



Low Back Pain Issue among Bangladeshi Office Workers: A Cross-Sectional Study

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ABSTRACT

Low back pain (LBP) is a prominent cause of disability and restricts the quality of life and work performance of an individual. The present study was conducted to find out the prevalence and related factors of low back pain among office workers in Dhaka City. A cross-sectional study was carried out by a self-constructed questionnaire. 150 office workers comprising 112 male and 38 female took part in this study. The maximum age range was 30 to 39 years old (38.7%) where more than half of the respondents had less than 10 years of job experience. Results indicated that the prevalence of LBP was 60%. Most of the participants complained mild and moderated pain with intermittent nature, more than half (60.3%) of the respondents having LBP who did the frequent forward bending. Greater percentages (59.1%, 57.0%) of individuals who did not use lumbar support and body distant from the computer greater than 50 cm were reported LBP. However, there was a significant relation between LBP with Job experience ($p < 0.05$) and daily sitting time in a working place ($p < 0.05$). Therefore, LBP was moderately high in Bangladeshi office workers and some factors were influencing for LBP. It is needed for all office workers to learn about the related factors that help to prevent and control the occurrence of pain.

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Introduction

LBP is a common musculoskeletal disorder affecting all age groups. A high prevalence rate of LBP was seen in worldwide (Chou et al. 2007; Spyropoulos et al. 2007). There are many factors responsible for low back pain. Lack of postural awareness and some ergonomic factors are in charge of LBP (Bawab et al. 2015). LBP with individuals sometimes has decreased his or her quality of life (Charoenchai et al. 2006). Activity like sitting bad posture, spending in long sitting and standing position, driving, prolong the use of a computer and lifting heavy weight creates LBP for individuals (Khudhir et al. 2017). Working environments also generates musculoskeletal disorder for sedentary office workers (Arsalan et al. 2016). Low back pain is a cause of disability and it influences the individual's daily activity (Rezaee et al. 2011). Heavy physical work loader reported as risk factors of LBP. A person with a lack of physical activity could be suffering from LBP (Tomita et al. 2010). LBP is a burning issue in the current situation. So this study will help to find out the factors that responsible for LBP.

Methodology

It was a descriptive cross-sectional study conducted over six months from July 2017 to December 2017. The Government and Non-government office workers were the target people in this study. Samples were selected purposively and data collection was done by face to face interview by using interviewer administrated structured questionnaire. Total 150 data were collected with consideration of inclusion and exclusion criteria. The questionnaire was developed to obtain information on the respondents about the following factors like socio-demographic factors, job-related factors,

ergonomics factors and pain-related factors. The required information was collected from the patients after obtaining their due consent. The corrected data were statistically analyzed by using the SPSS.

Results

The study revealed that maximum (n=58, 38.7%) age range was 30-39 years old and male workers were more (n=112, 74.7%) than female (n=38, 25.3%), more than half of the participant's (93, 62.0%) educational level were post-graduation, about two-third of the participant's religion was Islam, greater percentage (81.3%) of office worker's monthly income had < 50000BDT. Two third of the participants (n=123, 82.0%) got married and most of the family had four to six members.

Analysis of the job-related variable & table 2 shows that most of the participants spent 5-10 hours (79.3%) in sitting posture. Near about half (48.0%) of the respondent was going to the office by bus, about 23.3% was going to office by rickshaw, and about two third (84.0%) of the participant's office distance was < 10 km from home, half of the (52.0%) respondents were spending 4 to 8 hours by using a computer. More than half (n=94, 62.7%) of the participants had < 10 years of job experience; maximum participants were spending time in sitting posture.

Analysis of the Ergonomics variable & table -3 shows that the maximum participant (84.0%) was bending forward frequently, about 88.0% did not use lumbar support, near two-third (73.3%) of the participants did a frequent waist rotation, maximum participants use their body in bending forward during sitting position, most of them had an adjustable sitting surface and half of the participants had

comfortable chair table adjustment in the workplace.

Table 1. Socio-demographic information of respondents (n=150).

Variables	Number (n)	Percent (%)
Age Range		
20-29	41	27.3
30-39	58	38.7
40-49	32	21.3
50-59	18	12.0
>60	1	0.7
	Mean±SD=36.85±9.060	
Gender		
Male	112	74.7
Female	38	25.3
Educational level		
Post graduation	93	62.0
Graduation	37	24.7
Under graduation	20	13.3
Religion		
Islam	133	88.7
Hinduism	15	10.0
Christianity	1	0.7
Buddhism	1	0.7
Monthly Income		
< 50000	122	81.3
50000-100000	23	15.3
>100000	5	3.3
Marital Status		
Married	123	82.0
Unmarried	27	18.0
Family Member		
1-3	52	34.7
4-6	90	60.0
>7	8	5.3

Table 2. Distribution of respondents according to job related factors (n=150).

Variables	Number (n)	Percent (%)
Distance from home to office		
< 10 km	126	84.0
10-20 km	19	12.7
>20 km	5	3.3
Time spent in sitting posture		
< 5 hours	25	16.7
5-10 hours	119	79.3
>10 hours	6	4.0
Transportation Service (Multiple Response)		
Bus	72	42.6
Rickshaw	35	20.7
Private car	22	13.0
Motorcycle	10	5.9
By foot	28	16.6
Others	2	1.2
Time spent using a computer		
< 2 hours	11	7.3
2-4 hours	27	18.0
4-8 hours	78	52.0
>8 hours	34	22.7
Duration of the job		
< 10 years	94	62.7
10-20 years	32	21.3
>20 years	24	16.0

Revealed that most of the respondents had mild (n= 43, 47.8%) and moderate (n= 46.7, 46.7%) level of LBP with intermittent in nature (84.4%).

Table 6 revealed that more than half of the participants having LBP due to frequent forward bending. A higher number of respondents who had adjustable sitting surface also found LBP. The greater percentage of the office workers with

LBP used their body in forward bend during sitting in their workplace, maximum participants with LBP not having any lumbar support during sitting position and most of the participants with LBP had body distance >50 cm from a computer in the workplace.

Table 3. Distribution of respondents by Ergonomics Characteristics (n=150).

Variables	Number (n)	Percent (%)
Frequently forward bending		
Yes	126	84.0
No	24	16.0
Having lumbar support		
Yes	18	12.0
No	132	88.0
Frequently waist rotation		
Yes	110	73.3
No	40	26.7
Body position in sitting		
Bending Forward	115	76.7
Straight	35	23.3
Adjustable sitting surface		
Yes	93	62.0
No	57	38.0
Chair table adjustment		
Good	87	58.0
Not so good	63	42.0

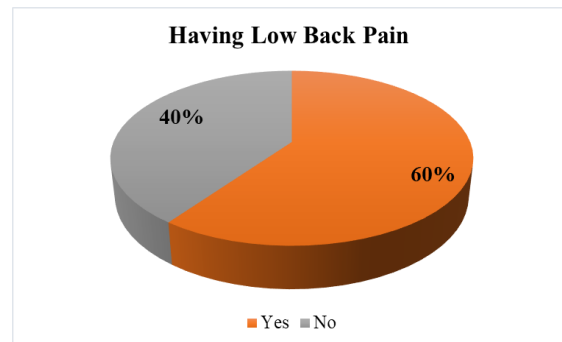


Figure 1. Distribution of the respondent based on having LBP.

The Current study found 60% prevalence of LBP.

Table 4. Distribution of the variables based on pain Related Characteristics (n=90).

Variables	Number (n)	Percentage (%)
Severity of Pain (n=90)		
Mild	43	47.8
Moderate	42	46.7
Severity	5	5.6
Pattern of Pain		
Intermittent	76	84.4
Continuous	14	15.6

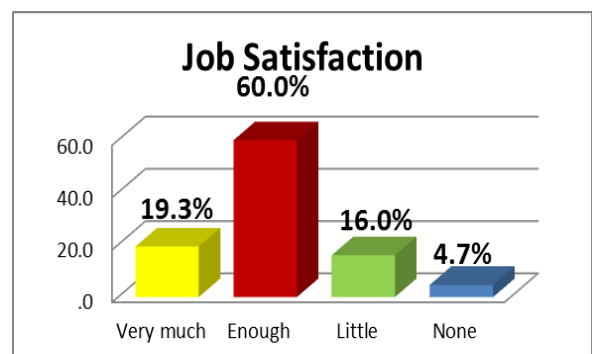


Figure 2. Distribution of the respondent on the basis of job satisfaction.

The study revealed that more than half of the participants had enough job satisfaction.

Table 5. The Association between LBP with age, sex, Job experience and sitting posture.

Variables	Low Back Pain		Total	Chi-square test
Age Range	Present	Absent		$\chi^2 = 7.266$ df=4 P= 0.122
20 to 29 Years	25(61.0%)	16(39.0%)	41(100.0%)	
30 to 39 Years	29(50.0%)	29(50.0%)	58(100.0%)	
40 to 49 Years	20(62.5%)	12(37.5%)	32(100.0%)	
50 to 59 Years	15(83.3%)	3(16.7%)	18(100.0%)	
≥60	1(100.0%)	0(0.0%)	1(100.0%)	
Gender				$\chi^2 = 0.211$ df= 1 P= 0.646
Male	66(58.9%)	46(41.1%)	112(100.0%)	
Female	24(63.2%)	14(36.8%)	38(100.0%)	
Job Experience				$\chi^2 = 6.490$ df=2 P= 0.039*
<10 Years	52(55.3%)	42(44.7%)	94(100.0%)	
10-20 Years	18(56.3%)	14(43.8%)	32(100.0%)	
>20 Years	20(83.3%)	4(16.7%)	24(100.0%)	
Daily sitting time in working place				$\chi^2 = 7.470$ df=2 P= 0.024*
<4 hours	10(40.0%)	15(60.0%)	25(100.0%)	
4-8 hours	78(65.5%)	41(34.5%)	119(100.0%)	
>8 hours	2(33.3%)	4(66.7%)	6(100.0%)	

Table 5 revealed that Job experience and daily sitting time in the workplace were significantly associated with LBP ($0.039 < 0.05$; $0.024 < 0.05$) but there was no significant relationship found between age and gender ($p > 0.05$).

Table 6. Cross-tabulation between ergonomics and Low back pain.

Ergonomic Variables		Having Low Back Pain		Total
		Present	Absent	
Frequent Forward Bending	Yes	76(60.3%)	50(39.7%)	126(100.0%)
	No	14(58.3%)	10(41.7%)	24(100.0%)
Adjustable Sitting Surface	Yes	53(57.0%)	40(43.0%)	93(100.0%)
	No	37(64.9%)	20(35.1%)	57(100.0%)
Body Position in Sitting	Forward Bend	71(61.7%)	44(38.3%)	115(100.0%)
	Straight	19(54.3%)	16(45.7%)	35(100.0%)
Chair Table adjustment	Good	48(55.2%)	34(44.8%)	87(100.0%)
	Not so Good	42(66.7%)	21(33.3%)	63(100.0%)
Chair Having Lumber Support	Yes	12(66.7%)	6(33.3%)	18(100.0%)
	No	78(59.1%)	54(40.9%)	132(100.0%)
Waist Rotation during work	Yes	62(56.4%)	48(43.6%)	110(100.0%)
	No	28(70.0%)	12(30.0%)	40(100.0%)
Body Distance from computer Screen	<50cm	25(65.8%)	13(34.2%)	38(100.0%)
	>50cm	65(58.0%)	47(42.0%)	112(100.0%)

Discussion

LBP is a most prevalent MSK disorder in a developing nation (Lauw et al. 2007). The Current study found more than half of the participants were suffered by LBP and male office workers were more than female. Another study found, about 60% having LBP among 1436 participants (Rezaee et al. 2010) which are similar compared to my study. Maximum participants who complain LBP had an age range between 30-39 (38.7%) years old and the association between age and gender with LBP were not significant ($p = 0.122 > 0.05$; $p = 0.646 > 0.05$). A previous study found a higher prevalence of LBP among age range 26-40 years (Naude 2008) that similar finding comparable in this study. Another study found there was a significant relationship between sex and LBP ($p = 0.023 < 0.05$) (Bawab et al. 2015).

Maximum participants (62.7%) worked for < 10 years, about 21.3% participant's duration of the job was 10-20 years and 16.0% worked for more than 20 years in this study. Statistically, it showed that the association between LBP and duration of the job was significant ($p = 0.039 < 0.05$). In another study found that the LBP was significantly associated with senior staff grade (Omokhodion et al. 2002). But another journal found that LBP pain was highest among those who worked for 10 years or less (Dhamahuri et al. 2014). The association between LBP and daily sitting time in the workplace was significant ($p = 0.024$). The current study found the highest percentage of participant's (79.3%) daily seat in their workplace 4-8 hours, followed by 16% participant's daily seat in their workplace <4 hours and only 4% participant's daily seat in their workplace was >8 hours. Another research found, 53.2% participant's daily seat in their workplace 4-8 hours, 30.4% participant's daily seat in their workplace was ≤4 hours and 16.4% participant's daily seat in their workplace was ≥8 hours (Arslan et al. 2016). More than half (60.0%) of the participants had enough job satisfaction in this study, whereas about 52.40% were satisfied enough in their job found from another study (Arslan et al. 2016). Comparing ergonomics variables, about two third of the participants having LBP due to frequent forward bending and forward bends during sitting position. On the other hand, the previous study found about 60.1% had the tendency of frequent bending forward during sitting and 48.1% participants had no tendency of frequent bending forward during sitting (Janawantakul et al. 2011). A greater number of the office workers who did not use a lumbar support during sitting position reported LBP. The Study also revealed that the majority of the office workers with LBP had >50 cm of body distance from the computer screen. On the other hand, previous research found about 43.60% participant's body distance from the computer screen was 50-100 cm (Arslan et al 2016).

Conclusion

It is concluded that the prevalence of LBP is fairly high in office workers. Female office workers were suffering more than male. Information related to workplace, environment and some ergonomics were the responsible factors for LBP.

There were significant relations found between LBP with job experience and duration of sitting in the workplace. Office workers should have knowledge about office ergonomics and some related factors which help to prevent and control the incidence of LBP.

Statement of conflict of interest

We, the authors of the article declare that there is no conflict of interest regarding this article.

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