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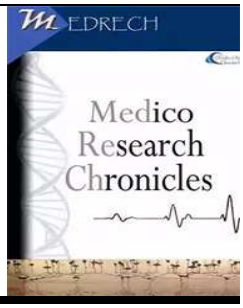

FACTORS ASSOCIATED WITH LOW BACK PAIN IN ADULT: A STUDY IN A TERTIARY CARE HOSPITAL OF BANGLADESH

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Background: Low back pain (LBP) is a very common health problem in human which may cause disability and can affects work performances and well-being. It can be acute, subacute or chronic in condition. Although several risk factors of LBP have already been identified like occupational posture, age, depressive moods, body height or obesity we have not enough research-based data regarding this issue.
Aim of the study: The aim of this study was to evaluate the risk factors associated with low back pain in adult.
Methods: This cross-sectional observational study was conducted in the Department of Physical Medicine & Rehabilitation, Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh during the period from July 2019 to December 2020. In total 57 confirmed LBP patients were enrolled as the case group patients and 30 healthy people were included as the control group participants in this study. All the clinical data regarding LBP were collected by using a predesigned questioner. Data were processed analyzed and disseminated by MS Office and SPSS programs as per need.
Results: In analyzing the risk factors of low back pain among the participants we observed, 47% case group participants were used to remain in siting position for 0-1 hours per day whereas it was found

among 67% in control group. Moreover, in case group 14% participants used to remain in sitting position for more than 6 hours per day which was only 7% in control group. Besides age (p=0.004) among several possible risk factors, in this study, we found significant correlation of low back pain in the duration of sitting position between the case and control groups, where the p value was 0.006.

Conclusion: Continuation pf long time sitting position is a harmful thing for the human musculoskeletal system. Now a day the lifestyle factors, should be assessed with more attention for detecting the basic etiology of low back pain.

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INTRODUCTION

Low back pain (LBP) is a very common health problem in human which may cause disability and can affects work performances and well-being. It can be acute, subacute or chronic in condition. Back pain is a common presenting complaint and frequently affects individuals in their working years. [1] It is a major cause of sickness, disability, and absence from work. [2] It may be caused by gynecologic, neurologic, vascular, psychogenic, discogenic, or spondylogenic pathology. But generally, the cause of LBP remains 'unidentifiable' and that may encompass the causes like postural or mechanical back pain. [3] Low back pain (LBP) usually affects more often women than men and may leads to assume that, its cause is existing in the 'female reproductive system'. Any backache which can be pointed with a finger, or associated with local tenderness, is usually not due to intra-pelvic lesion. [4] The prevalence of LBP peaks around the end of the sixth decade of life. It is generally assumed that overweight and low back pain are related. [5] But, scientific evidence to support this relationship is not fully conclusive. [6,7] In some studies, it was reported that subjects carrying excessive abdominal fat mass over a long period of time may be at risk of low back pain, because of altered posture to counterbalance the protruding fat mass. [8] Among several musculoskeletal problems, LBP is the most prevalent 'musculoskeletal condition' and it is a leading cause of disability across the world [9]. Besides other countries like Bangladesh, low back pain is one of the least prioritized 'non communicable' diseases in Nepal also [10]. LBP or low back pain causes patient's disability, severe pain and it extends the sick leave affecting about 80% of patients during the tenure of their lifetime [11,12]. It leads to high, direct and indirect costs and expenditures which have a great economic, medical as well as social impacts for individuals, society, families, as well as government [13]. This study was conducted to evaluate the risk factors associated with low back pain in adult.

OBJECTIVE

General Objective:

- To evaluate the risk factors associated with low back pain in adult.

Specific Objective:

- To assess the sociodemographic status of the participants.
- To determine the risk factors assessment among the participants.
- To determine the co-morbidity distribution among the participants.

METHODOLOGY

This cross-sectional observational study was conducted in the Department of Physical Medicine & Rehabilitation, Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh during the period from July 2019 to December 2020. In total 57 confirmed LBP patients were enrolled as the

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case group patients and 30 healthy people were included as the control group participants in this study. According to the exclusion criteria of this study, patients of bellow 18 years and assault cases were excluded. Patients with incomplete data and cases with irregular contacts were deducted before finalizing the sample size. Proper written consents were taken from all the participants before starting data collection. Written consents were taken from control group participants also. The development of the questionnaire was based upon known risk indicators for low back pain as described by Kwon et al. (2006) [14]. The variable items were taken from Kwon et al.'s (2006) [14] questionnaire and adapted to meet the objectives of this study: age, obesity, frequency of exercise, level of stress, general health, extent of smoking and alcohol consumption, and the presence of low back pain. Questions on gender, form of exercise, occupation, hours spend sitting, standing and walking per day, heavy physical lifting, sick leave, and management of low back pain were included. All the clinical data regarding LBP were collected by using a predesigned questioner. Data were processed analyzed and disseminated by MS Office and SPSS programs as per need.

RESULT

In this study, the mean (±SD) ages of the case group, control group and total participants were 39.16±10.53, 32.48±9.12 and 36.86±10.77 years respectively. We found a significant correlation in age for LBP between the groups where the p value was 0.004. In case group, male participants were 46% whereas the female participants were 54%. So, among all the LBP patients of this study, female participants were dominating in number and the male-female ratio was 1:1.2. Most of the participants (89%) were Muslim. The highest number or almost one third of the patients (32%) completed secondary level of education. In this study, majority of the LBP patients (82%) were married and the highest number (47%) of patients were from middle classed families. In analyzing the risk factors of low back pain among the participants we observed, 47% case group participants were used to remain in siting position for 0-1 hours per day whereas it was found among 67% in control group. Moreover, in case group 14% participants used to remain in sitting position for more than 6 hours per day which was only 7% in control group. Among several possible risk factors in this study, we found significant correlation of low back pain in the duration of sitting position between the case and control groups where the p value was 0.006. On the other hand, in analyzing the daily walking habit in hour, doing heavy weight lifting works, engagement of perceived mental stress and BMI (kg/m²) distribution we did not find any significant correlation between the case and control groups. Besides these we have assessed the habit of smoking, alcohol consumption and habit of idle lifestyle also. But we did not find any correlation on those factors. On the other hand, in analyzing the Co-morbidities among the participants we observed diabetes, hypertension and arthritis were associated in 7.02%, 12.28% and 15.79% case group patients respectively. Besides these, some other co-morbidities were associated in one forth (26%) LBP patients.

Table 1: Sociodemographic status of the participants (N=87)

Characteristics	Case (n=57)		Control (n=30)		Case (n=87)	
	n	**%**	**n**	**%**	**n**	**%**
Gender distribution						
Male	26	45.61	13	43.33	39	44.83
Female	31	54.39	17	56.67	48	55.17
Age distribution (Mean ±SD)						

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Year	39.16±10.53		32.48±9.12		36.86±10.77	
Religious status						
Muslim	51	89.47	27	90.00	78	89.66
Hindu	5	8.77	3	10.00	8	9.20
Others	1	1.75	0	0.00	1	1.15
Educational status						
Illiterate	8	14.04	2	6.67	10	11.49
Primary	13	22.81	6	20.00	19	21.84
Secondary	18	31.58	12	40.00	30	34.48
Higher Secondary	12	21.05	7	23.33	19	21.84
Graduation	6	10.53	3	10.00	9	10.34
Marital status						
Married	47	82.46	17	56.67	64	73.56
Unmarried	8	14.04	12	40.00	20	22.99
Separated	2	3.51	1	3.33	3	3.45
Family status (As per monthly income)						
Lower	20	35.09	9	30.00	29	33.33
Middle	27	47.37	16	53.33	43	49.43
Upper	10	17.54	5	16.67	15	17.24

Table 2: Risk factors assessment among the participants (N=87)

Characteristics	**Case (n=57)**		**Control (n=30)**		**p value**
	n	**%**	**n**	**%**	
Age					
Mean ±SD	39.16±10.53		32.48±9.12		0.004
Sitting position for hour/day					
0-1	26	45.61	20	66.67	0.006
2-4	13	22.81	5	16.67	
5-6	10	17.54	3	10	
> 6	8	14.04	2	6.67	
Daily walking habit in hour					
0-1	10	17.54	7	23.33	0.889
2-4	13	22.81	8	26.67	
5-6	16	28.07	9	30	
>6	18	31.58	6	20	
Doing heavy weight lifting works					
Yes	20	35.09	12	40	0.168
Often	31	54.39	14	46.67	
No	6	10.53	4	13.33	
Engagement of perceived mental stress					
Never	5	8.77	7	23.33	0.163
Sometimes	30	52.63	14	46.67	
Often	9	15.79	5	16.67	
All the time	13	22.81	4	13.33	
BMI (kg/m²) distribution					

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< 19	3	5.26	6	20	0.399
19-27.4	26	45.61	20	66.67	
27,5-39	23	40.35	3	10	
≥ 40	5	8.77	1	3.33	

Table 3: Co-morbidity distribution among the participants (N=87)

Characteristics	Case (n=57)		Control (n=30)			
	n	**%**	**n**	**%**	**n**	**%**
Diabetes	4	7.02	1	3.33	5	5.75
Hypertension	7	12.28	2	6.67	9	10.34
Arthritis	9	15.79	2	6.67	11	12.64
Other	15	26.32	3	10.00	18	20.69

DISCUSSION

The aim of this study was to evaluate the risk factors associated with low back pain in adult. In our study, the mean (±SD) ages of the case group, control group and total participants were 39.16±10.53, 32.48±9.12 and 36.86±10.77 years respectively. In case group, male participants were 46% whereas the female participants were 54%. According to Jeffries et al. [15], the prevalence of low back pain increases with age and Hellerstein et al. [16] adds that economic productivity decreases with age. Although in our study we did not find any correlation of LBP with the BMIs of participants it is said that, the mean BMI increased with age in low back pain sufferers and reached a peak in the 41 to 60 years age group. According to Crook et al. (2001) the appropriate BMI for people over the age of 35 is between 21 and 27kg/m². In our study, female patients were dominating in number in case group. More women than men suffered from low back pain in this study and females were 1,67 times more at risk for developing low back pain than men (CI 1.04; 2.69) a finding supported by the results of Burdorf and Sorock‘s study [18]. Possible explanations for the higher prevalence of low back pain among women are the influence of gyneacological conditions [14], domestic activities [19] and the higher reporting of symptoms by women. In our study in analyzing the risk factors of low back pain among the participants we observed, 47% case group participants were used to remain in siting position for 0-1 hours per day whereas it was found among 67% in control group. Moreover, in case group 14% participants used to remain in sitting position for more than 6 hours per day which was only 7% in control group. Among several possible risk factors in this study, we found significant correlation of low back pain in the duration of sitting position between the case and control groups only, where the p value was 0.006. Pain is caused by increased load on the ligaments during sustained positions. Weakness of the stabilizing muscles increases the load which subsequently increases the pain experienced [20]. As sitting, standing and walking for more than six hours per day had the highest percentages of low back pain, this may be an indication that a balance should exist between prolonged sitting, standing and walking. Winkel [21] said that moderate loads applied to the spine during sitting, standing and walking seem to be protective while either too much or too little might cause pain. It should be taken into account that the self-reporting of time spends sitting, standing and walking may not be accurate, as participants may not be able to recall information accurately. In a study they claimed, a bent and twisted posture for long periods, and making repetitive movements with the trunk or exposed to

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vibrations which are known occupational risk factors for LBP [22].

Limitation of the study:

This was a single centered study with a small sized sample. So, findings of this study may not reflect the exact scenario of the whole country.

CONCLUSION & RECOMMENDATION

Continuation of long time sitting position is a harmful thing for the human musculoskeletal system. Now a day the lifestyle factors, should be assessed with more attention for detecting the basic etiology of low back pain. Participation in exercises may be a protective factor against low back pain while perceived stress all the time may be associated with the presence of low back pain. For getting more specific information regarding this issue we would like to recommend for conducting more studies in several places with larger sized samples.

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