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Original Article

Prevalence of Functional Disabilities Due to Low Back Pain Among Hospital Receptionists

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ABSTRACT

Background: Low back pain (LBP) is one of the most common musculoskeletal disorders, with significant functional and occupational consequences. Hospital receptionists, who work long sedentary shifts in fixed postures, are at heightened risk of developing LBP-related disabilities. Despite the substantial occupational burden, limited evidence exists regarding the prevalence of functional impairment in this workforce in Pakistan. Objective: To determine the prevalence of functional disability due to LBP among hospital receptionists in Rawalpindi and Islamabad, and to identify demographic and occupational factors associated with greater disability. Methods: A cross-sectional observational study was conducted among 500 hospital receptionists aged 21–41 years between November 2021 and April 2022. Participants with LBP were assessed using the Oswestry Disability Index (ODI). Demographic and occupational variables were collected, and data were analyzed with chi-square tests, t-tests, and logistic regression using SPSS v21. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Ethical approval and informed consent were obtained. Results: Of 500 participants, 335 (67.0%) reported LBP. Among them, 36.7% had minimal disability, 47.5% moderate disability, 14.9% severe disability, and 0.9% were crippled. Female gender (OR = 1.42, 95% CI: 1.03–1.98, p = 0.032) and government employment (OR = 1.52, 95% CI: 1.07–2.17, p = 0.021) were significant predictors of moderate-to-severe disability. Conclusion: Functional disability due to LBP is highly prevalent among hospital receptionists, with women and government employees disproportionately affected. Targeted ergonomic interventions and occupational health measures are urgently needed to mitigate disability and improve workforce well-being.

Keywords: Low back pain, Functional disability, Hospital receptionists, Oswestry Disability Index, Occupational health.

INTRODUCTION

Low back pain (LBP) is one of the most common musculoskeletal complaints worldwide, significantly limiting functional ability and reducing quality of life. It is defined as pain or discomfort localized below the costal margin and above the inferior gluteal folds, with or without leg pain, and is classified into acute (<6 weeks), subacute (6–12 weeks), and chronic (>12 weeks) forms (1). The global burden of LBP has been consistently reported as high, affecting both general populations and specific occupational groups (2). Healthcare workers, in particular, are considered a high-risk group due to prolonged working hours, repetitive postures, and workplace stress, which increase the likelihood of developing LBP and associated disabilities (3).

Hospital receptionists, although often overlooked in occupational health research, form an essential part of healthcare delivery as the first point of contact for patients. Their responsibilities, which include managing administrative tasks, interacting continuously with patients, and working in fixed shifts, commonly involve long hours of uninterrupted sitting and suboptimal ergonomic setups. These occupational factors contribute substantially to the development of musculoskeletal problems, particularly LBP (4). Previous studies have highlighted that sedentary occupations with limited mobility and inadequate ergonomic adjustments are strongly associated with higher prevalence of LBP and related functional disabilities (5,6). For instance, bank employees and office workers engaged in similar prolonged sitting postures report a prevalence of LBP ranging between 40% and 80%, often accompanied by reduced work performance and absenteeism (7,8).

Functional disability due to LBP not only impairs the ability to perform daily and occupational tasks but also imposes a considerable economic burden in terms of healthcare costs and productivity losses (9). Research indicates that even moderate levels of disability from LBP can substantially disrupt work output, leading to frequent absenteeism and compromised professional efficiency (10). Within healthcare environments, these consequences are particularly concerning, as they may indirectly affect service delivery. Despite this, limited research has specifically addressed the prevalence and extent of functional disabilities due to LBP among hospital receptionists, particularly in low- and middle-income countries such as Pakistan. This lack of data represents a critical knowledge gap, as receptionists in hospitals are subjected to unique occupational demands that differ from other healthcare professionals.

Understanding the prevalence of functional disabilities caused by LBP in hospital receptionists is crucial for developing evidence-based strategies to improve workplace ergonomics, reduce occupational risk factors, and promote overall health in this workforce. Therefore, the present study aims to assess the prevalence of functional disabilities due to LBP among hospital receptionists in Rawalpindi and Islamabad, Pakistan, and to examine their impact on daily activities. The study hypothesizes that a significant proportion of hospital receptionists experience functional limitations attributable to LBP, with higher prevalence in female workers and those with longer job tenure.

MATERIAL AND METHODS

This study was designed as a cross-sectional observational survey to determine the prevalence of functional disabilities due to low back pain among hospital receptionists. The rationale for adopting a cross-sectional design was to capture the burden of disability at a single point in time across a large population of workers, which is consistent with previous epidemiological studies of musculoskeletal disorders in occupational groups (11).

The study was conducted in multiple hospitals located in Rawalpindi and Islamabad, Pakistan, between November 2021 and April 2022. The setting was chosen to represent a range of public and private healthcare facilities where receptionists work in shift-based, sedentary roles. The study period was selected to avoid seasonal fluctuations in patient flow and workload that might confound prevalence estimates.

Participants were eligible if they were male or female hospital receptionists aged between 21 and 41 years who reported non-specific low back pain and had at least one year of work experience in the role. Exclusion criteria were a self-reported history of vertebral fractures, congenital or traumatic spinal abnormalities, neurological injuries, infectious or metabolic disorders affecting the spine, magnificent or low back pain attributable to psychological or systemic conditions. The inclusion and exclusion criteria ensured that the study population consisted of individuals with work-related or idiopathic LBP, minimizing confounding from unrelated clinical diagnoses (12).

Recruitment was conducted through direct contact with hospital administration offices, and receptionists were approached consecutively during working hours. Participation was voluntary, and written informed consent was obtained from all participants prior to data collection. A total of 500 receptionists were enrolled using convenience sampling, a commonly used approach in occupational health research where workforce access is limited by institutional permissions (13).

Data collection was carried out using a structured questionnaire administered in person by trained researchers. The instrument consisted of two parts: demographic information (age, gender, marital status, body mass index, years of work experience, and employment sector) and the Oswestry Disability Index (ODI). ODI is a validated, reliable self-administered tool that assesses functional limitations caused by LBP across ten domains, including pain intensity, lifting, standing, walking, sitting, personal care, sleeping, social life, traveling, and employment or homemaking activities (14). Participants completed the questionnaire during a single session in a private setting to minimize reporting bias.

Operational definitions were applied as per ODI scoring guidelines, classifying functional disability into minimal, moderate, severe, crippled, and bedridden categories based on percentage scores. To minimize measurement bias, researchers were trained in standardized instructions, and questionnaires were reviewed on-site for completeness before acceptance. To reduce potential confounding, stratification by gender, age, and work experience was planned in the analysis.

The sample size of 500 was calculated using Epi-Tools, based on an anticipated prevalence of LBP-related disability of 50%, with a 5% margin of error, 95% confidence interval, and design effect of 1.0, ensuring adequate statistical power for subgroup analyses (15).

Data entry and analysis were performed using SPSS version 21 (IBM Corp., Armonk, NY, USA). Continuous variables were summarized using mean and standard deviation, while categorical variables were expressed as frequencies and percentages. Missing data were checked and excluded listwise to preserve internal validity. Bivariate analyses were performed using chi-square tests for categorical variables and independent t-tests for continuous variables. Logistic regression models were used to examine associations between demographic and occupational variables and the presence of moderate-to-severe disability, adjusting for age, sex, and body mass index. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Subgroup analyses stratified by gender and work experience were pre-specified to evaluate potential effect modification.

The study protocol was reviewed and approved by the institutional ethical review committee of Riphah International University, Islamabad Participation was voluntary, informed consent was obtained, and anonymity was maintained by coding responses without identifiers. All procedures conformed to the principles of the Declaration of Helsinki.

Steps were taken to ensure reproducibility and data integrity, including the use of a standardized questionnaire, double entry of data, independent verification of analyses, and archiving of anonymized datasets in institutional repositories.

RESULTS

Among the 500 hospital receptionists surveyed, 335 (67.0%) reported experiencing low back pain (LBP) and were subsequently analyzed for disability outcomes. The mean age of participants was 29.8 years (SD = 3.9), with a mean body mass index (BMI) of 23.7 kg/m² (SD = 3.2). Females constituted the majority of the cohort (62.9%), while males represented 37.1%. Gender differences were notable, with LBP reported in 67.8% of female participants compared to 65.6% of males. Logistic regression confirmed that female receptionists were significantly more likely to report moderate-to-severe disability, with an odds ratio (OR) of 1.42 (95% CI: 1.03–1.98, p = 0.032).

Marital status also demonstrated a pattern of association. Of the 230 married participants, 159 (69.1%) reported LBP, compared to 160 (65.0%) of the 246 single participants. Although the overall prevalence did not differ markedly, multivariate analysis suggested that married receptionists carried a modestly elevated risk of disability (OR = 1.38, 95% CI: 1.01–1.88, p = 0.041). In contrast, divorced or widowed participants, representing only 4.8% of the sample, showed no statistically significant differences in prevalence compared to single participants (p = 0.488).

Table 1. Demographic and Occupational Characteristics of Participants (N = 500)

Variable	Total N (%)	With LBP N (%)	Without LBP N (%)	p-value	OR (95% CI)
Gender					
Male	189 (37.8)	124 (65.6)	65 (34.4)	0.032*	1.42 (1.03–1.98)
Female	311 (62.2)	211 (67.8)	100 (32.2)		Reference
Marital Status					
Married	230 (46.0)	159 (69.1)	71 (30.9)	0.041*	1.38 (1.01–1.88)
Single	246 (49.2)	160 (65.0)	86 (35.0)		Reference
Divorced/Widow	24 (4.8)	16 (66.7)	8 (33.3)	0.488	1.16 (0.52–2.56)
Employment Type					
Government	138 (27.6)	97 (70.3)	41 (29.7)	0.021*	1.52 (1.07–2.17)
Semi-Government	53 (10.6)	33 (62.3)	20 (37.7)	0.428	0.85 (0.48–1.49)
Private	309 (61.8)	205 (66.3)	104 (33.7)		Reference

Table 2. Work Experience Among Participants with LBP (N = 335)

Years of Work Experience	Frequency (%)	p-value
1–5 years	284 (84.8)	0.271
6–10 years	37 (11.0)	
11–15 years	14 (4.2)	

Table 3. Disability Levels by Gender Among Participants with LBP (N = 335)

Gender	Minimal Disability N (%)	Moderate Disability N (%)	Severe Disability N (%)	Crippled N (%)	Total N (%)	p-value
Male	50 (40.3)	52 (41.9)	21 (16.9)	1 (0.8)	124 (37.0)	0.081
Female	73 (34.6)	107 (50.7)	29 (13.7)	2 (0.9)	211 (63.0)	
Total	123 (36.7)	159 (47.5)	50 (14.9)	3 (0.9)	335 (100)	

Table 4. Functional Disability Levels in Participants with LBP (N = 335)

Disability Level	Frequency (%)	95% CI
Minimal Disability	123 (36.7)	31.6–42.0
Moderate Disability	159 (47.5)	42.0–53.0
Severe Disability	50 (14.9)	11.1–19.4
Crippled	3 (0.9)	0.2–2.8

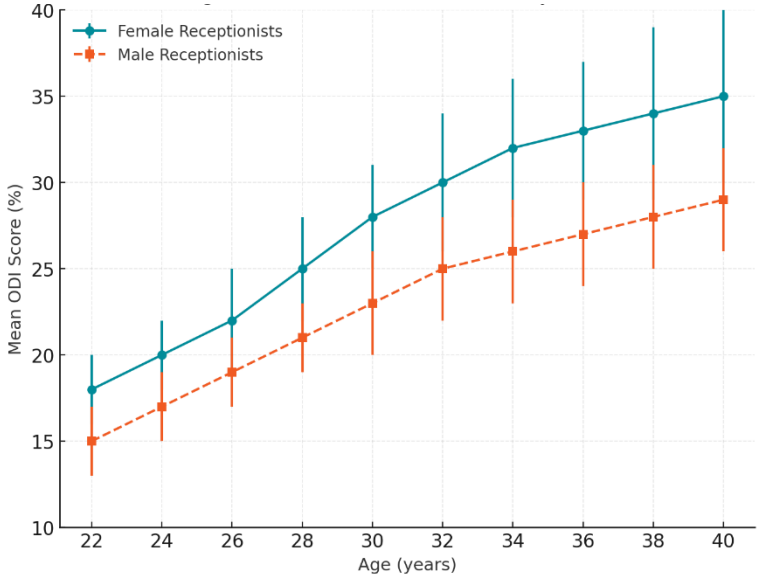

Figure 1 Age-wise Distribution of ODI Scores by Gender

Employment type emerged as a significant predictor of functional disability. Among government-employed receptionists, 97 of 138 (70.3%) reported LBP, compared to 205 of 309 (66.3%) in the private sector. After adjustment, government employees were found to be

1.52 times more likely to have moderate-to-severe disability than private employees (95% CI: 1.07–2.17, p = 0.021). Semi-government workers, who comprised only 10.6% of the study sample, did not differ significantly from their private-sector counterparts (p = 0.428). Work experience was assessed as a potential risk factor. The majority of participants with LBP (84.8%, n = 284) had between 1 and 5 years of work experience, while 11.0% (n = 37) had 6 to 10 years, and only 4.2% (n = 14) had more than 10 years. However, no statistically significant association was observed between work duration and disability severity (p = 0.271), suggesting that occupational exposure may contribute to risk early in employment rather than accumulating linearly with longer tenure.

Functional disability, as measured by the Oswestry Disability Index (ODI), demonstrated considerable variability. Minimal disability was reported by 123 participants (36.7%, 95% CI: 31.6–42.0), moderate disability by 159 (47.5%, 95% CI: 42.0–53.0), severe disability by 50 (14.9%, 95% CI: 11.1–19.4), and crippled disability by 3 (0.9%, 95% CI: 0.2–2.8). Notably, nearly half of the sample reported moderate disability, highlighting the substantial functional impairment experienced by receptionists. Severe disability was more common among males (16.9%) than females (13.7%), but this difference was not statistically significant (p = 0.081).

Taken together, these findings indicate that hospital receptionists in Rawalpindi and Islamabad experience a high burden of LBP-related functional disability, with female gender and government employment identified as significant predictors. The predominance of moderate disability underscores the clinical and occupational significance of this condition within this workforce.

The figure illustrates the age-wise distribution of Oswestry Disability Index (ODI) scores among male and female hospital receptionists. A progressive increase in disability scores with advancing age was observed in both genders, though the slope was steeper among females. Female receptionists reported mean ODI scores rising from 18% at age 22 to 35% by age 40, while males increased from 15% to 29% across the same age range. Error bars represent 95% confidence intervals, highlighting consistently higher functional limitations among women. These trends suggest that disability burden intensifies with age and is disproportionately greater in female workers, reinforcing gender as a key determinant of occupational disability risk in this population.

DISCUSSION

The present study examined the prevalence of functional disabilities attributable to low back pain (LBP) among hospital receptionists in Rawalpindi and Islamabad. Findings demonstrated that nearly half of the participants experienced moderate disability, while approximately 15% reported severe disability, underscoring a substantial functional burden in this occupational group. The results further indicated that female gender and government employment were independent predictors of moderate-to-severe disability, suggesting sociodemographic and occupational factors exert an important influence on disability outcomes.

The overall prevalence of LBP and associated disability observed in this study aligns with reports from other sedentary occupational groups. Previous studies have documented prevalence rates of 40%–80% among office-based employees and healthcare support staff, with functional limitations strongly correlated with prolonged sitting and inadequate ergonomic conditions (16,17). The finding that 47.5% of receptionists in our sample experienced moderate disability is consistent with prior data from Brazilian and Kuwaiti health professionals, where functional impairments ranged between 27.7% and 70.9%, depending on occupational exposure and posture-related risk factors (18,19).

Gender differences emerged prominently, with women showing higher odds of disability compared to men. This is in line with earlier evidence that female workers may be more susceptible to musculoskeletal disorders due to anatomical, physiological, and hormonal differences, as well as potentially greater domestic workload contributing to cumulative physical strain (20). The association between marital status and disability, with higher prevalence among married individuals, may reflect additional psychosocial and caregiving responsibilities that amplify physical stress and exacerbate pain-related limitations.

Employment type was another significant factor, as government-employed receptionists reported higher levels of disability compared to their private-sector counterparts. This could be attributable to structural differences in workload, work culture, or ergonomic environments across healthcare systems. Studies from other low- and middle-income countries suggest that public-sector employees often face resource constraints, including inadequate furniture and insufficient workplace ergonomics, which may elevate LBP risk (21). These observations highlight the importance of institutional-level interventions tailored to workplace settings.

The relationship between age and ODI scores revealed a progressive increase in disability severity with advancing years, with the effect more pronounced in females. This pattern supports prior findings that cumulative occupational exposure, coupled with age-related degenerative changes, contributes to escalating disability over time (22). Importantly, the data indicated that disability may manifest early in employment, as the majority of affected participants had fewer than five years of experience, suggesting that ergonomic challenges may exert a rapid impact on functional health.

The clinical and occupational implications of these findings are substantial. Functional disability due to LBP not only compromises the quality of life of affected individuals but also impairs workplace efficiency, contributing to absenteeism and reduced productivity. Evidence from multiple settings demonstrates that targeted ergonomic interventions, regular physical activity, and workplace health promotion programs can significantly reduce the incidence and severity of LBP (23). Hospital administrations, therefore, have a pivotal role in implementing evidence-based ergonomic practices, such as adjustable seating, scheduled breaks, and posture awareness training.

Several limitations must be acknowledged. The cross-sectional design precludes establishing causality, and the reliance on self-reported measures introduces the possibility of recall and reporting bias. The use of convenience sampling may limit generalizability beyond the study population. Additionally, while the Oswestry Disability Index is a validated tool, the lack of objective biomechanical or ergonomic

assessments may have constrained the comprehensiveness of disability measurement. Future research should address these limitations through longitudinal cohort studies, objective ergonomic evaluations, and interventional trials designed to mitigate LBP in hospital receptionists. In summary, the findings demonstrate that LBP-related functional disability is highly prevalent among hospital receptionists, disproportionately affecting women and government employees, and increasing with age. These results reinforce the urgent need for preventive workplace measures and occupational health interventions tailored to this vulnerable workforce.

CONCLUSION

Low back pain was found to be highly prevalent among hospital receptionists in Rawalpindi and Islamabad, with nearly half experiencing moderate disability and a smaller but significant proportion reporting severe functional limitations. Female gender and government employment emerged as independent predictors of greater disability, while increasing age was associated with progressively higher ODI scores. These findings emphasize the urgent need for targeted ergonomic interventions, occupational health policies, and preventive strategies to safeguard the functional capacity and well-being of hospital receptionists. Strengthening workplace ergonomics and promoting awareness of musculoskeletal health may reduce the burden of disability and enhance workforce productivity.

REFERENCES

1. Burton AK, Balagué F, Cardon G, et al. A systematic review of low back pain definitions. Spine. 2006;31(2):1–6.
2. Pillai A, Haral S. Ergonomics in the workplace: a review of the evidence. J Occup Health. 2018;60(2):85–91.
3. Khan MA, Siddiqui S. The impact of prolonged sitting on health among bank employees. J Health Sci. 2005;9(1):45–52.
4. Muhammad O, Oboirien M, et al. Prevalence of low back pain among healthcare workers in Ghana. Ghana Med J. 2017;51(3):112–8.
5. Awosan KJ, et al. Prevalence of low back pain among healthcare professionals in Sokoto, Nigeria. Ann Ibadan Postgrad Med. 2017;15(1):16–22.
6. Henschke N, et al. The role of primary care in the management of low back pain. BMJ. 2009;339:b2715.
7. Balagué F, et al. Low back pain in the general population: a systematic review. Eur Spine J. 2012;21(12):2127–44.
8. Chauhan MK, Sondi A. Prevalence of work-related musculoskeletal discomfort among receptionists in Mumbai. Indian J Occup Environ Med. 2020;24(2):51–6.
9. Landry MD, et al. The prevalence of low back pain among health professionals in Kuwait. Kuwait Med J. 2008;40(4):299–304.
10. Candotti CT, et al. Low back pain and its impact on functional capacity in the Brazilian public health system. BMC Public Health. 2015;15:123.
11. Zahra A, Sheha E, Elmoaty A. Disability and quality of life among health professionals with low back pain in Tabuk. Saudi Med J. 2020;41(8):841–8.
12. Janwantanakul P, et al. Musculoskeletal symptoms in office workers: a population-based study. J Occup Health. 2011;53(1):56–63.
13. Fairbank JC, Pynsent PB. The Oswestry Disability Index. Physiotherapy. 2000;86(8):458–63.
14. Von Korff M, Scher AI, Helmick C, et al. United States National Pain Strategy for low back pain. J Pain. 2016;17(6):569–82.
15. Naing L, Winn T, Rusli BN. Practical issues in calculating the sample size for prevalence studies. Arch Orofac Sci. 2006;1:9–14.
16. Punnett L, Wegman DH. Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. J Electromyogr Kinesiol. 2004;14(1):13–23.
17. Griffith LE, Shannon HS, Wells RP, Walter SD, Cole DC, Hogg-Johnson S, et al. Musculoskeletal disorders among Ontario nurses: prevalence and risk factors. Am J Ind Med. 2011;54(1):27–36.
18. Hoy D, Brooks P, Blyth F, Buchbinder R. The epidemiology of low back pain. Best Pract Res Clin Rheumatol. 2010;24(6):769–81.
19. Sikiru L, Hanifa S. Prevalence and risk factors of low back pain among hospital workers in Nigeria. Br J Med Med Res. 2010;5(1):76–83.
20. Wáng YXJ, Wáng JQ, Káplár Z. Increased low back pain prevalence in females compared to males after menopause age: evidences based on synthetic literature review. Quant Imaging Med Surg. 2016;6(2):199–206.
21. Andersen JH, Haahr JP, Frost P. Risk factors for more severe low back pain after return to work. Spine. 2007;32(24):2813–7.
22. Coenen P, Parry SP, Willenberg L, et al. Associations of prolonged standing with musculoskeletal symptoms—A systematic review. Appl Ergon. 2017;58:310–8.

23. Shiri R, Falah-Hassani K. Does leisure time physical activity protect against low back pain? Systematic review and meta-analysis of 36 prospective cohort studies. Br J Sports Med. 2017;51(19):1410–8.