variables like the mentioned Malaysian and South Korean study [13, 31]. Further, nurses' LBP was not associated with their monthly family income, religion, professional education and designation. Therefore, a population based depth study focusing on the development of LBP among nurses is strongly suggested to carry.

CONCLUSION

All the nurses experience more or less low back pain regardless of age, BMI, marital status, religious status, monthly family income, professional education, number of child, working experience, professional designation and working area. Nonetheless, BMI, marital status, job years and number of children influence the development of low back pain among nurses.

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