ISSN: 3033-358X

Research Article

Journal of Orthopedics and Physiotherapy

Factors Affecting Disability with Low Backache Among Patients Visiting Tertiary Care Hospitals of Rawalpindi Pakistan

Bushra Javaid[1], Zubair Javaid[2], Rizwana Shahid[3*], Amir Nawaz Khan[4] and Ajla Javaid[5]

[1]Final year student of BSc (Hons), Orthotics & Prosthetics, Rawalpindi Medical University, Pakistan
[2]Course Supervisor & Head of Orthopaedics, Holy Family Hospital, Rawalpindi, Pakistan
[3]Assistant Professor Community Medicine & Lecturer of Biostatistics & Research Methods, Rawalpindi Medical University, Pakistan
[4]Senior Registrar & Coordinator of BSc (Hons) Orthotics & Prosthetics, Benazir Bhutto Hospital, Rawalpindi, Pakistan
[5]Lecturer Orthotics & Prosthetics & Research Supervisor, Benazir Bhutto Hospital, Rawalpindi, Pakistan

[*]Corresponding author
Rizwana Shahid, Assistant Professor Community Medicine & Lecturer of Biostatistics & Research Methods, Rawalpindi Medical University, Pakistan.

Received: August 12, 2024; **Accepted:** August 19, 2024; **Published:** August 23, 2024

ABSTRACT

Objectives: To ascertain the factors affecting disability with low backache among patients visiting tertiary healthcare facilities of Rawalpindi.

Subjects & Methods: A cross-sectional descriptive study was done among 400 patients presenting with low backache in outpatient and emergency department of Holy Family Hospital and Benazir Bhutto Hospital Rawalpindi from September 2021 – February 2022. All cases presenting with low backache were enrolled in the study through consecutive non-probability sampling. Patients with any neurological disorder or mental illness were excluded. Data was collected by means of Oswestry Low back pain Disability Index questionnaire (ODI). Data was analysed by SPSS version 23.0. Descriptive statistics were applied. Mean ± SD of disability index was computed. Differences in mean disability index of the patients with respect to gender, employment and associated leg pain were determined by means of independent sample t-test. $P < 0.05$ was taken significant.

Results: Of the 400 patients with low back pain, 54.3% and 45.7% were females and males respectively. Females had low backpain significantly greater than those of males (P 0.09). About 31% of the cases had back pain for more than 10 years. Their mean disability index was 30.54 ± 18.01 while those of males was 27.6 ± 15.9. The difference between mean disability index of office and field workers was statistically insignificant (P 0.57). Mean disability index of low back pain cases with associated leg pain was significantly higher than those without leg pain (P 0.01).

Conclusion: Females are more prone to develop low back pain. Both field and office workers have almost equal risk of developing low backpain.

Keywords: Disability, Low Back Pain, Field Workers, Office Workers, Oswestry Disability Index (ODI)

Introduction

Being a prevailing musculoskeletal problem, low backache substantially contributes to Years Lived with Disability (YLD) across the globe [1]. Apart from restricted mobility and work absenteesim, substantial healthcare burden and financial disruption have also been attributed to low back pain [2,3]. Although low backache is relatively non-fatal than those of carcinogens and cardiovascular disorders, yet its considerable contribution to YLD emphasizes the need for great consideration by all concerned stakeholders.

Being drastically impacting the quality of life, low backache has been determined as the prime cause of YLD than those of diabetes, pulmonary ailments and other chronic disorders [4]. This healthcare issue is likely to encompass people of all ages from both developed and third world nations [5]. Its lifetime prevalence is measured to be 75-84% among developed nations

Citation: Bushra Javaid, Zubair Javaid, Rizwana Shahid, Amir Nawaz Khan, Ajla Javaid. Factors Affecting Disability with Low Backache Among Patients Visiting Tertiary Care Hospitals of Rawalpindi Pakistan. J Ortho Physio. 2024. 2(2): 1-5. DOI: doi.org/10.61440/JOP.2024.v2.07

[6]. The resultant direct and indirect healthcare cost in United States of America is reported to be approximately 98 and 200 billion US dollars respectively [7]. Lower backache worldwide has been attributed to numerous factors like old age, any psychosocial stress, poor social class and lower literacy rate [8].

A scoping review carried out by Clarence SYK et al revealed that health literacy is imperative to control backache [9]. According to, the risk factor contributing to low backache among healthcare professionals were determined to be their posture at workplace, stress and lack of physical activity [10]. Majority of the elders experience low backache that is primarily non-specific and seems to be associated with their position at work or time of the day. This non-specific type may emerge from difference pain sources in the body [11]. Although low backache among elderly people is self-limiting and is likely to diminish with the passage of time, apart from age and somatic factors, numerous aspects were determined to exacerbate the pain like comorbidities and lack of post-treatment follow up [12].

The present study is aimed to determine the association of different factors with low backache among patients visiting tertiary care public sector hospitals of Rawalpindi. Getting acquainted with the conducive factors would enable the concerned healthcare workforce to counsel the patients about the contributing issues in better way for alleviation of their low back pain and hence prove useful in minimizing the frequency and intensity of pain.

Subjects & Methods

A cross-sectional descriptive study was carried out among 400 patients presenting with low backache in outpatient and emergency departments of Holy Family Hospital and Benazir Bhutto Hospital Rawalpindi from September 2021 - February 2022. All cases presenting with low backache irrespective of age and gender were enrolled in the study through consecutive non-probability sampling. Patients with any neurological disorder like spinal cord injury or mental illness were excluded. Low back pain is a pain lasting minimally for one day either referring or not referring to one of both lower limbs extending for lower margin of 12th ribs to lower gluteal folds [13].

Sample size of 400 was calculated through WHO sample size calculator keeping 95% level of confidence and 5% margin of error. Informed consent was taken from all study participants. Data was collected by means of Oswestry Low back pain Disability Index questionnaire (ODI)with its interpretation as given below in Table 1[14].

Table 1: Oswestry Low back pain Disability Index with its interpretation

Oswestry Disability Index (ODI)	Interpretation
(0-20%) minimal disability	The patient can cope with most living activities. Usually, no treatment is indicated apart from advice on lifting, sitting and exercise.
(21-40%) moderate disability	The patient experiences more pain and difficulty with sitting, lifting and standing. Travel and social life are more difficult and may be disabled from work. personal care, sexual activity and sleeping are not grossly affected, and patient can be managed by consecutive means.
(41-60%) severe disability	Pain remains the main problem ana activities of daily living are affected. These patients require detailed investigation.
(61-80%) crippled	Back pain impinges on all aspects of the patient's life. Positive intervention is required.
(81-100%)	These patients are either bed ridden or exaggerating their symptoms

Data was analysed by SPSS version 23.0. Descriptive statistics were applied. Mean ± SD of disability index was calculated. Differences in mean disability index of the patients with respect to gender, employment and associated leg pain were determined by independent sample t-test. $P < 0.05$ was considered significant.

Results

Of the 400 patients with low backache enrolled in our study, 54.3% and 45.7% were females and males respectively. About 218 were field workers while rest of the 182 patients were office workers. Most (31%) of our respondents had low backache for more than 10 years. most (31%) of the patients had low backpain for more than 10 years as depicted below in Figure 1.

The highest disability index was recorded among cases who had low back pain for more than 10 years as shown below in Table 2.

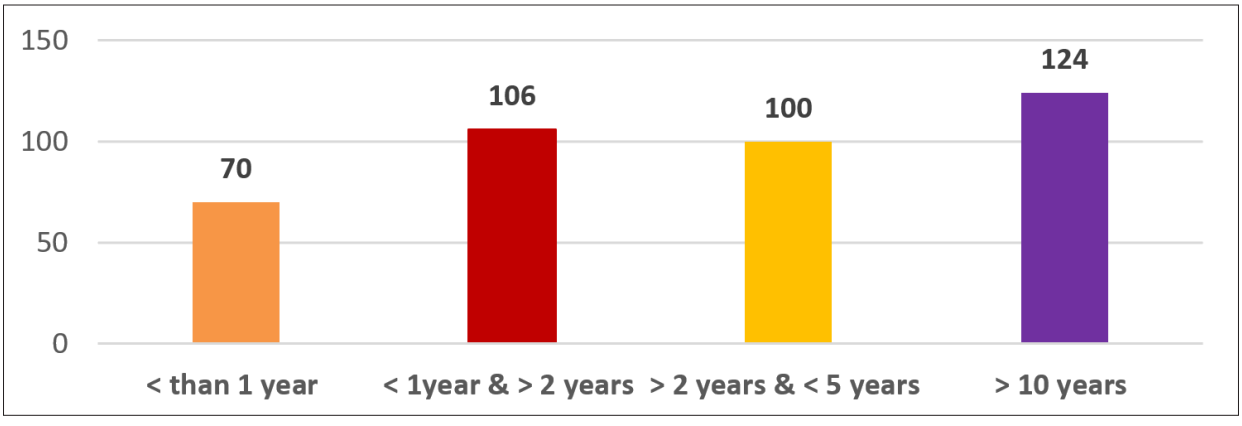

Table 2: Mean Disability Index of The Patients with Respect to Low Backache Duration

Low backache duration	Disability index (Mean ±SD)
Less than 1 year	19.87 ± 20.70
More than 1 year and less than 2 years	20.69 ± 15.07
More than 2 years and less than 5 years	24.67 ± 10.98
More than 10 years	45.37 ± 5.72

Most (53.3%) of the patients had associated leg pain. Mean disability index of 400 patients in current study was 29.19 ± 17.2 with Oswestry score 21-40 % that was illustrative of moderated disability among the patients. Mean Disability index and Oswestry score (%) calculated for our study participants with respect to gender, employment type and associated leg pain are illustrated below in Table 3.

Table 3: Comparison of Mean Disability Index with Respect to Gender, Employment and Leg Pain

Variables	Frequency (%)	Disability index (mean ±SD)	Oswestry score (%)	Oswestry score interpretation	P-value
Gender based difference in disability index					
Females	217 (54.3%)	30.54 ± 18.01	21-40 %	Moderate disability	*0.09
Males	183 (45.7%)	27.6 ± 15.9	21-40 %	Moderate disability	
Difference in disability index of patients with respect to employment					
Field workers	218 (54.5%)	28.72 ± 17.6	21-40 %	Moderate disability	0.57
Office workers	182 (45.5%)	29.7 ± 16.7	21-40 %	Moderate disability	
Difference in disability index among patients with / without associated leg pain					
With associated leg pain	213 (53.3%)	31.15 ± 17.6	21-40 %	Moderate disability	*0.01
Without leg pain	187 (48.7%)	26.95 ± 16.4	21-40 %	Moderate disability	

Foot Notes: **statistically significant difference on application of independent sample t-test*

Discussion

Most (54.3%) of the patients with low backpain in current study were females. Although mean disability index among them was comparatively greater than those of males and this difference was also statistically significant (Table 3); Oswestry score of both genders categorized them as having moderate disability. A similar study carried out in 2016 revealed that school going girls than those of boys were more prone to have low backpain. The females after menopause had comparatively more low backache due to deficiency of oestrogen hormone that may secondarily cause disc degeneration [15]. Likewise, a study by Bailey A explored that females frequently suffer from low backpain [16]. Even chronic musculoskeletal disorders have been reported in higher propensity among woment [17]. The musculoskeletal pain is determined to be comparatively more connected with disability among women [18]. According to, this gender-wise variation in pain intensity is attributed to diverse biological, psychological and socio-cultural aspects that directs the need for further comprehensive studies to elucidate the gender-based variations among Asian people [19].

Oswestry Disability Index (ODI) has been calculated for 400 patients enrolled in the study and according to their mean disability index all of them were categorized as having moderate disability (Table 3). This index has successfully been used across the globe to measure functional disability of the patients who suffer from low backpain [20]. A similar study to explore the prevalence of low backpain and associated disability by means Oswestry Disability Index (ODI) and Ronald-Morris Disability Questionnaire was done among working-age people who were not seeking any treatment. Some degree of pain among them was counted as normal; however, about one third of them without pain were identified with some disabilities [21]. The current study disclosed minimal difference in disability index of the patients employed in offices and field workers that was also statistically insignificant (Table 3). Low backpain has commonly been reported among office workers having less than 45 years of age with functional impairment. It has considerably been detected among office employees with one year prevalence of around 23-38% [22]. Contrary to the present study, a cross-sectional study done among office workers undergone their risk assessment for low backpain by employing BROW (Back pain Risk Score for Office Workers) tool that was also perceived quite useful in detecting the workers needing early intervention for low backache [23]. Frequent computer usage in offices without break is associated with low backpain. In addition, low backpain has also been attributed to stress and low job satisfaction among office workers. Studies on field workers pertaining to their tendency for developing low backpain are necessitated to perceive their respective predisposition and associated complications if any.

Although ODI score of all the patients in our study is labelling them as having moderate disability, about 53.3% had associated leg pain Mean disability index of the patients with associated leg pain was significantly higher than those without leg pain (P = 0.01) as illustrated in Table 3. A study by Lis AM et al concluded that combination of risk factors like awkward position and sitting for prolonged time at workplace are linked with occurrence of low backpain [24]. A systematic review and meta-analysis revealed impairment of lower limb muscle among patients with low back pain [25]. Low back pain was determined to have association with delayed activation of transversus abdominal muscles [26]. According to a study by, varied motor control of lumbopelvic

region and incoordination between mobility of trunk and pelvis are also linked with low backache [27]. Knowing other health related risks connected with low backpain may warn the patients and healthcare professionals to take precautionary measures well before time to mitigate the chances for occurrence of those concomitant factors.

Conclusion & Recommendations

Low back pain seems to increase the burden on healthcare system of the country as majority of our females are afflicted with this problem. The field and office workers are at equal risk of suffering from low back pain. Disability associated with low back pain is a serious morbidity. Early intervention to manage low backache along lifestyle modifications may help to diminish the associated complaints among cases with low back pain.

Conflicts of Interest: The authors declared no conflict of interest.

Source of Funding: The author(s) received no financial support for the research, authorship and or publication of this article.

References

1. March L, Zheng X, Huang J, Wang X, Zhao J, et al. Global low back pain prevalence and years lived with disability from 1990 to 2017: estimates from the Global Burden of Disease Study 2017. Ann Transl Med. 2020. 8: 299.
2. Lee H, Hubscher M, Moseley GL, Kamper SJ, Traeger AC, et al. How does pain lead to disability? A systematic review and meta-analysis of mediation studies in people with back and neck pain. Pain. 2015. 156: 988-997.
3. Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, et al. What low back pain is and why we need to pay attention. Lancet. 2018. 391: 2356-2367.
4. GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2018. 392: 1789-1858.
5. Vlaeyen JWS, Maher CG, Wiech K, Van Zundert j, Meloto CB, et al. Low back pain. Nat Rev Dis Primers. 2018. 4: 52.
6. Dagenais S, Caro J, Haldeman S. A systematic review of low back pain cost of illness studies in the United States and internationally. Spine. 2008. 8: 8.
7. Mehra M, Hill K, Nicholl D, Schadrack J. The burden of chronic low back pain with and without a neuropathic component: a healthcare resource use and cost analysis. J Med Econ. 2012. 15: 245-252.
8. Karran EL, Grant AR, Moseley GL. Low back pain and the social determinants of health: a systematic review and narrative synthesis. Pain. 2020. 161: 2476-2493.
9. See YKC, Smith HE, Car LT, Protheroe J, Cong WW, et al. Health literacy and health outcomes in patients with low back pain: A scoping review. BMC Med Inform Decis Mak. 2021. 21: 215.
10. Rezaei B, Mousavi E, Heshmati B, Asadi S. Low back pain and its related risk factors in health care providers at hospitals: A systematic review. Ann Med Surg (Lond). 2021. 70: 102903.
11. Middleton K, Fish DE. Lumbar spondylosis: clinical presentation and treatment approaches. Curr Rev Musculoskelet Med. 2009. 2: 94-104.
12. Wong AYL, Karppinen J, Samartzis D. Low back pain in older adults: risk factors, management options and future directions. Scoliosis Spinal Disord. 2017. 12: 14.
13. Wu A, Dong W, Liu S, Cheung JPY, Kwan KYH, et al. The prevalence and years lived with disability caused by low back pain in China, 1990 to 2016: findings from the global burden of disease study 2016. Pain. 2019. 160: 237-245.
14. Fairbank JC, Pynsent PB. The Oswestry Disability Index. Spine (Phila Pa 1976). 2000. 25: 2940-2952.
15. Wáng YX, Wáng JQ, Káplár Z. Increased low back pain prevalence in females than in males after menopause age: evidences based on synthetic literature review. Quant Imaging Med Surg. 2016. 6: 199-206.
16. Bailey A. Risk factors for low back pain in women: still more questions to be answered. Menopause. 2009. 16: 3-4.
17. Leveille SG, Zhang Y, McMullen W, Kelly-Hayes M, Felson DT. Sex differences in musculoskeletal pain in older adults. Pain. 2005. 116: 332-338.
18. Zhang Y, Xu L, Nevitt MC, Niu J, Goggins JP, et al. Lower prevalence of hand osteoarthritis among Chinese subjects in Beijing compared with white subjects in the United States: the Beijing Osteoarthritis Study. Arthritis Rheum. 2003. 48: 1034-1040.
19. Fillingim RB. Sex, gender and pain: the biopsychosocial Model in action XX vs. XY: The International Journal of Sex Differences in the Study of Health. Dis Aging. 2003.1: 98-101.
20. Brodke DS, Goz V, Lawrence BD, Spiker WR, Neese A, et al. Oswestry Disability Index: A psychometric analysis with 1610 patients. The Spine Journal Mar 2017. 17: 321-327.
21. Vraa M, Pascoe S, Maddox D, Rhon DI, Cleland JA, et al. Prevalence and extent of low back pain and low-back related disability in non-care-seeking working-age adults. Musculoskeletal Science and Practice. 2022. 60: 102572.
22. Juul-Kristensen B, Sogaard K, Stroyer J, Jensen C. Computer users' risk factors for developing shoulder, elbow and back symptoms. Scand J Work Environ Health. 2004. 30: 390-398.
23. Janwantanakul P, Pensri P, Moolkay P, Jiamjarasrangsi W. Development of a risk score for low back pain in office workers--a cross-sectional study. BMC Musculoskelet Disord. 2011. 12: 23.
24. Lis AM, Black KM, Korn H, Nordin M. Association between sitting and occupational LBP. Eur Spine J. 2007. 16: 283-298.
25. de Sousa CS, de Jesus FLA, Machado MB, Ferreira G, Ayres IGT, et al. Lower limb muscle strength in patients with low back pain: a systematic review and meta-analysis. J Musculoskelet Neuronal Interact. 2019.19: 69-78.

26. Hodges PW, Richardson CA. Inefficient muscular stabilization of the lumbar spine associated with low back pain: A motor control evaluation of transversus abdominus. Spine. 1996. 21: 2640-2650.
27. Seay JF, Van Emmerik REA, Hamill J. Influence of low back pain status on pelvis-trunk coordination during walking and running. Spine. 2011. 36: 1070-1079.