Frequency and Risk Factors of Low Back Pain among Operation Room Staff in Hospitals of Lahore

Natasha Waris[1*], Sana Batool[1], Muhammad Hussain Iqbal[1] and Izia Batool[2]

[1]University Institute of Physical Therapy, Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan
[2]Pakistan Air force Hospital, Islamabad, Pakistan
*natasha.waris68@gmail.com

Highlights:

- Frequency and Risk factors of Low Back Pain (LBP) were evaluated.
- LBP was found among operation room staff.
- Association was found between LBP and risky activities.

Abstract:

Low Back Pain is a the common musculo-skeletal disorder and an important occupational hazard among healthcare workers (HCWs) that peaks among Operation Room staff.

Objective:

To find out the frequency and risk factors of low back pain among operation room staff of Lahore hospitals.

Methodology:

This cross sectional study was conducted on 151 participants at The University of Lahore Teaching Hospital, Mansoora Hospital and Sheik Zayed Hospital, Lahore. Data collection was carried out through self-administered questionnaire.

Results:

The mean age of participants was 29.8 years, 39.1% of them were males and 60.9% were females. They were interviewed for daily work activities and asked about LBP and other pain related health issues. LBP had an impact on activities of daily life in68.9%and on work life in 72.1% of participants. No important associations were found between LBP and smoking and BMI ($p>0.05$). While the most of the operation room risky activities were associated with intensity of LBP ($p<0.05$).

Conclusions:

LBP is a common health issue among all the studied hospitals. Educational interventional programs should be designed to teach operation room staff the best way to prevent this problem.

Keywords:

Low back pain, Health care worker, Operation room staff, musculoskeletal pain

Introduction:

Low Back Pain (LBP) is the most common musculoskeletal problem and a critical professional risk in health care people that peaks amongst Operation Room (OR) group of workers. It's expected that over half of the population will be trying to find physical care for LBP in some unspecified time in the future of their lives. Occupational LBP is a common fitness problem throughout the world. Health management employees have more chance of growing LBP due to different factors. This issue is related with important outcomes in terms of complaint and repeated absence. LBP may cause activity restriction and repeated absences for more than 50% of the nurses. Mostly female gender, advanced aging, and excessive BMI are some examples of common problems related to LBP.[1]

Improper posture mechanics also have a greater impact on the prevalence of LBP. Lifting patient and positional change during the work cause nurses at risk of LBP. Mostly in developing countries absence or deficiency of lifting aids forces the nurses to struggle during the shifting of patients. It is stated that poor understanding of low back care ergonomics and unavailability of lifting apparatus causes increased risk of LBP.[2] The overall incidence of musculoskeletal problems especially LBP per year range from 25% to 45% in Europe, and from 15% to 20% within the United States.[3]

The presence of high physical job is a possible risk for surgeon's health since it might put them at risk of developing work-associated musculoskeletal complaints. Because of older

population and less availability of young workers, surgeons have to work till older age. For surgeons to stay healthy at work, it's important to provide an appropriate working environment to decrease the risk which increases health problems. An applicable first step could be to obtain the consequences bodily demands of work on surgeons, due to the fact of more work demand increase the possibility of health problems.[4] Due to high incidence of musculoskeletal problems among the operating room staff, it is important to provide academic guides for teaching the principles of ergonomics and accurate method of standing, required for decreasing the operating hours of the employees.[5] Whether height is a risk factor for LBP is still debated.[6] The diagnostic and healing management of patient with LBP has long been characterized by means of large variation within and between countries among general populations, and other health care expert. Recently, a large variety of randomized medical trails had been achieved, systemic reviews have been written, and medical guidance has become available. The opinion for evidencebased management of LBP has greatly progressed.[7] Older age, female, longer duration of exercise, obese/patient at work have been more associated with LBP in most of the individuals.[8]
It became evident that reduced operating hours had an advantageous outcome on fitness rate.[9] The results of the statistical analysis showed no relationship between height and the LBP. Height as a risk factor for LBP is still debated.[10] Musculoskeletal trouble as one of the main problem for good fitness.[11] Older age, women, longer duration of exercise, obese/patient at work have been extensively associated with LBP in most of the individuals.[12] Muscular pain occurs on lower side of the costal margin and upper side of inferior gluteus folds.[13] It is also found hat those who stood more than three hours consistent with day had 1.33 times extra occurrences of muscles fatigue and soreness than who stood much less than 3 hours in keeping with day.[14]
Different risk factors for musculoskeletal disorders among different people with an excessive bodily workload are therefore diagnosed; however it's still unclear which elements are associated with problems in common place occupations[15]. Experience of surgeons by musculoskeletal disorder appear to require more analgesics including non-steroid anti-inflammatory pills and muscle relaxants and therapy such as rub down remedy therapy or bodily therapy.[16] There were mounted procedures of approaches for integrating techniques and tools relying on appointed class of work.[17] Mental fitness issue occurs by some usual type of work associated disorder.[18] LBP affects most adults and causes disability for some and is a usual purpose for looking for healthcare.[19]

Methodology:

This cross sectional study was conducted on 151 patients at The University of Lahore Teaching Hospital, Mansoora Hospital and Sheik Zayed Hospital of Lahore. Data collection was carried out through self-administered questionnaire. Non-probability convenient sampling technique was used to collect data.

Results:

The mean age of the study participants was 29.8 years. 39.1% were males and 60.9% were females. 68.9% had an impact on activity of daily livings and 72.1% had an impact on work life. No important associations were found between LBP, smoking and BMI ($p>0.05$). While the most of the operational room risky activities were associated with intensity of LBP ($p<0.05$). While ambulating a patient, during bending and rotating trunk while weight bearing were not associated with LBP ($p >0.05$). Rest and medicine were found the usual reliever. Most significant association was found (60.9 %) in females, 29.1% were nurses and 19.2% had mild to moderate intensity of LBP. Prolonged standing in work hours was strongly associated with severity of LBP ($p<0.01$). Most of them standing for 1-4 hours duration had mild to moderate pain intensity. 25.2% participants had experienced

LBP before joining hospital while the others (74.8 %) experienced LBP after joining the hospital. 49.6% had mild, 42.3% had moderate and 7.95% had severe intensity of LBP (Figure 1).

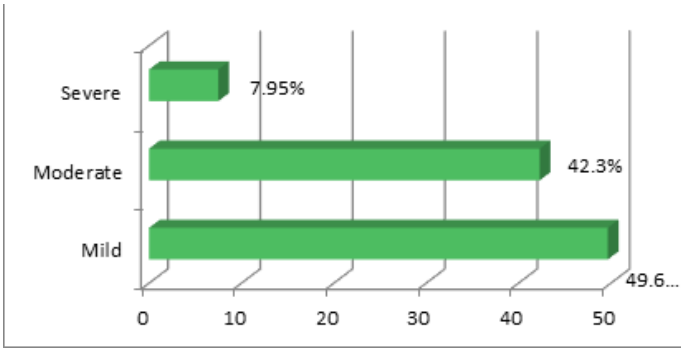

Figure 1: Intensity of Low Back Pain

There were 59 (39.1%) males and 92 (60.9%) females, mean age was 29.8 years and minimum 21 and maximum 61 years. 53(35.1%) were married and 98 (64.9%) were single. Minimum height was 4.08 feet and maximum were 6.08 feet. Most of the participants had normal BMI 105 (69.5%) while other participants were underweight (10, 6.6%), overweight (32, 21.2%) and obese were 4 (2.6%). Smokers were 30 (19.9%) and non-smokers were 121 (80.1%). Most of them were nurses 44 (29.1%), graduated 29 (19.2%), Diploma holders were 27 (17.9%) and the others were surgeons 11 (7.3%), Anesthesiologist were 15 (9.9%) and anesthesia technician were 13 (8.6%). There was association between gender, age and educational level with intensity of pain as the P-value is less than 0.05. While there was no association between smoking and BMI as P-value is greater than 0.05 (Table 1).

There was association between LBP and lifting object (n=119, p value 0.25), transferring patient onto the bed or chair (n= 81, p value 0.001), transferring onto the stretcher (n=76, p value 0.37), pulling patient up the bed (n= 93, p value 0.002), repositioning a patient in bed (n= 77, p value 0.14), bending to lift an item (n= 120, p value 0.72), rotating torso while bearing weight (n= 68, p value 0.150), ambulating a patient (n= 68, p value 0.815) while risky activities showed no association with LBP as the p value is greater than 0.05 (Table 2).

Variables	N (%)	
Gender		
Male	59 (39.1)	
Female	92(60.9)	
Age (Years)		
Minimum	21	29.85±8.1
Maximum	61	
Marital Status		
Single	98(64.9)	
Married	53(35.1)	
BMI		
Normal	105(69.5)	
Under weight	10(6.6)	
Over weight	32(21.2)	
Obese	4(2.6)	
Smoking behavior		
Smoker	30(19.9)	
Non smoker	121(80.1)	
Educational level		
Diploma holders	27(17.9)	
Graduate	29(19.2)	
Post graduate-Specialty	12(7.9)	
Surgeon	11(7.3)	
Anesthesiologist	15(9.9)	
Anesthesia Technician	13(8.6)	
Nurse	44(29.1)	

Table 1: Characteristics of study participants

Risky activities	N	p-value
Lifting object above the waist	119	0.25
Rotating torso while bearing weight	68	0.150
Bending to lift an item	120	0.72
Transferring patient onto the bed or chair	81	0.001
Transferring patient onto stretcher	76	0.37
Ambulating a patient	68	0.815
Pulling a patient up the bed	93	0.002
Reposting a patient in bed	77	0.14

Table 2: Association between operation room risky activities and Low Back Pain

Discussion:

Low Back Pain is one of the most regular

problems requiring clinical need. It is a common kind of musculoskeletal problem.

Approximately over half of the common population needs clinical care for back ache at few phases in their life.[1] In current study, most of the participants were females like the previous study conducted by Karahan *et al.*, in 2009, showed in their research regarding LBP that most participants had been females (68.8%).[20] In this study, the long duration of standing and sitting time, improper position in duration of surgeries, work load, physical hard work and long standing were related to LBP. 92 females out of 151 had complaint of LBP at certain time periods of their profession.

Mostly the employees involved in difficult activities on daily basis were greatly affected by LBP. Staff involved in lifting heavy objects, transfer of patients on the bed and chair, moving patient on to the stretchers, repositioning patients and pulling them up to the bed and long hours of standing were strongly associated with LBP. In the previous study conducted by Homaid *et al.*, in 2016, showed in their research that continous standing and sitting status in the course of surgeries, work load, physically tough job, and more working hours may also contribute towards the development of LBP. Smoking, excessive BMI, advancing age, female gender, long standing duration, have been appreciably associated with the prevalence of LBP worldwide. Tough physical activity included lifting heavy objects above the level of waist, patient transferring on to the bed and chair, moving patient on to the stretcher, ambulating a affected patient, patients repositioning, pulling the patient up to the bed, and rotating trunk while bearing few weight.[1]

In the current study it was observed that 21.2% participants were overweight, 35.1% were married, 19.2% were graduates and 7.9% were post graduates. Most of them had mild 49.6% to moderate 42.3% intensity of LBP. While in the previous study Samaei *et al.*, in 2017, showed in their research that 46% of the subjects were overweight, 80.7% of them were married, 65.1% of them had bachelor and nearly 60% turned into having back ache.[21]

Conclusions:

LBP among operation room staff in the studied hospitals of Lahore were associated with age, gender, prolonged standing and risk producing activities. While smoking, high BMI were not associated with LBP.

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