

Prevalence of Disability in Chronic Non-Specific Low Back Pain Patients

Dr. Md. Ashikul Islam^{1*}, Dr. Aleya Ferdush Monni², Dr. S. M. Mazharul Islam³, Dr. Md. Mustafezur Rahman⁴, Dr. Md. Alauddin⁵, Dr. Rayhan Sharif⁶

¹Junior Consultant, Physical Medicine & Rehabilitation Department, Colonel Maleque Medical College Hospital, Manikganj

²Medical Officer, DGHS, Mohakhali, Dhaka

³Associate Professor, Department of Physical Medicine and Rehabilitation, Mymensingh Medical College, Mymensingh, Bangladesh

⁴Junior consultant, Physical Medicine & Rehabilitation, Kushtia 250 Bed General Hospital, Kushtia

⁵Medical officer, Department of Physical Medicine and Rehabilitation, Khulna medical College hospital, Khulna

⁶Assistant professor, Department of Physical Medicine & Rehabilitation, Eastern Medical College Hospital

DOI: [10.36348/sjimps.2024.v10i04.008](https://doi.org/10.36348/sjimps.2024.v10i04.008)

| Received: 26.02.2024 | Accepted: 07.04.2024 | Published: 22.04.2024

*Corresponding author: Dr. Md. Ashikul Islam

Junior Consultant, Physical Medicine & Rehabilitation Department, Colonel Maleque Medical College Hospital, Manikganj

Abstract

Background: Lower back pain (LBP) is the most frequent medical condition requiring rehabilitation in most countries, and it is also the most common medical issue among individuals with disabilities. Numerous illnesses, such as nephrolithiasis, endometriosis, tumors, fibromyalgia, and psychological disorders, can induce back pain that is not related to the spine. **Objective:** To determine the disability prevalence among patients with chronic non-specific low back pain. **Materials and Methods:** The cross sectional observational study was conducted in the Department of Physical Medicine and Rehabilitation, Dhaka Medical College & Hospital, Dhaka. Total 103 cases diagnosed individuals with chronic non-specific low back pain after fulfilling enrollment criteria was enrolled in this study. Question about sex life (ODI-8) was asked at the end of the interview. Disability refers to impairment, activity limitation and participation restrictions that may occur with a health condition. Low back pain was defined as pain and discomfort, localized below the costal margin and above the inferior gluteal folds with or without referred leg pain. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, Illinois, USA). **Results:** Prevalence of the disability more than half (52.4%) of the patients had severe disability, 27(26.2%) had moderate, 14(13.6%) had crippled and 8(7.8%) had minimal disability. **Conclusion:** The prevalence of severe disability in Chronic Non-Specific Low Back Pain was 52.4%. The duration and severity of pain are significantly correlated with impairment. **Keywords:** Oswestry Disability Index, disability, Chronic Non-Specific Low Back Pain.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Chronic low back pain, defined as low back pain lasting more than 3 months, is a globally prevalent health problem with significantly high medical and economic burden on individuals and the society [1].

LBP is the most common medical condition for those living with a disability; in most countries, it is also the top medical condition requiring rehabilitation. A classical medical approach is disease-oriented and directs all management efforts of LBP towards identifying underlying causes of pain in the low back, namely, structural and/or functional impairments or sensory impairments associated with chronic pain, and treating these impairments to alleviate the pain and improve a person's health state [2].

LBP disorder is one of the most common causes of long-term disability in most countries (65%) in the world. It has been estimated that the lifetime prevalence of LBP is between 30% and 80%.³ Previous research estimated that in 2019 about 223 [4]. Million people suffered from LBP and that there were 63.7 million years lived with disability [4]. Also, in 2019, the highest prevalent cases of LBP were found in the 50–54 age group [5].

Low back pain is a highly prevalent complaint and is reportedly associated with decreased activities of daily living (ADLs) and quality of life (QOL) [6]. In addition, a specific diagnosis of low back pain cannot be obtained in approximately 80% patients with low

back pain, indicating that patients with low back pain are often diagnosed with nonspecific low back pain [6].

This type of back pain is known as nonspecific low back pain and is defined as chronic when it persists for more than 12 weeks [7]. Clinical practice and scientific research have used clinical assessment tools to monitor the effectiveness of the intervention in clinical settings as an outcome measurement. Several self-reported disability questionnaires have been used as outcome measures for LBP patients such as the Oswestry Disability Index (ODI), Roland-Morris Disability Questionnaire, and Quebec Back Pain Disability Scale [8].

A study on prevalence of low back pain (LBP) among medical professionals in Dhaka city shows that almost every individual (96%) suffered by low back pain, 59.6% of them suffered by moderate pain and 11.6% individuals suffered by severe pain [9]. Persistent pain always entails a certain degree of disability. Disability in low back pain patients can be gauged through means of dedicated and scientifically validated questionnaires such as Oswestry low back pain disability questionnaire, the Ronald- Morris questionnaire and the Core Outcome Measurement Instrument [10]. Increased awareness on prevention, early and proper management of low back pain, and rehabilitation policies are required to better tackle the burden of low back pain at the population level.

METHODOLOGY

The cross-sectional observational study was conducted in the Department of Physical Medicine and Rehabilitation, Dhaka Medical College & Hospital, Dhaka. Total 103 cases diagnosed individuals with chronic non-specific low back pain after fulfilling enrollment criteria was enrolled in this study. The patients were informed in details regarding the procedure of the study and written consent was obtained. Then, data was collected by face-to-face interview of patients using a structured questionnaire. Total ODI was calculated out of 50, and then multiplied by 2 and thus converted it as percentage. Question about sex life (ODI-8) was asked at the end of the

interview. Disability refers to impairment, activity limitation and participation restrictions that may occur with a health condition. Low back pain was defined as pain and discomfort, localized below the costal margin and above the inferior gluteal folds with or without referred leg pain. They were labeled as not applicable in regard to ODI-8 and total ODI was calculated out of 45. Then, the ODI was converted into percentage. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, Illinois, USA). A descriptive analysis was performed for all data. Data were expressed as numbers; percentages and mean \pm SD. The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies. ANOVA test was used for continuous variables. It is a parametric test used in case of normally distributed quantitative data with more than two variables. A p value <0.05 was considered as significant.

RESULTS

Table 1 shows that almost three fourth (72.8%) patients belonged to age group 40-49 years with mean age was 47.0 ± 4.7 years. The majority 57(55.3%) patients were female and rest 46(44.7%) were male. Table 2 shows that 63(61.2%) patients had pain during the period of ≤ 6 months. The mean duration of illness was found 6.2 ± 2.8 months.

Regarding oswestry disability index, it was observed that mean pain intensity was 3.6 ± 1.1 , mean personal care was 1.9 ± 1.2 , mean lifting 2.3 ± 1.4 , mean walking 2.1 ± 1.3 , mean sitting 2.6 ± 1.3 , mean standing 2.3 ± 1.4 , mean sleeping 1.9 ± 1.5 , mean sex life 2.0 ± 1.6 , mean social life 2.3 ± 1.2 , mean travelling 2.0 ± 1.4 and mean total ODI 46.2 ± 14.6 (Table 3). Table 4 shows that more than half (52.4%) of the patients had severe disability, 27(26.2%) had moderate, 14(13.6%) had crippled and 8(7.8%) had minimal disability. Table 5 shows that mean duration of pain was found 7.9 ± 2.7 month in crippled disability, 6.5 ± 2.4 month in severe, 5.3 ± 2.4 month in moderate and 4.2 ± 2.4 month in minimal disability. The difference was statistically significant ($p < 0.05$) among four groups.

Table 1: Distribution of the study patients by age (n=103)

Age in years	Number	Percentage
40-49	75	72.8
50-59	28	27.2
Mean \pmSD	47.0 (± 4.7)	
Sex		
Male	46	44.7
Female	57	55.3

Table 2: Distribution of the study patients according to duration of pain (n=103)

Duration of illness (months)	Number	Percentage
≤6	63	61.2
7-12	37	35.9
>12	03	2.9
Mean ±SD	6.2±2.8	Range 3-14

Table 3: Distribution of the study patients according to Oswestry disability index (n=103)

Oswestry disability index	Mean	±SD
Pain intensity	3.6	±1.1
Range (min-max)	0.0	-5.0
Personal care	1.9	±1.2
Range (min-max)	0.0	-4.0
Lifting	2.3	±1.4
Range (min-max)	0.0	-5.0
Walking	2.1	±1.3
Range (min-max)	0.0	-4.0
Sitting	2.6	±1.3
Range (min-max)	0.0	-5.0
Standing	2.3	±1.4
Range (min-max)	0.0	-5.0
Sleeping	1.9	±1.5
Range (min-max)	0.0	-5.0
Sex life	2.0	±1.6
Range (min-max)	0.0	-5.0
Social life	2.3	±1.2
Range (min-max)	0.0	-5.0
Travelling	2.0	±1.4
Range (min-max)	0.0	-5.0

Table 4: Prevalence of disability according to Oswestry disability index (n=103)

Disability	Number	Percentage
Minimal	08	7.8
Moderate	27	26.2
Severe	54	52.4
Crippled	14	13.6

Table 5: Association between duration of pain with disability (n=103)

	Disability				p value
	Minimal (n=8)	Moderate (n=27)	Severe (n=54)	Crippled (n=14)	
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	
Duration of pain (months)	4.3±2.4	5.3±2.4	6.5±2.8	7.9±2.7	0.006 ^s
Range (min-max)	3-10	3-10	3-14	4-12	

s= significant

p value reached from ANOVA test

DISCUSSION

In this study observed that almost three fourth (72.8%) patients belonged to age group 40-49 years with mean age was 47.0±4.7 years. Lee *et al.*, [11] reported the mean age was 40.7±11.4 years. Kim *et al.*, [12] observed the mean age was 40.47±12.26 years. Aoki *et al.*, [13] observed the mean age: 72.5 years old, range: 65–88 years old. Monticone *et al.*, [14] also found mean age was 47.7±12.3 years.

In present study showed that majority (55.3%) patients were female and rest 46(44.7%) were male. Lee *et al.*, [11] reported female was 103(45.8%). Aoki *et al.*, [13] also observed 30 males and 26 females. Monticone *et al.*, [14] observed 112(62.6%) were female and 67(37.4%) were male. Kim *et al.*, [12] reported 90 were male and 43 were female.

Regarding oswestry disability index, it was observed that mean pain intensity was 3.6±1.1, mean personal care was 1.9±1.2, mean lifting 2.3±1.4, mean

walking 2.1 ± 1.3 , mean sitting 2.6 ± 1.3 , mean standing 2.3 ± 1.4 , mean sleeping 1.9 ± 1.5 , mean sex life 2.0 ± 1.6 , mean social life 2.3 ± 1.2 , mean travelling 2.0 ± 1.4 and mean total ODI 46.2 ± 14.6 . Lee *et al.*, [11] observed the combined proportion of response ≥ 3 (i.e. at least moderate disability), the items 1 (pain intensity), 6 (standing), and 9 (social activity) were the highest among the 10 items of the ODI. Mean ODI was found 31.4 ± 15.4 . Grotle *et al.*, [15] reported the mean ODI was found 35.3 ± 12.3 .

In current study showed that more than half (52.4%) of the patients had severe disability, 27(26.2%) had moderate, 14(13.6%) had crippled and 8(7.8%) had minimal disability. Thakur *et al.*, [16] observed that 42.3% patients had severe disability, 27.9% were crippled, 17.3% had moderate disability, 7.7% were bed ridden and 4.8% of patients had mild disability. Kortor *et al.*, [17] observed that 52.4% of patients had a moderate disability, 25.4% of patients had a severe disability, 21.4% of patients had mild or no disability and only one patient 0.8% was crippled. Mitra *et al.*, [18] showed 65% had minimal disability, 23% had moderate disability, 5% had severe disability, 4% were crippled and 3% were bedbound. Asrar and Bansal showed 67% had moderate and 24% with severe disability [19]. Jeyakumar and Segaran showed the Oswestry disability index score revealed that 24 percent of the operating room nurses were moderately disabled by LBP [20]. Zahra *et al.*, detected disability in 70.8% of individuals by using ODI [21]. Madeira *et al.*, [22] saw the level of disability ranged from mild to moderate in most cases.

CONCLUSION

The prevalence of severe disability was found 52.4%. Rest of them moderate, crippled and minimal disability. The ODI is a useful tool for identifying the level of disability in those with persistent non-specific low back pain. The duration and severity of pain are significantly correlated with impairment.

REFERENCE

- Ge, L., Pereira, M. J., Yap, C. W., & Heng, B. H. (2022). Chronic low back pain and its impact on physical function, mental health, and health-related quality of life: a cross-sectional study in Singapore. *Scientific Reports*, 12(1), 20040.
- Ammer, K., Ebenbichler, G., & Bochsansky, T. (2022). Low Back Pain—A Disease or Condition of Impaired Functional Health? Definition-Inherent Consequences for the Comprehensive Care of Back Pain Patients. *BioMed*, 2(2), 270-281.
- Shokri, P., Zahmatyar, M., Falah Tafti, M., Fathy, M., Rezaei Tolzali, M., Ghaffari Jolfayi, A., ... & Safiri, S. (2023). Non-spinal low back pain: Global epidemiology, trends, and risk factors. *Health Science Reports*, 6(9), e1533.
- Wang, L., Ye, H., Li, Z., Lu, C., Ye, J., Liao, M., & Chen, X. (2022). Epidemiological trends of low back pain at the global, regional, and national levels. *European Spine Journal*, 31(4), 953-962.
- Chen, S., Chen, M., Wu, X., Lin, S., Tao, C., Cao, H., ... & Xiao, G. (2022). Global, regional and national burden of low back pain 1990–2019: a systematic analysis of the Global Burden of Disease study 2019. *Journal of orthopaedic translation*, 32, 49-58.
- Iizuka, Y., Iizuka, H., Mieda, T., Tsunoda, D., Sasaki, T., Tajika, T., ... & Takagishi, K. (2017). Prevalence of chronic nonspecific low back pain and its associated factors among middle-aged and elderly people: an analysis based on data from a musculoskeletal examination in Japan. *Asian spine journal*, 11(6), 989.
- Blom, A., Warwick, D., & Whitehouse, M. (Eds.). (2017). *Apley & solomon's system of orthopaedics and trauma*. CRC press.
- Sakulsriprasert, P., Vachalathiti, R., & Kingcha, P. (2021). Association among pain, disability, and functional capacity in patients with chronic non-specific low back pain: A cross-sectional study. *Journal of Back and Musculoskeletal Rehabilitation*, 34(1), 149-157.
- Morshed, K. D. M., Saha, S. K., & Islam, D. F. H. Prevalence and Risk Factors of Low Back Pain among Medical Professionals Working In Selected Tertiary Hospitals in Dhaka City.
- Kersten, R. F. M. R., Fikkers, J., Wolterbeek, N., Öner, F. C., & van Gaalen, S. M. (2021). Are the Roland Morris Disability Questionnaire and Oswestry Disability Index interchangeable in patients after lumbar spinal fusion?. *Journal of Back and Musculoskeletal Rehabilitation*, 34(4), 605-611.
- Lee, C. P., Fu, T. S., Liu, C. Y., & Hung, C. I. (2017). Psychometric evaluation of the Oswestry Disability Index in patients with chronic low back pain: factor and Mokken analyses. *Health and quality of life outcomes*, 15, 1-7.
- Kim, G. M., Yi, C. H., & Cynn, H. S. (2015). Factors influencing disability due to low back pain using the Oswestry Disability Questionnaire and the Quebec Back Pain Disability Scale. *Physiotherapy Research International*, 20(1), 16-21.
- Aoki, Y., Sugiura, S., Nakagawa, K., Nakajima, A., Takahashi, H., Ohtori, S., ... & Nishikawa, S. (2012). Evaluation of nonspecific low back pain using a new detailed visual analogue scale for patients in motion, standing, and sitting: characterizing nonspecific low back pain in elderly patients. *Pain research and treatment*, 2012.
- Monticone, M., Baiardi, P., Vanti, C., Ferrari, S., Pillastrini, P., Mugnai, R., & Foti, C. (2012). Responsiveness of the Oswestry Disability Index and the Roland Morris Disability Questionnaire in Italian subjects with sub-acute and chronic low back pain. *European spine journal*, 21, 122-129.
- Grotle, M., Garratt, A. M., Krogstad Jenssen, H., & Stuge, B. (2012). Reliability and construct validity of

- self-report questionnaires for patients with pelvic girdle pain. *Physical therapy*, 92(1), 111-123.
16. Thakur, K., Singh, N., Singh, Y., Debnath, U., & Singh, L. (2017). Prevalence of disability in low back pain: A hospital based study. *Glob J Res Anal*, 6, 13-5.
 17. Kortor, N. J., Iyor, F. T., Yongu, W. T., Elachi, I. C., & Mue, D. D. (2018). Disability in adult patients with chronic low back pain in a north central Nigerian hospital. *Nigerian Journal of Orthopaedics and Trauma*, 17(2), 81.
 18. Mitra, K., Chatterji, S., Nandy, S., Nandi, C., & Banerjee, S. (2017). Prevalence of low back pain and disability among the non-working adult women in a rural community of Purba Bardhaman, West Bengal. *J Med Sci Clin Res*, 5, 22693-8.
 19. Asrar, M. M., & Bansal, D. (2019). PMS42 PREVALENCE, PAIN INTENSITY AND DISABILITY OF LOW BACK PAIN AMONG INDIAN POPULATION. A CROSS SECTIONAL STUDY. *Value in Health*, 22, S701.
 20. Jeyakumar, A. K., & Segaran, F. (2018). Prevalence and risk factors of low back pain and disability index among operating room nurses. *Journal of Perioperative Nursing*, 31(3), 21-24.
 21. Zahra, N. A. I., Sheha, E. A. A. E., & Elsayed, H. A. (2020). Low back pain, disability and quality of life among health care workers. *International Journal of Pharmaceutical Research and Allied Sciences*, 9(2-2020), 34-44.
 22. Madeira, H. G. R., Garcia, J. B. S., Lima, M. V. V., & Serra, H. O. (2013). Disability and factors associated with gestational low back pain. *Revista Brasileira de Ginecologia e Obstetrícia*, 35, 541-548.