

## Status of Low Back Pain among Office Workers in a Selected Tertiary Hospital of Bangladesh

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**Abstract:** *Low back pain (LBP) is among the most common musculoskeletal conditions & is the number one cause of activity limitation in young adults. Low back pain is neither a disease nor a diagnostic entity of any sort. It occurs in similar proportions in all cultures, interferes with quality of life and work performance, and is the most common reason for medical consultations. This study was aimed to find out the Status of Low Back Pain among Office Workers in a Selected Tertiary Hospital of Bangladesh. A descriptive cross-sectional type of study was carried out from January to April 2017. The data was collected directly from the respondents using self-administered semi-structured questionnaire, after taking their verbal consent for the participants. Data was analyzed using SPSS version 20. In this study the mean age of the respondents was 36.4 years and more than nine-tenth (92.0%) of the respondents were residing in urban areas. The prevalence of low back pain among the office workers was 57.3% and close to three-fifth of the respondents had familial history of the low back pain. The findings of this study revealed that 43.3% of the respondents suffered musculoskeletal disorder; however more than half of the respondents were satisfied with their present job and only 48.0% of the respondents had financial stress.*

**Keywords:** *low back pain, Respondents, Workers, Bangladesh*

### Introduction:

Low back pain is neither a disease nor a diagnostic entity of any sort. The term refers to pain of variable duration in an area of the anatomy afflicted so often that it is has become a paradigm of responses to external and internal stimuli. It happens in similar proportions in all cultures, interferes with quality of life and work performance, and is the most common reason for medical consultations<sup>1</sup>. In Europe, three-tenth (30%) of the general worker population suffers from LBP<sup>2</sup>. LBP is a work-related musculoskeletal disorder that causes substantial economic losses to individuals as well as to the community<sup>3</sup>. Above one-fourth of the working population is affected by LBP each year<sup>4</sup>. Various risk factors are found related with LBP which include decreased trunk strength and muscle flexibility, poor hamstring flexibility, heavy lifting, twisting, bending, stooping, prolonged sitting, awkward posture at work and previous history of injury to the area<sup>5-8</sup>. Back pain disorders are one of the most common and high-priced occupational health problems mostly in develop countries. However, the non-modifiable risk factors are increasing age, sex, occupation, lifestyle, socioeconomic status and smoking habit<sup>9-12</sup>. LBP is the second most common reason for health care visits and is disproportionately expensive<sup>13</sup>. Two out of three workers worldwide are exposed to one or more potential hazards at work place, it is estimated that 2.2 million people die yearly as a result of injuries and illnesses caused by occupational hazards, however 0.35 million lose their lives due to fatal occupational injuries<sup>14</sup>.

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In a study conducted among farmers that awkward postures, bending while working, sitting in a cramped position, and long hours of work, lead to musculoskeletal disorder<sup>15</sup>. The high occurrence of LBP is accepted to be due to high exposure to awkward postures, heavy manual work, and exposure to whole-body vibration (WBV) in the working environment<sup>16</sup>.

LBP is one of the most common and costly work-related musculoskeletal disorder that can be prevented by assessing of job activity, singling out of occupational risk factors and carrying out of proper intervention, unnatural posture during work have the consequence of an increase in physical lumbar burden<sup>17</sup>. The study was aimed to find out the status of low back pain among office workers in a selected tertiary hospital of Bangladesh.

### **Materials and Methods:**

**Population:** This study was carried out among the office workers in Ibrahim Cardiac Hospital & Research Institute (BIRDEM). Cardiac Hospital & Research Institute was started to fill the gap in cardiac care in Bangladesh. Both sexes (males and females) were selected by means of questionnaire. A total of 150 samples were selected purposively in the selected study area.

**Study design and Duration:** The study was descriptive cross-sectional type of study which was conducted for a period of four (4) months from January to May 2017 among the workers of Ibrahim Cardiac Hospital & Research Institute (BIRDEM).

### **Eligibility of Participation:**

**Inclusion Criteria:** Office workers in the selected Hospital who were available and willing to participate during the period of this study were included.

**Exclusion Criteria:** Non-office workers and the participants who decline to participate were all excluded for participation.

### **Data Collection and Analysis**

The data were collected directly from the respondents using self-administered semi-structured questionnaire, after taking verbal consent from the participants in the selected working area. All the data collected were coded numerically and entered into the SPSS version 22.0 software program for analysis. Descriptive statistical analysis was used to calculate the frequencies and percentages. The descriptive analysis of data were presented as tables. Some analysis using Pearson Chi-square test was also done, a p-value of less than 0.05 was considered significant.

### **Ethical considerations**

The study was approved by "Faculty of Allied Health Sciences Research Ethics Committee" Daffodil International University Bangladesh through Department of Public Health. Written consent was taken from the respondents before starting the data collection.

### **Results:**

#### ***Socio-Demographic Characteristics of the Respondents***

Table 1 showed that the mean age of the respondents was 36.4 years. Two-fifths (40.0%) of the respondents were in the age group 31-40 years, followed by 20-30 years (27.3%). Close to three-fifth (59.3%) of the respondents were males. The majority (65.3%) of the respondents had bachelor degree and above level of education, followed by HSC level of education (22%). It has been reported that 45.3% of the respondents were married, followed by unmarried (41.3%). However more than nine-tenths (92.0%) of the respondents were residing in urban areas, 7.3% in the rural area and the rest of them were residing in slum area.

**Table 1: Socio-demographic Characteristics of the Respondents (n=150)**

Variables	Frequency	Percent
<b>Age</b>		
≤19	4	2.7
20-30	41	27.3
31-40	60	40.0
41-50	22	14.7
>50	23	15.3
Mean and SD	36.4±10.5	
<b>Sex</b>		
Male	89	59.3
Female	61	41.7
<b>Educational level</b>		
Secondary	12	8.0
HSC	33	22.0
Bachelor degree & above	98	65.3
Others	7	4.7
<b>Marital status</b>		
Married	68	45.3
Unmarried	62	41.3
Divorced/widowed/separated	20	13.3
<b>Residence</b>		
Rural	11	7.3
Urban	138	92.0
Slum	1	0.7

***Distribution of Respondents Based on Low Back Pain & Health Related Factors***

Table 2 showed that more than half (57.3%) of the respondents suffered back pain. Close to three-fifth (58.0%) had familial history of the back pain, among them 44.8% inherited the problem from father's side. Slightly above two-fifth (43.3%) suffered musculoskeletal disorder, among them the majority (40%) suffered hip pain. Only 8.0% of the respondents had spinal surgery or spinal problem. 20.7% had experienced some chronic diseases. 42.7% of the respondents were smokers, among the smokers 76.6% were regular smokers. More than half (56.0%) were engaged in doing some physical exercises, 41.3% were regularly taking meal, 86% of the respondents were sleeping for more than 6 hours.

***Distribution of Respondents Based on Occupational and Psychological Factors***

Table 3 showed that 91.3% of the respondents knew about proper posture, however among them only 89.3% were maintaining the proper posture. 62.0% of the participants were using ergonomic chair and the rest of the respondents were not using it. The majority (80.7%) of the respondents spent 5-10 working years, followed by <5 years (10.7%) and the remaining spent >10 years in service. The majority (86.7%) used to go to work more than 3 days in a week. More than half (51.3%) had about 20-50 working hours a week. 54.7% were satisfied with their present job. 62.7% mentioned that they normally faced some stress at work. More than half (52.7%) had no family related stress and 48.0% of the respondents had financial stress as they mentioned.

***Relationship between Suffering Back Pain and Other Related Factors***

Table 4 shows the relationship between suffering back pain and other variables. In this study it has been reported that suffering back pain is associated with age of the respondents ( $p=0.006$ ), familial history of the back pain ( $p<0.001$ ), spinal surgery or problem ( $p<0.002$ ), chronic diseases ( $P<0.001$ ), meal habit ( $p=0.031$ ), engaging in physical exercises ( $p<0.001$ ) and smoking habit of the respondents ( $p<0.001$ ). It has also been found that there was no significant association between suffering back pain and sleeping hours of the respondents ( $p=0.148$ ) and gender of the respondents ( $p=0.375$ ).

**Table 2: Distribution of Respondents Based on Low Back Pain & Health Related Factors (n=150)**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Suffer back pain</b>		
Yes	86	57.3
No	64	42.7
<b>Family history of back pain</b>		
Yes	87	58.0
No	63	42.0
<b>If yes who? n=87</b>		
Father	39	44.8
Mother	35	40.2
Sister	8	9.2
Brother	1	1.1
Others	4	4.6
<b>Suffer any musculoskeletal disorder</b>		
Yes	65	43.3
No	85	56.7
<b>If yes, which? N=65</b>		
Knee pain	16	24.6
Hip pain	26	40.0
Wrist pain	14	21.5
Contractions	2	3.1
Others	7	10.8
<b>Spinal surgery or problem</b>		
Yes	12	8.0
No	138	92.0
<b>Chronic disease</b>		
Yes	31	20.7
No	119	79.3
<b>Smoking</b>		
Yes	64	42.7
No	86	57.3
<b>If yes?N=64</b>		
Occasionally	15	23.4
Regularly	49	76.6
<b>Physical exercises</b>		
Yes	84	56.0
No	66	44.0
<b>If yes, how many hours in a week? N=84</b>		
<5 hours	67	79.8
6-10 hours	12	14.3
>10 hours	5	6.0
<b>Habit of taking meal</b>		
Regularly	62	41.3
Irregularly	88	58.7
<b>Sleeping hours</b>		
<6 hours	21	14.0
>6 hours	129	86.0
<b>Job/office work nature</b>		
> 5 hours sited position	22	14.7
>3 hours working in sited position	116	77.3
No work at sitted postion	12	8.0

**Table 3: Distribution of Respondents Based on Occupational and Psychological Factors (n=150)**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Knew about proper posture</b>		
Yes	137	91.3
No	13	8.7
<b>Maintaining proper posture</b>		
Yes	134	89.3
No	16	10.7
<b>Using ergonomic chair</b>		
Yes	93	62.0
No	57	38.0
<b>Working years</b>		
<5 years	16	10.7
5-10 years	121	80.7
>10 years	13	8.7
<b>Weekly working days</b>		
<3 days	20	13.3
>3 days	130	86.7
<b>Weekly working hours</b>		
<20 hours	47	31.3
20-50 hours	77	51.3
Above 50 hours	26	17.3
<b>Job satisfaction</b>		
Yes	82	54.7
No	68	45.3
<b>Faced any stress at work</b>		
Yes	94	62.7
No	56	37.3
<b>Family related stress</b>		
Yes	71	47.3
No	79	52.7
<b>Financial stress</b>		
Yes	72	48.0
No	78	52.0

**Table 4: Relationship between Suffering Back pain and Other Related Factors (n=150)**

Variables	Suffer back pain			Chi-square	P-value
	Yes	No	Total		
<b>Age</b>					
≤19	0	4	4	14.607	0.006
20-30	18	23	41		
31-40	36	24	60		
41-50	13	9	22		
>50	19	4	23		
<b>Sex</b>				0.237	0.375
Male	49	39	88		
Female	37	25	62		
<b>Family history</b>				59.801	<0.001
Yes	73	14	87		
No	13	50	63		
<b>Spinal problem</b>				9.707	0.002
Yes	12	0	12		
No	74	64	138		
<b>Chronic disease</b>				14.151	<0.001
Yes	27	4	31		
No	59	60	119		
<b>Meal habit</b>				4.680	0.031
Yes	42	20	62		
No	44	44	88		
<b>Sleeping hours</b>				2.092	0.148
<6 hours	9	12	21		
>6 hours	77	52	129		
<b>Physical exercises</b>				24.358	<0.001
Yes	63	21	84		
No	23	43	66		
<b>Smoking habit</b>				16.873	<0.001
Yes	49	15	64		
No	37	49	86		
Total	86	64	150		

**Discussion:**

In this study the mean age of the respondents was 36.4 years. Two-fifths of the respondents were in the age group 31-40 years. This is similar with the two studies done in Germany among construction workers<sup>18,19</sup>.

The prevalence of low back pain was 57.3%. The prevalence rates of LBP obtained in the present study are almost consistent to the findings of some studies that investigated the prevalence of LBP among the workers in industrialized countries<sup>20-22</sup>. A study done in the USA among industrial workers established the highest prevalence of low back pain among construction workers at 23.9% which was lower than the prevalence of the present study<sup>23</sup>. In this study 86% of the respondent's normally sleep for more than 6 hours. This is slightly similar with the findings of a previous study which highlighted that poor sleep can have a detrimental effect on daily functional activities, and addressing sleep problems may be a primary focus of rehabilitation<sup>24</sup>.

According to occupational and psychological variables 91.3% of the respondents knew about proper posture, however among them only 89.3% were maintaining the proper posture. Nevertheless, more than half (54.7%) were satisfied with their present job. 62.7% mentioned that they normally faced some stress at work. More than half (52.7%) had no family related stress and only 48% of the respondents had financial stress. According to Hartvigsen, Lings, Leboeuf-Yde and Bakketeig (2004), people with jobs characterised by low control over their work and high and conflicting work demands might be at higher risk for disease and less satisfied with their work. Presumably, a high level of social support may buffer this effect and low social support may amplify it<sup>25</sup>. Another study reported that depression, anxiety, coping strategies, fear-avoidance beliefs, and health locus of control have been associated with disability from low back pain<sup>26</sup>. In contrast to the current study findings, a systematic review of literature from 1990 to 2002 about psychosocial factors at work in relation to low back pain and consequences of low back pain found insufficient evidence for an association between stress at work and low back pain and that there was insufficient evidence for an association between perception of work and social support in relation to consequences of low back pain<sup>27</sup>.

Literature reports a variety of individual risk factors that are associated with low back pain. These factors include age, height, weight, BMI (obesity), physical strength, prior injury, back and abdominal muscle strength and pain intolerance<sup>28-30</sup>. In this study it has been reported that suffering back pain is associated with age of the respondents ( $p=0.006$ ), familial history of the back pain ( $p<0.001$ ), spinal surgery or problem ( $p<0.002$ ), chronic diseases ( $P<0.001$ ), meal habit ( $p=0.031$ ), engaging in physical exercises ( $p<0.001$ ) and smoking habit of the respondents ( $p<0.001$ ). This finding is similar to another finding of a study done in Russia which found that there was significant association between back pain and smoking habit<sup>31</sup>. Another study also stated that both current and former smokers have a higher prevalence and incidence of LBP than who never smoke<sup>32</sup>.

#### **Conclusion:**

In this study the prevalence of low back pain among the office workers was 57.3%. Nevertheless, close to three-fifth of the respondents had familial history of the low back pain. The findings of this study revealed that 43.3% suffered musculoskeletal disorder; however among them the majority suffered hip pain. More than half of the respondents were satisfied with their present job. In this study it has been reported that suffering back pain is associated with age of the respondents, familial history of the back pain, spinal surgery or problem, chronic diseases, meal habit, engaging in physical exercise and smoking habit of the respondents.

#### **Recommendations:**

- Educational programs on LBP may have an important role in LBP prevention. Workers should be educated on ergonomics, taking break in between work and relaxation as this will ultimately improve job satisfaction and performance.
- Office workers should be encouraged to alter their posture on a regular basis.
- Smoking and physical exercise are associated with LBP. Proper BCC program may motivate office workers in cessation of smoking as well as can motivate starting of physical exercise.

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