



10.5281/zenodo.10057188

Vol. 06 Issue 09 Sept - 2023

Manuscript ID: #1006

Prevalence of low back pain among the bankers at selected banks in Chittagong, Bangladesh

Muhammed Kamruzzaman¹, Ruksana Akter², Shameem Ahammad³, Md. Shafiulla Prodhania⁴, Sharmila Jahan⁵, Md. Zahid Hossain⁶, Md. Abdul Koddus⁷, Md. Kabir Hossain⁸, Shahid Afridi⁹, Mohammad Yaqub Al-Ansary¹⁰, Ahamadullah Hil Galeb¹¹, Md Feroz Kabir^{*12}

1.Department of Physiotherapy, Chittagong University Medical Centre, Chittagong University.

2.Department of Physiotherapy, Mymensingh College of Physiotherapy & Health Sciences, Mymensingh, Bangladesh, Email: ruksana.bela@gmail.com

3.Department of Occupational Therapy, Mymensingh College of Physiotherapy & Health Sciences, Mymensingh, Bangladesh, Email: shameem.bela@gmail.com

4.Department of Physiotherapy, International Institute of Health Sciences, Dhaka, Bangladesh

5.Department of Physiotherapy & Rehabilitation, Jashore University of Science & Technology (JUST), Jashore, Bangladesh, Email: sh.jahan@just.edu.bd

6.Department of Physiotherapy & Rehabilitation, Jashore University of Science & Technology (JUST), Jashore, Bangladesh, Email: mz.hossain@just.edu.bd

7.Department of Physiotherapy, Mymensingh College of Physiotherapy & Health Sciences, Mymensingh, Bangladesh, Email: jahidpt.mcphs@gmail.com

8.Department of Physiotherapy & Rehabilitation, Jashore University of Science & Technology (JUST), Jashore, Bangladesh, Email: kabir2002pt@gmail.com

9.Department of Physiotherapy, Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh, Email: afridisbd2@gmail.com; ORCID: 0000-0002-9558-5640

10.Department of Physiotherapy, Bangladesh Health Professions Institute, CRP, Bangladesh, Email: dr.yaqub.al.ansary@gmail.com

11.Department of Physiotherapy & Rehabilitation, Jashore University of Science & Technology (JUST), Jashore, Bangladesh, Email: ahamadulla4352@gmail.com

12.Department of Physiotherapy & Rehabilitation, Jashore University of Science & Technology (JUST), Jashore, Bangladesh, Email: feroz@just.edu.bd

Corresponding author: feroz@just.edu.bd

ABSTRACT

Purpose: Prevalence of low back pain among the bankers at some selected banks in Chittagong.

Objectives: To measure the severity of pain according to vas scale, to identify the prevalence of LBP among the bankers, to determine the primary risk factors of low back pain among the bankers and to inspect the socio- demographic information among the bankers. **Methodology:** A quantitative (cross sectional) research model in the form of a prospective type survey design is carried out in this study. Conveniently 100 participants among the bankers were collected from various banks of Chittagong, Bangladesh. The instruments used included direct interview, a body discomfort assessment tool that consist of Visual Analogue Scale (VAS) and a questionnaire. Data was collected by mixed type questionnaire and confidentiality of information and voluntarily participation were ensured by the researcher. Data were numerically coded and captured in Excel, using an SPSS 17.0 version program. **Results:** The findings of the study provide a baseline of information about prevalence of Back pain among the bankers. In percentage 44% have suffered from back pain and male (81.82%) are more vulnerable than female (18.18%).The most affected age range 31-50years of age (68.18%). This age group is the largest proportion of the work force and with this part of the population affected to such a large degree it could affect the productivity of the company in a negative manner. The study revealed that the prevalence of back pain is most frequent who had job experience of 1-8 years 36%, followed by 21% were 9-16 years, 18% were 17-24 years, and 25% were 25-32 years. **Conclusion:** Prevention of LBP is beneficial for workers, employers, and society. To prevent work relate LBP should focus on working conditions rather than individual life style, greater attention to other risk factors such as history of back injury and perception of health status. Bankers should be educated on ergonomics, posture, taking break in between work and relaxation as this will ultimately improve job satisfaction and performance.

KEYWORDS: Low Back Pain, Prevalence, Banker, Physiotherapy, Rehabilitation.



This work is licensed under Creative Commons Attribution 4.0 License.

Introduction:

Low back pain (LBP) is a ubiquitous musculoskeletal disorder and a prominent cause of disability in developed nations [1]. Its lifetime prevalence in affluent nations can be as high as 85% , resulting in severe disability and limits in daily activities, including job [2]. Shiel defines LBP as pain and stiffness in the lower back, often leading to job absence [3]. WHO reports that LBP contributes considerably to missed workdays and healthcare visits, impacting 70-80% of the global population [4]. LBP typically afflicts those aged 25 to 50 [5] and is predicted to impact 75-85% of people over their lives, with a 50% likelihood of recurrence within a year. Chronic LBP, lasting longer than three months, affects 2-8% of LBP sufferers. Occupational variables contribute greatly, with 37% of LBP cases ascribed to work-related hazards [6]. Low back pain offers a complicated interaction of factors influencing individuals, resulting to social and economic issues [7]. In developed cultures, LBP is a significant healthcare concern, impacting 80% of adults and generating high treatment expenditures [8]. In the United States alone, direct expenses of LBP vary from \$33 billion to \$55 billion yearly, with extra indirect expenditures from lost workdays and productivity [9]. Canada likewise grapples with LBP as a serious occupational health hazard, with associated expenditures estimated at billions of dollars [10]. Physical demands such as heavy lifting, manual handling, bending, and whole-body vibration contribute to LBP in occupational contexts [11]. Notably, prolonged sitting or standing alone may not reliably correspond with LBP. Despite considerable study in other nations, Bangladesh lacks systematic investigation into LBP prevalence among certain occupational categories, such as bankers. Therefore, this study intends to assess LBP prevalence among bankers in Chittagong and explore the impact of demographic, occupational, psychological, and social factors on this group [12]. The findings may help bankers identify and decrease LBP risks, encourage optimal workplace design, and raise awareness about the importance of posture and preventive actions. Moreover, the study could assist to the formulation of standards for bankers' working circumstances, thus reducing the prevalence of LBP in this sector. In conclusion, low back pain is a global health concern with substantial social and economic ramifications, and studying its prevalence and associated characteristics among bankers in Chittagong, Bangladesh, might improve initiatives for prevention and therapy.

Method

This cross-sectional study examined Low Back Pain (LBP) among Chittagong, Bangladesh, bankers. Cross-sectional studies are fast and cheap for examining population prevalence and associations. This study examined musculoskeletal governmental and non-governmental banks such Dhaka Bank Ltd, Krishi Bank, Basic Bank Ltd, Dutch Bangla Bank Ltd, National Bank Ltd, United Commercial Bank Ltd, and Janata Bank Ltd. A clearly defined group for study was desk bankers. The inclusion and exclusion criteria were used to conveniently choose 100 bankers from the bigger community. All age groups of male and female office workers from private and government banks were included [7, 9, 11]. Patients with acute back injuries or active illnesses like TB spine were excluded [7, 10]. A structured and semi-structured mixed-type questionnaire with open-ended and closed-ended questions collected data. The researcher informed participants of the study's goal and received consent. The questionnaire was in Bengali for clarity. Closed-ended questions simplified responses, while open-ended ones offered elaborate responses. This mixed-method questionnaire collected nominal and ordinal data on bankers' low back discomfort. The questionnaire, consent form, pencil, rubber, paper, SPSS (version 17), Harvard Referencing guide, and computer were used. SPSS was used to analyse data and present conclusions in tables, pie charts, and bar charts using descriptive statistics. Excel was also used to exhibit data.. Ethics approval and informed consent were acquired for the study. Participants were assured of voluntary participation, withdrawal, and secrecy. They were told the

study's findings could aid physiotherapy research. The researcher avoided leading questions and judgements during data collection and analysis to ensure rigour. Supervisory guidance was obtained where needed to ensure the study's trustworthiness and validity for relevant researchers.

Results

The objective of this study was to examine the incidence of low back pain within the banking profession, utilising a sample size of 100 individuals for data collection. The study utilised descriptive statistics in Microsoft Excel and SPSS 17.0 to determine that 44% of the participants had reported instances of low back discomfort. Of the individuals included in this study, 82% were identified as male, whilst 18% were identified as female. In relation to the classification of family structures, it was found that 62% of the participants belonged to nuclear families, while the remaining 38% were affiliated with extended families. The study revealed that a significant proportion of the participants identified as Muslims, including around 85% of the total sample. Hindus accounted for approximately 6% of the participants, while Buddhists represented approximately 9% of the overall sample [Table 1]. The present study additionally investigated the association between age and back pain, encompassing a diverse sample of people aged 22 to 60 years. The majority of individuals with low back pain were found to belong to the age range of 31-40 years, accounting for 34.09% of the total participants. The study also examined participants' job experience, revealing that 36% had accumulated 1-8 years of experience, 21% had 9-16 years of experience, 18% had 17-24 years of experience, and 25% had 25-32 years of experience. The initial occurrences of back discomfort were most commonly reported within the initial five years of employment, accounting for 36% of cases. Upon conducting the analysis, the researcher discovered that 44 out of 100 participants, accounting for 44% of the total sample, experienced back pain [Figure 1].

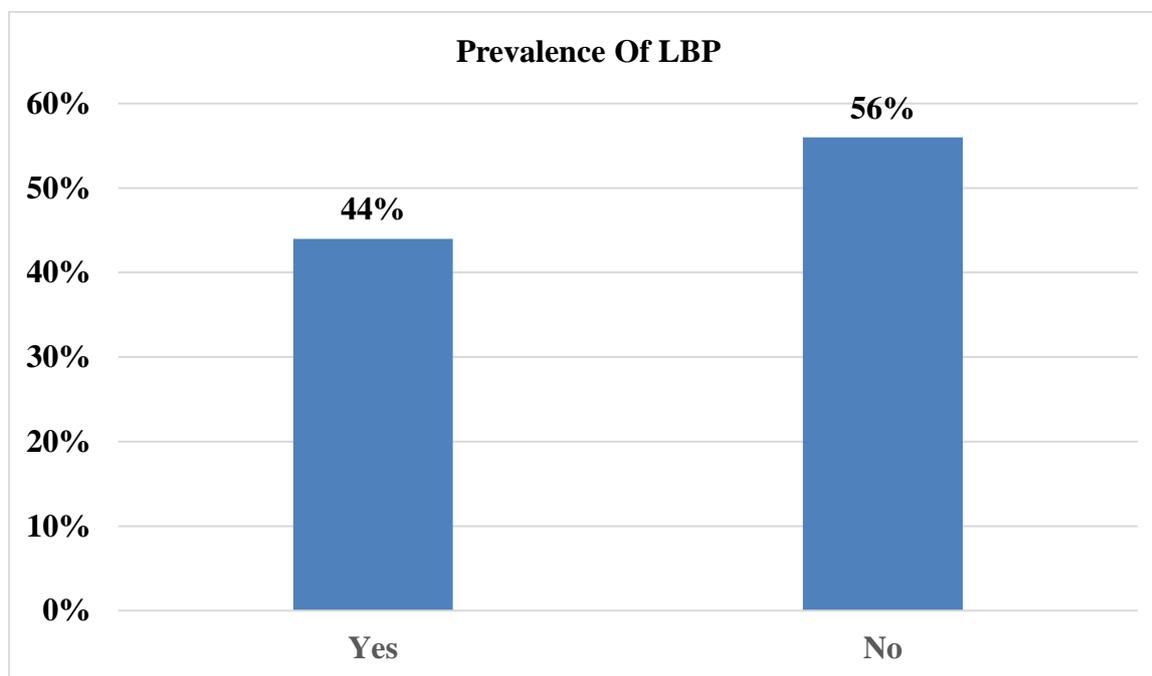


Figure 1: Prevalence of LBP

In relation to the intensity of pain experienced, it was found that 34% of individuals had mild symptoms, 43% reported moderate symptoms, and 23% reported severe pain. The duration of working hours was found to be a significant factor, as 70.44% of individuals working 7-9 hours reported feeling back discomfort, in contrast to 29.56% of those working 10-12 hours. The majority of

participants (92%) maintained a seated posture during their work activities. A total of 17% of participants had a history of trauma in the back region. Among this subgroup, a significant majority of 88.2% experienced the presence of low back pain. Moreover, a significant proportion of individuals experiencing low back pain, namely 75%, sought medical intervention. The predominant treatment modalities employed were pharmacological interventions, accounting for 67% of cases, and physiotherapy, utilised by 6% of individuals. Additionally, a notable subset of 21% received a combination of both medicine and physiotherapy. In the final analysis, a total of 45.45% of individuals who underwent treatment reported experiencing a notable amelioration in their back pain, whereas 54.54% of participants did not see any significant changes. The aforementioned data provide insight into the frequency and determinants linked to the occurrence of low back pain within the banking industry [Table 1].

Variable	Value	Variable	Value	Variable	Value
Gender		Job experience		Both	21.0%
Male	82.0%	1-8 year	36.0%	Others	6.0%
Female	18.0%	9-16 year	21.0%	Outcome of treatment	
Family type		17-24 years	18.0%	Improved	45.45%
Extended family	38.0%	Severity of pain		Unchanged	54.54%
Nuclear family	62.0%	Mild	34.0%	First experience of LBP	
Religion		Moderate	43.0%	1st year	11.0%
Muslim	85.0%	Severe	23.0%	1 st five years	36.0%
Others	15.0%	Duration of Work		5-10 years	30.0%
Age		7-9 hours	70.44%	>10 years	23.0%
22-30 years	13.63%	10 – 12 hours	29.56%		
31-40 years	34.09%	Type of treatment received			
41-50 years	34.09%	Only medication	67.0%		
51-60 years	18.18%	Only physiotherapy	6%		

Table 1: Demographic and topic related information

Discussion

This study found that 44% of bankers had low back pain (LBP). [13] A UK study found 41% LBP symptoms in the past year. UK and Japanese cross-sectional questionnaire research yielded similar results. LBP lifetime incidence ranged from 58.3% to 62% in the UK, depending on location and practice. Male participants (65.6%) had a higher LBP prevalence than females (34.4%). This matches research showing that men are more susceptible to LBP. A Nigerian survey found 40% males and 34% females [14]. Japan found fourfold more LBP in men than women, while the US found a higher frequency in men. Most individuals with LBP were 31-50, mostly in the 31-40 and 41-50 age ranges. This age distribution overlaps with peak working years, which may lower output. Marius showed a similar age range for LBP onset. LBP prevalence was highest (36%), among persons with 1-8 years of occupational experience. A study found higher frequency in senior personnel than junior staff. 44% of subjects had LBP after working 7-9 hours per day [15]. Another observed a link between greater work hours and LBP [16].

Sitting posture at work was important because 90% of participants sat for lengthy periods. Research shows that sitting for longer than 3 hours worsens LBP. Twisting and awkward positions are additional danger factors. Most subjects had moderate pain (5-7) and mild pain (1-4) on a 0-10 scale. Few subjects (8-10) reported significant pain that could impact everyday life. Medication was used to treat 75% of LBP patients. Marius found that roughly half of UK respondents sought LBP treatment. This study found that 67% utilised medication, 6% used physiotherapy, 21% used both, and 6% tried other treatments [13]. Access to pharmacies affected treatment choices. This study shows that bankers, especially 31-50-year-old men with numerous years of expertise, have significant LBP rates [17]. Working long hours, sitting posture, and moderate pain intensity were linked. Medication was the major treatment, according to study, but effectiveness varied. A study suggests psychosocial factors play an inconclusive role in LBP development [18]. The study included 100 participants instead of 263 owing to resource constraints. This tiny sample size may limit the study's external validity and make it difficult to generalise the findings to Bangladeshi bankers. The lack of LBP literature among Bangladeshi bankers made comparisons impossible. Data was limited to 7 banks for a short time, which may have affected representativeness. Lacking a preliminary research, the questionnaire had an uneven gender ratio. Limited time and resources affected literature review, data collecting, and research funding.

Conclusion

This survey indicated that 44% of Chittagong bankers had low back pain (LBP), with 65.6% of men having it. Workplace ergonomics and extended sitting may cause LBP, according to the study. Age, gender, and ethnicity didn't affect LBP rates, but ergonomics, posture, and break education could. Software tracking work hours and promoting breaks, as well as employment rotation and flexible hours, are advised. These discoveries can help reduce LBP, improve lives, and boost workplace well-being.

Corresponding author (*):

Md Feroz Kabir

Department of Physiotherapy and Rehabilitation, Faculty of Health Science, Jashore University of Science & Technology, Jashore, Bangladesh, Telephone: 01765932545, Email: feroz@just.edu.bd

Author Contributions:

Muhammed Kamruzzaman

GROUP 1: Conception of the work, Acquisition and Analysis of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

GROUP 4: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Ruksana Akter

GROUP 1: Design of the work, Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

GROUP 4: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Shameem Ahammad

GROUP 1: Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Md. Shafiulla Prodhania

GROUP 1: Design of the work, Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

GROUP 4: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Sharmila Jahan

GROUP 1: Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Md. Zahid Hossain

GROUP 1: Design of the work, Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

Md. Abdul Koddus

GROUP 1: Analysis of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published.

Md. Kabir Hossain

GROUP 1: Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Shahid Afridi

GROUP 1: Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

Mohammad Yaqub Al-Ansary

GROUP 1: Design of the work, Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

Ahamadullah Hil Galeb

GROUP 1: Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Md Feroz Kabir

GROUP 1: Design of the work, Analysis and Interpretation of data

GROUP 2: Revising the work critically for important intellectual content

GROUP 3: Final approval of the version to be published

GROUP 4: Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Conflicts of Interest: [No conflict of interest](#)

Reference

1. Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. *Bull World Health Organ.* 2003;81(9):646-656.
2. Katz JN. Lumbar disc disorders and low-back pain: socioeconomic factors and consequences. *J Bone Joint Surg Am.* 2006;88Suppl 2:21-24.
3. Shiel WC. Low Back Pain (LBP) Symptoms, Relief, Treatment, and Cure. *MedicineNet.* https://www.medicinenet.com/low_back_pain/article.htm. Published 2007.
4. World Health Organization. The burden of musculoskeletal conditions at the start of the new millennium. *World Health Organ Tech Rep Ser.* 2003;919(i-x):1-218.
5. Charoenchai P, Lerkiatbundit S, Pichainarong N. Prevalence and factors associated with low back pain among garment workers in Cambodia. *J Occup Health.* 2006;48(3):188-195.
6. Asdrubal F, Joseph T, Haig A. Prevalence of low back pain and factors associated with chronic disabling back pain in patients presenting to a rheumatology consultation. *Rheumatology (Oxford).* 2005;44(7):890-895.
7. Sadigi S, Flahault A, Nizard R, Groupe des médecins du travail d'Île-de-France. [Economic impact of low back pain: a review of studies published in France]. *Rev Rhum Ed Fr.* 2008;75(3):232-238.
8. Bishop PB, Wing PC. Knowledge transfer in family physicians managing patients with acute low back pain: a prospective randomized control trial. *Spine J.* 2006;6(3):282-288.
9. Frymoyer JW. Back pain and sciatica. *N Engl J Med.* 1998;338(14):1016-1021.
10. Tissot F, Messing K, Stock S. [Are there occupational hazards of heavy lifting in the field of agriculture? A systematic review]. *SozPraventivmed.* 2009;54(2):99-108.
11. Chen J, Vercammen-Grandjean C, Rempel D. Personal and workplace factors associated with carpal tunnel syndrome. *J Occup Environ Med.* 2004;46(11):1157-1166.
12. Tissot F, Messing K, Stock S. [Are there occupational hazards of heavy lifting in the field of agriculture? A systematic review]. *SozPraventivmed.* 2009;54(2):99-108.
13. Marius. (2010). Prevalence of Low Back Pain Among Bankers: A Study in Chittagong, Bangladesh.
14. Omokhodion, F. O., &Sanya, A. O. (2003). Risk factors for low back pain among office workers in Ibadan, Southwest Nigeria. *Occupational Medicine*, 53(4), 287-289.
15. Mostafa, RM., Elnady, BM., Abdel-Kafy, EM.,& El-Sayed, SM. (2006). Occupational risk factors for low back pain among male workers in an Egyptian steel company. *Journal of Occupational Health*, 48(5), 329-334.
16. Prawit, M., Rattanarat, P., &Sungkarat, S. (2011). Prevalence of Low Back Pain among Office Workers in a Public Sector: A Questionnaire Survey. *Journal of the Medical Association of Thailand*, 94(10), 1237-1244.

17. Maryam, G., Ali, A., & Omid, A. (2010). The Relationship between Work-related Psychological and Ergonomic Factors with Low Back Discomfort. *Iranian Red Crescent Medical Journal*, 12(4), 408-413.
18. Van Vuuren, U., & Prinsloo, C. H. (2005). Risk factors for low back pain among nurses in a South African public hospital. *Health SA Gesondheid*, 10(3), 61-69.