

**Original Article**

## Frequency of low back pain among nurses working in Jinnah hospital Lahore

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### Abstract

**Background** Nursing is a healthcare profession that is concerned with maintaining and promoting the health of the patients. Because of their work environment and workload nurse are at the very high risk of many occupational health problems. Among all these; musculoskeletal problems are most common especially the low back pain. **Methods** A descriptive cross-sectional study design was used. A sample size of 92 nurses was calculated and questionnaires were distributed among them and information was collected on socio-demographic characteristics, job history, frequency, severity and pattern of low back pain. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 23 for windows and Microsoft Excel 2013. Descriptive statistics i.e., percentage, mean were used to interpret the data. Chi-square and P-value were used to find associations between dependent and independent variables. **Results** The frequency of low back pain among nurses was 65.1%. 12 months frequency was 57.8% and 7 days frequency was 32.5% with majority of nurses describing pain of Moderate intensity. The frequency of low back pain was high in nurses more than 30 years old, married, overweight/obese and those with more than 15 years of work experience. **Conclusions** About 65% of nurses working in Jinnah Hospital Lahore were suffering from low back pain which indicates high prevalence and is in line with prevalence of low back pain in the developed countries. Therefore, it is recommended to maintain the Body Mass Index in the normal ranges and also maintain proper body mechanics and posture and use assistive devices in lifting the patients.

### Keywords

Low Back Pain, Nurses, Frequency, Risk factors, Pakistan.

### Introduction

Low Back pain is the pain in area of the Back between the ribcage and the gluteal folds (Lumbar Spine) whether or not it extends into the legs (Sciatica). Low back pain is one of most common musculoskeletal disorders in the world and one of the most common causes of visits to the physicians in the developed countries. It is estimated that about 84% of population in the world suffers from low back Pain at least once in the life time with 23 % proceeding towards chronic low

back pain and about 11-12% are disabled because of low back pain<sup>1</sup>. Low back pain has been shown to be a major health problem in the females and mostly affecting the individuals with 40 to 80 years of age<sup>2</sup>. Among the working individuals low back pain has been found to be one of the most common causes of less efficiency at work, absence from the job, changing the job, and early retirement from job (who retire because of sickness)<sup>3</sup>.

Nursing are one of the occupational groups that are most affected by the musculoskeletal disorders because of their work load i.e. standing for longer durations, frequent bending, lifting the patients etc. Among this professional group it has been found that low back Pain comprises about 44% of all the musculoskeletal disorders preceding disorders of neck (28%) and knee joint (22%) in the nurses<sup>4</sup>.

In the underdeveloped countries like Pakistan, the facilities provided by the hospitals are limited not only to the patients but also to doctors, nurses, and the other staff As far as Pakistani nurses are concerned, they are also at very high risk of developing musculoskeletal disorders and especially low back pain as the public sector hospitals of Pakistan are extremely short of facilities, equipment and assistive staff so that nurses have to perform all the nursing care work including patient lifting on their own. According to a study conducted at DHQ Faisalabad and Allied hospital Faisalabad, high percentage (47%) of nurses were found to be suffering from low back pain only secondary to headache (64%)<sup>5</sup>. Most prevalent causes of low Back Pain are frequent bending, standing for long time and carrying the patients<sup>6</sup>.

This topic was selected as researchers were unable to find reasonable amount of literature conducted on the frequency or prevalence of the low back pain among Pakistani Nurses. So the main objective of this study is to get an idea about the prevalence of low back pain in Pakistani nurses.

## Methodology

### Study Setting

This study was conducted at Jinnah Hospital Lahore Pakistan which is a 1250 bedded hospital. Study Design: A descriptive cross-

sectional study was conducted over a period of 3 months among nurses working in Jinnah Hospital Lahore to find out the prevalence of low back pain. Sampling: A pilot study was conducted on 20 nurses to estimate the prevalence that was found to be 60%. Using estimated proportion of 60%, 10% margin of error and CI of 95% a sample size of 92 was calculated.

### Inclusion and exclusion Criteria:

Nurses with ages from 18-60 years with at least 1 year of work experience were included. Male nurses were considered excluded from the study as there were no male nurses found to be working in Jinnah hospital Lahore. In addition, pregnant nurses and those with serious pathological diseases were also excluded from the study.

### Data Collection:

Using non-purposive convenient sampling technique; a questionnaire consisting of consent form, socio-demographic information and modified Nordic questionnaire<sup>7</sup> for the low back pain was distributed among the 92 participants.

### Data Analysis:

Data was entered and analyzed using IBM SPSS (Statistical Package for Social Sciences) version 23. The categorical values were expressed in the form of frequency and proportion. Chi-square test and p-value were used to find out the relationship of Low Back Pain with Age, Body Mass Index, Marital Status and work experience in years. P-value of less than 0.05 were considered significant statistically.

## Results

A total of 92 questionnaires were distributed among the nurses. Out of those 83 nurses answered and returned the questionnaires. So, the response rate of 90.2% was recorded. The ages of respondents were between 19-59 years with the Mean and SD of  $34.41 \pm 10.71$

years. Of all these nurses 58 (69.9%) were married while 25 (30.1%) were unmarried. Body mass index of respondents was between 18.50-33.20 kg/m<sup>2</sup> with Mean and SD of 25.22 ± 3.60 kg/m<sup>2</sup>. Working experience of respondents were between 1-36 years with Mean and SD of 12.66 ± 9.72 while the working hours per day were between 6-12 hours/day with Mean and SD of 7.57 ± 1.98 hours.

**Table 1.0 Descriptive Statistics.**

	Min	Max	Mean
Age	19	59	34.41
Body Mass Index	18.50	33.20	25.22
Work experience	1	36	12.66
Working Hours/Day	6	12	7.57

**Prevalence of Low Back Pain:**

The life time prevalence of Low Back Pain among nurses shows that out of 83 respondents 54 (65.1%) nurses suffered from Low Back Pain in their lifetime while 29 (34.9%) didn't. 12 months prevalence of Low Back Pain was calculated and it was found that 48 nurses (88.89%) who have experienced Low Back Pain in their life have also suffered from Low Back Pain in the last 12 months with 24 (50%), 13 (27.08%) and 3 (6.25%) nurses have suffered from Low Back Pain for 1-7 days, 8-30 days, >30 days while 8 (16.67%) nurses said that they are feeling the pain daily from the last 12 months. Of all the 48 nurses who have suffered from Low Back Pain in last 12 months 27 (56.25%)

stated that they have also experienced Low Back Pain In last 7 days while 21 (43.75%) said that they did not experienced Low Back Pain in last 7 days. Table 2.0 shows life time, 12 months and 7 days prevalence of Low Back Pain.

**Table 2.0**

N	Yes	No	N
Life Time	83 (100%)	54 (65.1%)	29 (34.9%)
12 months	54 (100%)	48 (88.89%)	6 (11.11%)
7 days	48 (100%)	27 (56.25%)	21 (43.75%)

**Characteristics of Low Back Pain:**

It was observed that out of all 54 nurses who experienced low back pain, most 30 (55.6%) described that when they had an episode of low back pain it starts/started suddenly while 24 (44.4%) that the pain was gradual. Most of the nurses 26 (48.15%) who experienced low back pain in their lives described their pain of Moderate severity while 16 (29.63%) and 12 (22.22%) nurses described their pain to be Mild and Severe respectively from 1-10 on VAS for severity of pain. Of all the 54 nurses who experienced low back pain in their lives, 22 (40.7%) described that the pain radiates/radiated into the legs while the majority 32 (59.3%) said that it didn't radiate into the legs or buttocks and confined within the lower back. The study also observed that 28 (51.85%) & 22 (40.74%) nurses who have/had Low Back Pain stated that they had to either reduce their activity or take a sick leave from job respectively due to low back pain. While 26 (48.15%) and 32 (59.26%)

said that their low back pain was not causing much trouble for which they needed to reduce their activity at their job pace or take leave from the job respectively. It was found that 27 (50%) nurses described that when they have/had episode of Low Back Pain they can/could not sleep well while other 27 (50%) described that low back pain was not a hurdle in their sleeping habits. Of all 54 nurses who experienced low back pain, 31

(57.4%) described that they consulted a doctor or physiotherapist for low back pain while 23 (42.6%) didn't consult any doctor or physiotherapist. And 29 (53.7%) of those nurses said that their low back pain is/was relieved by taking medicines either prescribed by doctor or self-medication. While 11 (20.4%) and 14 (25.9%) described that their pain was relieved by physiotherapy and rest respectively.

**Table 3.0 Characteristics of Low Back Pain**

Parameter	N=54 (100%)
Onset of Low back pain	
• Sudden	30 (55.6%)
• Gradual	24 (44.4%)
Severity of Pain	
• Mild	16 (29.63%)
• Moderate	26 (48.15%)
• Severe	12 (22.22%)
Pain radiates in Buttocks or Legs.	
• Yes	22 (40.7%)
• No	32 (59.3%)
Had to reduce activity at job because of pain.	
• Yes	28 (51.85%)
• No	26 (48.15%)
Had to take leave from job because of pain.	
• Yes	22 (40.74%)
• No	32 (59.26%)
Sleeping during Pain.	
• Sleep well	27 (50%)
• Didn't Sleep well	27 (50%)
Consulted a Doctor or Physiotherapist for Pain	
• Yes	31 (57.4%)
• No	23 (42.6%)
Pain is relieved by.	
• Medication	29 (53.7%)
• Physiotherapy	11 (20.4%)
• Rest	14 (25.9%)

***Relationship between Low Back Pain and Age, Body mass Index, Marital Status & Work Experience.***

The relationships between Low Back Pain and Age, Body mass Index, Marital Status & Work Experience have been found by cross-tabulation and chi-square tests have been performed at Confidence Level of 95%. P-values were calculated and the p-value of less than 0.05 has been considered statistically significant. Cross tabulation to find out the relationship between age of the nurses and life time frequency shows that 17 (42.5%) of respondents of 18-31 years of age experienced low back pain while 23 (57.5%) didn't experience such pain. 22 (78.57%) of respondents of 32-44 years of age did while 6 (21.43%) didn't experience Low Back Pain. While interestingly all 15 (100%) of nurses with more than 45 years of age have suffered from low back pain at least once in their lifetime. So, it can be said that incidence of suffering from low back pain is highly significant with increasing age. Value of Chi-Square (19.260) and P-value (0.000) also show significantly high relationship between the age and prevalence of low back pain.

Cross tabulation to find out the relationship between the body mass index of the nurses and life time frequency of low back pain show that out 42 nurses with normal body mass index 19 (45.24%) experienced low back pain in the life time while majority 23 (54.67%) didn't. 26 (81.25%) of overweight nurses experienced the low back pain while 6 (18.75%) didn't. While all 9 (100%) of obese nurses have/had suffered from low back pain sometime in their life time. So, incidence of low back pain is highly significant with the

body mass index of the nurses. Value of Chi-Square (15.783) and P-value (0.000) also shows the strong relationship between incidence of low back pain and body mass index.

Cross tabulation to find out the relationship between marital status of the nurses and life time frequency of low back pain shows that 43 (74.14%) of married and 11 (44%) of unmarried nurses suffered from low back pain while 15 (25.86%) of married and 14 (56%) of unmarried nurses didn't suffer from low back pain ever. So, it can be suggested that prevalence of low back pain is highly significant with the marital status of the nurses. Value of Chi-Square (6.980) and P-value (0.012) also shows the strong relationship between incidence of low back pain and marital status.

Cross tabulation to find out the relationship between work experience of the nurses and life time frequency of low back pain shows that 6 (50%) of respondents with less than 3 years of job experience had Low back pain while equally 6 (50%) didn't. 21 (52.5%) with job experience of 4-14 years suffered from low back pain while 19 (47.5%) didn't experience low back pain. While interestingly all 11 (100%) of nurses with more than 26 years of job experience had suffered from low back pain. So, it can be seen that prevalence of low back pain is highly significant with job experience of the nurses. Value of Chi-Square (11.844) and P-value (0.007) also shows the strong relationship between incidence of low back pain and work experience.

**Table 4.0 shows the cross-tabulation of Life Time Prevalence of Low Back Pain with Age, Body mass Index, Marital Status and work experience in years**

Parameter	Lifetime Prevalence		N=83	Chi-square	p-value	Df.
	Yes	No				
<b>Age in years</b>						
• 18-31	17 (42.5%)	23(57.5%)	40	19.260	0.000**	2
• 32-44	22(78.57%)	6(21.43%)	28			
• 45-60	15 (100%)	0 (0%)	15			
<b>Body Mass Index</b>						
• Normal	19(45.24%)	23(54.76%)	42	15.783	0.000**	2
• Overweight	26(81.25%)	6 (18.75%)	32			
• Obese	09 (100%)	0 (0%)	09			
<b>Marital Status</b>						
• Married	43(74.14%)	15(25.86%)	58	6.980	0.012**	1
• Unmarried	11 (44.0%)	14 (56%)	25			
<b>Work Experience</b>						
• ≤ 3	06 (50.0%)	6 (50%)	12	11.844	0.007**	3
• 4 - 14	21(52.5%)	19 (47.5%)	40			
• 15 - 25	16 (80.0%)	4 (20%)	20			
• 26+	11 (100%)	0 (0%)	11			
** = Highly Significant.			Confidence Level = 95%			

## Discussion

A cross-sectional research study was carried out in the Jinnah hospital Lahore to find out life-time and 12 months and 1-week prevalence of low back pain among the nurses. The association between the characteristics of low back pain and factors such as age, number of years at work, body mass index and the marital status was also determined.

Life time prevalence of low back pain among nurses working in Jinnah hospital Lahore was found to be 65.1% which is very high and is comparable to findings in other previously conducted studies which found the life time

prevalence of low back pain among female nurses to be 74.5%<sup>8</sup>, 73%<sup>9</sup> and 78%<sup>10</sup>.

12 months prevalence of low back pain found to be 88.89% is higher than the finding in another study which found the 12-month prevalence of low back pain among nurses to be 78%<sup>4</sup>. 7 days prevalence of low back pain was found to be 56.25% that is higher than the finding in another previously conducted study that showed point prevalence to be 36.2%<sup>8</sup>.

Low back pain is one the major causes of work hours losses and absence from the job in the whole world. Of all those nurses who

suffered from low back pain 51.85% had to reduce their activity at job while 40.74% remained absent from the job for at least 1 day in the last one year. According to the findings in another study conducted in Ireland it had been found that among the working individuals low back pain is one of the most common causes of absence from the job, changing the job, less efficiency at work and early retirement from job (who retire because of sickness)<sup>3</sup>. Also, it has been found that the nurses lose approximately 0.75 million working days on an average because of back pain<sup>11</sup>.

Majority of nurses 48.15% who experienced low back pain described their pain of Moderate intensity, while 29.63% and 22.22% described their pain of mild and severe intensity respectively. Supporting results have been found in another cross-sectional study conducted in 2015 which found the intensity of low back pain to be 30.4% Mild, 34.8% Moderate and 34.8% having severe pain<sup>12</sup>. A similar study estimated severity of low back pain to be 26.0% mild, 66.7% moderate and 7.3% with severe or very severe intensity pain<sup>13</sup>. 53.7% of nurses with low back pain took medicines (prescribed or self-medication), 20.4% were relieved by physiotherapy while 25.9% were relieved by taking rest. It has been found in a study in the nurses in a Nigerian hospital that 73% nurses with low back pain took medicines while 27% were relieved by physiotherapy<sup>14</sup>.

Some risk/causative factors have been found to be significantly associated with low back pain prevalence, and these are age, marital status, body weight and working experience. Majority of nurses (86%) who experienced low back pain were more than 32 years old. This finding can be supported by another study which found that more than 94% of

nurses with more than 30 years of age happened to be suffering from low back pain<sup>6</sup>. So, this can be concluded that age is highly and significantly associated with low back pain.

Marital status has been found to be significantly associated with low back pain prevalence as more than 74% of married nurses were found to be suffering from low back pain as supported by another previous study that about 88% of married nurses were affected by low back pain<sup>10</sup>.

Most of the affected nurses have been found to be either overweight or obese, as suggested by a study conducted on Japanese nurses that the individuals with increasing body weight have 13 times higher risk of being affected from low back than those with normal bodyweight<sup>15</sup>.

Higher the age and work experience, higher is the chance of being suffered from low back pain as supported by a study conducted on the nurses in Taiwan<sup>16</sup>.

In our country Pakistan, where most of the public-sector hospitals and even private sector hospitals lack the necessary equipment to assist nurses in their work nurses are more prone to be affected by various health problems especially musculoskeletal problems. Also 70% people in our country belong to poor class, high expenses on low back pain are not affordable. General awareness program on need of proper posture correction, normal body weight can help reduce the chances of suffering from low back pain. Awareness of exercise habit not only in nurses but also in community is need of the hour. It not only decreases the cost of treatment but also enhance job quality, job satisfaction and functional level. So, awareness of body alignment and correct

Standing/sitting posture is very important in the prevention of low back pain.

### Conclusion

It is concluded that frequency of low back pain among nurses is high and in no way it is not comparable to nurses working in developed countries. Frequency of low back pain was found to be high in married nurses, in middle aged and overweight and obese nurses. To prevent incidence of low back pain it is essential to maintain proper and good body posture during work, also the reduction of weight and avoidance of heavy weight lifting are equally important. As majority of nurses experience low back pain due to long standing and frequent bending during nursing care so they should reduce standing and bending for long time.

### Acknowledgement

None.

### Conflicts of Interest

No conflicts of interest have been declared by any of the authors.

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