

Impact of Back Pain on Daily Living Activities Among Nurses In Riyadh Region

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Abstract - Back pain is one of the common health problems among health care professionals and is considered higher among nurses. To determine the prevalence of low back pain and its associated factors and how it affects daily live activities among nurses who are working in Riyadh hospitals, a descriptive, correlational study was conducted in hospitals that are under the General Directorate of Health Affairs in Riyadh Region and 352 nurses participated. Data collected electronically by a developed questionnaire and Oswestry Disability Index was used. The prevalence of back pain in this sample was 79%. The disability score showed that most of the nurses had moderate to severe disabilities. Also, findings indicate a positive relationship between disability and back pain, Duration, severity. It is recommended to develop comprehensive educational programs on effective body mechanics and physical exercises to reduce back pain and evaluate its effectiveness among nurses. Also, enhance the use of aiding devices while providing care for patients.

Keywords - Activities, Back, Disability, pain, Nurses, Pain

I. INTRODUCTION

Low Back pain is one of the common health problems among health care professionals and considered higher among nurses ⁽¹⁾. It has a negative impact on nurses' productivity which leads to the low quality of the provided care ⁽²⁾. 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 ⁽³⁾.

Nurses' workplace is a risk factor for back pain because they do tasks that require manual management for patients, such as hard physical work, stress, shortage of staff. However, 90 % of the causes are related to forced postures of the body ⁽⁴⁾. Other risk factors include posture, psychological condition as depressive moods and obesity and Nurses try to cope with back pain by following measures that may decrease the impact of back pain such as calling for help, modifying work, exercise regularly ⁽⁵⁾. Back pain is found to

be related to disabilities, and efforts to improve low back pain among nurses can be an effective way to improve their physical ability in their work ⁽⁷⁾.

The prevalence of low back pain and risk factors among nurses and its impact on the daily living activities need to be determined to assist nurse managers and leaders in intervening and minimizing the occurrence and support nurses with educational programs about the importance of using good body mechanics and provide equipment that may decrease the prevalence of low back pain.

The prevalence of back pain was reported in studies up to 60 % among female nurses and similarly males. Moreover, 45 % of the females reported a one-year prevalence of low back pain. Low back pain was associated with headache, period pain, low mood, and stress. Besides, risk factors related to work were time, shifts, lifting, moving patients ⁽⁸⁾. It was revealed that nurses' activities were associated with a high prevalence of low back pain, such as standing for a long period of time, lifting and moving patients, and bending or twisting. Moreover, the workplace, such as ICU, was found to be linked with low back pain among nurses ⁽¹¹⁾.

Ike & Olawumi (2018), in their study, reported that nurses who are working in the surgical ward had a high prevalence of back pain. Furthermore, they stated that lifting patients (81.14%) and staying in one position for a long period of time (82 %) were major activities that caused back pain. A significant relationship was found between back pain prevalence and marital status, the number of children, years of experience, and coping strategies. Of 250 OR nurses who have scrubbing and circulating roles, 84% had low back pain, and 76.6 % had developed low back pain after joining the profession. Risk factors for low back pain among OR nurses included ineffective body mechanics, stress, positioning and transferring patients, fatigue, lifting heavy objects, and long standings ⁽³⁾. On the other hand, a study that examined the problem of back pain among nurses' neurology and neurosurgery departments showed that the majority of nurses have severe back pain ⁽⁴⁾. Seniority in the profession was found to be associated positively with back pain perception, which affects their ability to do daily tasks ⁽⁶⁾.



An additional study that examined the factors that were associated with low back pain reported that the following factors were significantly associated; Bending ($p = 0.002$), prolonged position ($p = 0.03$), and transferring patients ($p = 0.004$) were strongly associated ^{9}. In Jordan, a study examined low back pain, and associated factors among nurses showed that prevalence was 69% and associated with older age, female gender, being overweight, and long experience in the profession. In addition, 58.7% agreed it lowered their efficiency, and 9% changed the unit or reported taking days off more frequently ^{10} ^{11}. In Qatar, a study showed a high prevalence of low back pain, and 18.1% were seeking sick leaves, 34.3 % for treatment, and 76.8 % reported they stop working because of back pain ^{12}.

The most recent studies in Saudi Arabia also reported that the prevalence of low back pain among nurses from 75% to 80% and associated with several psychosocial and occupational factors ^{13} ^{14}.

Back pain is related to disability among nurses, as mentioned in a study that examined the relationship between back pain and disabilities among nurses and showed a significant and positive relationship between back pain and disability ^{7}. This study aims to determine the prevalence of low back pain and its associated factors and how they affect daily live activities among nurses who are working in Riyadh hospitals.

II. METHOD

This study was a descriptive, correlational design conducted in hospitals that are under the General Directorate of Health Affairs in the Riyadh Region as there are 34 hospitals with bed capacity range from 50 to 200 beds and are providing critical and general care. The population of the study was 4079 nurses who are working in these hospitals. The sample size calculated by Raosoft calculator with a margin of error of 5%, confidence level 95% will be 352 nurses. The sampling process was conducted in two ways: Cluster sampling by dividing hospitals based on their locations north, west, east, and south, and hospitals with more than 100 bed capacity in these locations were chosen. Next, Staff in these chosen hospitals who are working in cortical areas such as ER, ICU, AKU, delivery room, and wards invited conveniently to participate. Staff who are new or less than one or working in OPD year will be excluded. Approval from the IRB committee in the Saudi Ministry of Health was obtained. An explanation letter was written on the cover of the online questionnaire assuring participants that participating in this study is voluntary, confidentiality will be maintained, and withdrawal allowed at any time. The researcher's contact email was provided for any concerns.

Data was collected by a developed questionnaire based on the literature review and were distributed via a link through nurses' managers to their staff. In addition, the Oswestry Disability Index (Fairbank, Pynsent, 2000) was used to assess how back pain has affected the ability to

manage everyday life. The questionnaire was sent to nursing directors of five hospitals in the Riyadh Region. The duration for data collection was within two months due to the current situation of COVID 19 with periodical follow-up. SPSS V 24 was used to analyze data.

III. RESULTS

329 Nurses Participated in the study. The majority of them were between 25 years and 45 years. More than half were non-Saudi, and (79%) were holding a bachelor's degree with work experience from 1- 5 years (35.9%), 6- 10 years (25.2%). Regarding work conditions (59.9%) were working in critical areas, and the remaining were working inwards, and most of them were covering all shifts with 8 hours' duty. The exercise program was never (57.4%) and from 1 to 2 times per week (32.5%), although the body mass index for more than half of the sample was normal (63.2%). Table (1).

Table 1: Characteristics of the sample

Age	Frequency	Percent
< 25	10	3%
25-30 years	150	45.6%
31-35 years	57	17.3%
36- 40 years	50	15.2%
41-45 years	31	9.4%
More than 45	31	9.4%
Marital status		
Single	119	36.2%
Married	207	62.9%
Nationality		
Saudi	93	28.3%
Non Saudi	236	71.7%
Gender		
Male	43	13.1%
Female	286	86.9%
Educational Background		
Diploma	62	18.8%
BSN	260	79%
Master	6	1.8%
PhD	1	0.3%
Work experience		
Less than 1 year	13	4%
1 – 5 years	118	35.9%
5 – 10 years	83	25.2%
11- 15 years	65	19.8%
16- 20 years	50	15.2%
Working Area		
Cortical Area (ER – ICU – DR-OR – AKU)	197	59.9%
Wards (Medical, surgical, Paediatric, Maternity)	132	40.1%
Working Shifts		
Morning	70	21.3%

Evening	9	2.7%
All shifts	250	76%
Working hours		
8 hours	210	63.8%
12 hours	119	36.2%
Exercise Program		
Never	189	57.4%
1 – 2 times per week	107	32.5%
3 – 4 times per week	22	6.7%
More than 4 times	11	3.3%
Body Mass index		
Less than 18 (underweight)	29	8.8%
18.5 – 25 (Normal Wight)	208	63.2%
26 - 30 (overweight)	76	23.1%
More than 30 (Obese)	16	4.9%

In the table (2), the majority of the sample reported having back pain with a duration of 1 – 3 years (73.3%) with severity scores from 1 to 3 for (66%) and from 4 – 6 (31.3%). The most-reported cause for back pain was work overload (55.6%), then comes load lifting (21.9%). Nurses reported using relaxation as a method to relieve back pain (36.2%), Pain killer (28.9%), and bed rest (32.8%). However, sick leaves were not taken due to back pain, as reported by (87.2%) of the participants.

Table 2: Characteristics of Back pain

Back pain present	Frequency	Percent
No	69	21%
Yes	260	79%
Duration of back pain		
1 – 3 years	241	73.3%
4 – 6 years	68	20.7%
7 – 10 years	12	3.6%
More than 10 years	8	2.4%
The severity of back pain		
1 – 3	217	66%
4 - 6	103	31.3%
7 – 10	9	2.7%
Causes of back pain		
Injury	18	5.5%
Sudden movement	18	5.5%
Disease	6	1.8%
Load lifting	72	21.9%
Bad posture	18	5.5%
Work overload	183	55.6%
Other	14	4.3%
Relieving back pain		

Pain killer	95	28.9 %
Relaxation	119	36.2 %
Bed rest	108	32.8 %
Other	7	2.1%
Sick leaves due to Back Pain		
No	287	87.2 %
Yes	42	12.8 %

Although nurses reported receiving education on good body mechanics (66%) are not using aiding materials during the provision of care (76.3%). Other work-related factors such as bending activities, heavy lifting, prolonged standing, poor working environment, inadequate rest intervals, stress, shortage of staff, and The number of patients the nurse handles were reported. Table (3).

Table 3: Work-related factors

Do you use aiding materials during the provision of care		
No	25	76.3%
Yes	78	23.7%
Received education on good body mechanics		
No	11	34%
Yes	21	66%
Frequent bending activities		
No	83	25.2%
Yes	24	74.8%
Heavy lifting		
No	82	24.9%
Yes	24	75.1%
Sustained sitting (>1/2 an hour)		
No	16	49.5%
Yes	16	50.5%
Prolonged standing (1 hour)		
No	48	14.6%
Yes	28	85.4%

	1	
Lifting/transferring patients		
No	44	13.4%
Yes	28	86.6%
	5	
The positioning of patients on bed		
No	48	14.6%
Yes	28	85.4%
	1	
Night shift		
No	95	28.9%
Yes	23	71.1%
	4	
Poor working environment		
No	13	40.7%
Yes	19	59.3%
	5	
Physical activities at work		
No	71	21.6%
Yes	25	78.4%
	8	
Inadequate rest intervals		
No	91	27.7%
Yes	23	72.3%
	8	
Shortage of staffs		
No	38	11.6%
Yes	29	88.4%
	1	
The number of patients you handle		
No	85	25.8%
Yes	24	74.2%
	4	
Work Satisfaction		
No	12	38%
	5	
Yes	20	62%
	4	
Support from colleague		
No	22	68.1%
	4	
Yes	10	31.9%
	5	
Support from supervisor/manager		
No	17	54.4%
	9	
Yes	15	45.6%

	0	
Headache		
No	10	31%
	2	
Yes	22	69%
	7	
Stress		
No	42	12.8%
Yes	28	87.2%
	7	
Mood		
No	11	35%
	5	
Yes	21	65%
	4	

Oswestry Disability Index scores showed that (48.3%) of nurses experience pain with sitting, lifting, and standing, but the daily activities were not affected. However, (27.4%) scored severe disability with affected daily living activities, which need more assessment about it, and only (5.8%) who have back pain that impacts all aspects of life and requires intervention. Table (4).

Table 4: Oswestry Disability Index scores (N=329)

Score	Frequency	Present
0-20	59	17.9%
21-40	159	48.3%
41-60	90	27.4%
61-80	19	5.8%
81-100	2	0.6%
Total	329	100%

Using the Spearman correlation coefficient, relationship was examined between demographic data, back pain characteristics, work related factors and disability score. A positive relationship found between gender ($r = .13, P < .05$), Experience ($r = .10, P = .05$), working hours ($r = .19, P < .01$) and disability score. However, educational background was associated negatively ($r = -.14, P < .01$). The presence of back pain, duration of back pain, severity of back pain and sick leaves due to back pain associated positively with disability score ($r = .40, P < .01$), ($r = .22, P < .01$), ($r = .45, P < .01$) and ($r = .28, P < .01$) respectively. Work related factors such as using aid materials during the provision of care hour, poor working environment, shortage of staffs, support from colleague, support from supervisor/manager, headache, stress, mood was positively linked with disability score except for Sustained sitting ($>1/2$ an hour) found to be associated negatively ($r = -.160, P < .01$).

IV. DISCUSSION

This study gives a view on the prevalence of low back pain and its associated factors and how it affected daily live activities among nurses who are working in hospitals outside Riyadh City. The prevalence of back pain in this sample was 79% which is consistent with other studies from other countries ^{{8}{10}{12}{13}}.

Nurses have reported that back pain causes and factors as following work overload, load lifting, using aiding materials during the provision of care, Shortage of staff, Stress, Prolonged standing (1 hour), Lifting/transferring patients, Positioning of patients on the bed, and Physical activities at work and theses all similar to what was reported in other studies ^{{2}{3}}. However, 12.8% of nurses reported that they take sick leave due to back pain which is slightly lower than what was reported in one study ^{12}. It is suggested to avoid longer daily working hours and a large number of cared patients to reduce back pain problems ^{15}.

The disability score showed that most of the nurses had moderate to severe disabilities. Also, the study findings indicate a positive relationship between disability and back pain, Duration, severity, and having sick leave because of back pain, also with gender, experience, and working hours which were corresponding to another study ^{7}.

This study examined the relationship between disability and other work-related variables such as not using aiding materials during the provision of care, Poor working environment, Shortage of staff, Support from colleagues, Support from supervisor/manager, Headache, Stress, and mood, which were positively related. These factors were associated with back pain in the previously reported studies and by which it impacts daily living activities.

Identifying risk factors for back pain and disability among nurses can be done through surveys, job hazard analysis, observe nurses when they move patients, and assess their techniques. Primary prevention includes education about causes of back pain, risk factors, and prevention and reducing physical demand by using mechanical lifts to move patients. Moreover, being free from stress, relieving exercises, reducing body weight, a healthy diet, and regular exercise are recommended for nurses. Moving patients through lifting teams, increasing staff numbers, training on using lifting devices, and developing a policy that no health care worker lifts a patient alone comes under the administrative authorities ^{16}. In addition, studies are needed to examine the effectiveness of these interventions, such as mind-body exercises on back pain and disability ^{{17}{18}}.

V. CONCLUSIONS

The back pain rate is high among health care providers and associated with several factors. If no measurement such as using aiding devices, managing work-related factors, solving staffing issues, and administrative support is taken to decrease its impact on nurses, it will lead to decreased productivity and increase disability. It is recommended to develop comprehensive programs that focus on and educate nurses about body mechanisms, using aiding devices during provision of care, and physical exercises to reduce back pain and evaluate its effectiveness.

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