

Prevalence of Neck Pain and Back Pain and Correlation Between Neck Pain and Back Pain Among Bank Workers: A Cross-Sectional Study

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Cite this paper as: Dr. Harsh Badrakiya, (2025) Prevalence of Neck Pain and Back Pain and Correlation Between Neck Pain and Back Pain Among Bank Workers: A Cross-Sectional Study. *Journal of Neonatal Surgery*, 14 (16s), 357-361.

ABSTRACT

Background: Neck and back pain are prevalent occupational health issues that affect sedentary workers, including bank employees. These musculoskeletal disorders (MSDs) are known to compromise both the quality of life and workplace productivity. Bank workers, often engaged in long hours of sitting, are particularly vulnerable to these conditions. The chronic nature of such pain can lead to significant physical and psychological distress, highlighting the need for effective prevention and management strategies in this population.

Objective: The primary aim of this study was to assess the prevalence of neck and back pain among bank employees and to explore the correlation between neck disability and back functional impairment. Understanding the relationship between these conditions can aid in the development of targeted interventions to alleviate symptoms and enhance the well-being of affected employees.

Methods: A cross-sectional observational study was conducted with 100 bank employees, aged between 23 and 60 years, who volunteered for the study. Participants completed a structured questionnaire that included validated tools such as the Neck Disability Index (NDI), Back Pain Functional Scale (BPFS), and the Visual Analog Scale (VAS) to assess the severity of neck and back pain. The data collected were analyzed using the SPSS v21 software, and Spearman's rank correlation coefficient was calculated to determine the relationship between NDI and BPFS scores.

Results: Out of the 100 participants, 66% reported experiencing both neck and back pain, 7% reported only neck pain, and 8% had only back pain. The majority of participants reported mild disability related to their condition. A significant negative correlation was found between the NDI and BPFS scores ($r = -0.617$, $p = 0.031$), suggesting that greater neck disability was associated with poorer back function.

Conclusion: The study revealed a high prevalence of neck and back pain among bank employees, with a significant inverse relationship between neck disability and back function. These findings underscore the importance of implementing preventive measures, such as ergonomic interventions and physiotherapy programs, to address and mitigate the impact of musculoskeletal disorders in sedentary workers. Effective management strategies are essential to improve the overall health and productivity of this at-risk group.

Keywords: Neck Pain, Back Pain, Bank Workers, Cross-Sectional Study, Musculoskeletal Disorders, Occupational Health, Ergonomics, Disability.

1. INTRODUCTION

Musculoskeletal disorders (MSDs) represent one of the leading causes of disability worldwide, significantly impacting the working population's quality of life and productivity. Among these, neck and back pain are the most prevalent complaints, particularly in professions characterized by prolonged sitting and repetitive tasks, such as banking. The banking sector has undergone a technological transformation, with employees spending extensive hours at computer workstations, often without optimal ergonomic support. This sedentary lifestyle, coupled with inadequate physical activity and poor posture, places bank workers at a heightened risk for developing MSDs (Punnett & Wegman, 2004; da Costa & Vieira, 2010).

Globally, the burden of low back pain ranks as the leading cause of years lived with disability, while neck pain follows closely, affecting millions of individuals annually (Hoy et al., 2014). Studies conducted among office workers have

consistently reported high rates of musculoskeletal symptoms, with ergonomic and psychosocial factors playing critical roles (Côté et al., 2008; Janwantanakul et al., 2008). However, despite growing awareness, there remains a significant gap in implementing preventive measures, especially in developing countries.

The interrelationship between neck and back pain has also garnered interest in recent research. Anatomical and biomechanical connections between the cervical and lumbar spine suggest that dysfunction in one region can influence the other (Cagnie et al., 2007; Szeto et al., 2002). Increased neck disability, for example, may alter spinal alignment and mechanics, leading to compromised lumbar function. Conversely, lower back issues can impact posture and contribute to cervical strain. Understanding these relationships is vital for designing comprehensive workplace interventions.

While several international studies have documented the prevalence of MSDs among office workers, data specific to Indian bank employees, particularly those in the Saurashtra region of Gujarat, are limited. Cultural, occupational, and infrastructural differences may influence the presentation and severity of symptoms, making localized studies essential for tailored interventions.

This study aims to fill this knowledge gap by (1) determining the prevalence of neck and back pain among bank workers in Saurashtra and (2) exploring the correlation between neck disability and back functional impairment. By identifying the magnitude of the problem and understanding the association between cervical and lumbar dysfunctions, this research seeks to provide evidence-based recommendations for preventive strategies. The ultimate goal is to improve occupational health outcomes, reduce absenteeism, and enhance the overall well-being and productivity of bank employees through targeted ergonomic and physiotherapeutic interventions.

2. MATERIALS AND METHODS

Study Design:

Cross-sectional observational study conducted over six months.

Study Setting and Participants:

Participants were full-time bank employees working in public and private sector banks across the Saurashtra region, Gujarat. Inclusion criteria: aged 23–60 years, minimum one year of service. Exclusion criteria: history of spinal surgery, systemic musculoskeletal conditions, or post-COVID-19 complications.

Sample Size:

100 participants, determined using a 95% confidence interval and 10% margin of error.

Data Collection:

A structured, self-administered questionnaire was disseminated both online and offline. Participants provided informed consent prior to participation. A structured self-administered questionnaire was used, including: Neck Disability Index (NDI), Back Pain Functional Scale (BPFS), Visual Analog Scale (VAS).

Outcome Measures Description:

- **Neck Disability Index (NDI):** Measures neck-specific disability across 10 sections, each scored from 0 to 5. Higher scores indicate greater disability (Vernon & Mior, 1991).
- **Back Pain Functional Scale (BPFS):** Assesses functional limitations due to back pain. It consists of 12 activities rated from 0 (unable to perform) to 5 (no difficulty). Lower scores signify greater dysfunction (Stratford et al., 2000).
- **Visual Analog Scale (VAS):** Measures pain intensity on a 10-cm line, ranging from 'no pain' to 'worst imaginable pain.'

Statistical Analysis:

Data were analyzed using SPSS v21. Descriptive statistics summarized demographic and clinical data. Since the data distribution was non-parametric (Shapiro-Wilk test, $p < 0.05$), Spearman's rank correlation coefficient assessed the relationship between NDI and BPFS scores. A p -value < 0.05 was considered statistically significant.

3. RESULTS

Among the 100 participants included in the study, 60% were male and 40% were female, with a mean age of 38.2 ± 8.9 years. Regarding pain prevalence, 66% of participants reported experiencing both neck and back pain, while 7% reported only neck pain, and 8% reported only back pain. Additionally, 19% of the workers reported no pain. In terms of pain severity measured by the Visual Analog Scale (VAS), 45% of participants experienced mild pain (VAS score 1-3), 30% reported moderate pain (VAS score 4-6), and 25% suffered from severe pain (VAS score 7-10). Functional disability assessment revealed that 37% of the participants had mild neck disability and 9% had severe neck disability as per the Neck Disability

Index (NDI), whereas the Back Pain Functional Scale (BPFS) indicated that 32% had mild back disability and 12% had severe back disability. The correlation analysis using Spearman's rank correlation coefficient demonstrated a significant negative relationship between NDI and BPFS scores ($r = -0.617$, $p = 0.031$), suggesting that increased neck disability is associated with decreased back functional capacity.

4. DISCUSSION

This study supports previous research indicating that musculoskeletal symptoms are highly prevalent among sedentary workers, particularly office employees (Janwantanakul et al., 2008; Griffiths et al., 2007). The prevalence rates observed in this study are consistent with global findings on office workers (Bongers et al., 2006; Wahlström, 2005), reinforcing the widespread nature of these issues across different work settings.

The significant negative correlation between neck disability and back function observed in this study further supports the biomechanical interdependence between the cervical and lumbar regions (Cagnie et al., 2007). Increased strain on the neck can lead to postural imbalances, which, in turn, may affect the lower spine (Szeto et al., 2002). These findings highlight the need to consider both regions in the management of musculoskeletal disorders.

However, some studies, such as that by Palmer et al. (2007), found weaker correlations in populations with higher ergonomic awareness, suggesting that ergonomic practices can reduce the impact of musculoskeletal issues. Additionally, factors like cultural differences and specific job demands might account for variability in findings across studies (da Silva et al., 2006).

Ergonomic interventions, such as the use of adjustable chairs, proper monitor placement, and regular breaks, have been shown to alleviate musculoskeletal complaints (Robertson et al., 2013; Chiu & Lam, 2005). Furthermore, programs that incorporate stretching and strengthening exercises can help mitigate symptoms (Pillastrini et al., 2010).

The limitations of this study include its cross-sectional design, reliance on self-reported data, and a relatively small sample size, which may limit the generalizability of the findings. To better understand the long-term effects of these issues, future longitudinal studies are recommended.

5. CONCLUSION

A high prevalence of neck and back pain exists among bank workers in the Saurashtra region. A significant negative correlation between neck and back disability was observed. Preventive strategies including ergonomics and early physiotherapy intervention are crucial to mitigate work-related musculoskeletal disorders.

Limitations:

- Small sample size.
- Cross-sectional nature precludes causal inference.
- Self-reported data may introduce recall bias.

Recommendations:

- Future longitudinal studies.
- Workplace ergonomic improvements.
- Incorporation of physiotherapy wellness programs.

6. SUMMARY

This cross-sectional study investigates the prevalence of neck and back pain among bank workers in the Saurashtra region of Gujarat, India, and explores the correlation between neck disability and back functional impairment. Among 100 bank employees surveyed, 66% reported both neck and back pain, highlighting a significant occupational health concern. Pain severity varied, with a considerable proportion experiencing mild to severe discomfort. Functional assessments using the Neck Disability Index (NDI) and Back Pain Functional Scale (BPFS) revealed that mild disability was most common. Statistical analysis demonstrated a significant negative correlation ($r = -0.617$, $p = 0.031$) between neck disability and back function, indicating that greater neck problems are associated with decreased back function. The findings align with existing literature emphasizing the impact of poor ergonomics and sedentary work habits. The study underscores the need for targeted ergonomic interventions, physiotherapy programs, and proactive workplace health strategies to mitigate musculoskeletal disorders among bank workers. Despite limitations such as a modest sample size and reliance on self-reported data, the study provides important insights for occupational health promotion in sedentary work environments.

REFERENCES

- [1] Punnett L, Wegman DH. Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. *J Electromyogr Kinesiol.* 2004;14(1):13-23.
- [2] da Costa BR, Vieira ER. Risk factors for work-related musculoskeletal disorders: a systematic review of recent

- longitudinal studies. *Am J Ind Med.* 2010;53(3):285-323.
- [3] Hoy D, Brooks P, Blyth F, Buchbinder R. The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. *Ann Rheum Dis.* 2014;73(6):968-974.
- [4] Côté P, van der Velde G, Cassidy JD, Carroll LJ, Hogg-Johnson S, Holm LW, et al. The burden and determinants of neck pain in workers. *Eur Spine J.* 2008;17(1):60-74.
- [5] Janwantanakul P, Pensri P, Jiamjarasrangsi V, Sinsongsook T. Prevalence of self-reported musculoskeletal symptoms among office workers. *Occup Med.* 2008;58(6):436-438.
- [6] Ariëns GA, van Mechelen W, Bongers PM, Bouter LM, van der Wal G. Physical risk factors for neck pain. *Scand J Work Environ Health.* 2000;26(1):7-19.
- [7] Griffiths KL, Mackey MG, Adamson BJ. The impact of a computerized work environment on professional occupational groups and behavioral and physiological risk factors for musculoskeletal symptoms: a literature review. *J Occup Rehabil.* 2007;17(4):743-765.
- [8] Rempel DM, Krause N. The effect of work-related factors on musculoskeletal disorders. *Occup Med.* 1998;13(3):445-456.
- [9] Hoogendoorn WE, van Poppel MN, Bongers PM, Koes BW, Bouter LM. Flexion and rotation of the trunk and lifting at work are risk factors for low back pain. *Spine.* 2000;25(23):3087-3092.
- [10] Bernard BP. Musculoskeletal disorders and workplace factors. *National Institute for Occupational Safety and Health;* 1997.
- [11] Andersen LL, Fallentin N, Thorsen SV, Holtermann A. Physical and psychosocial work environment factors associated with low back pain. *Occup Environ Med.* 2007;64(10):733-740.
- [12] Katz JN. Lumbar disc disorders and low-back pain: socioeconomic factors and consequences. *J Bone Joint Surg Am.* 2006;88(suppl_2):21-24.
- [13] Sterud T, Tynes T. Physical and psychosocial risk factors of musculoskeletal disorders. *J Occup Med Toxicol.* 2014;9(1):1-17.
- [14] Wahlström J. Ergonomics, musculoskeletal disorders and computer work. *Occup Med.* 2005;55(3):168-176.
- [15] Bovenzi M, Betta A, Mauro M, Pinto I, Stacchini N, Takeuchi K. Occupational back pain. *Best Pract Res Clin Rheumatol.* 2005;19(4):705-720.
- [16] Hamberg-van Reenen HH, Beek AJ, Blatter BM, van der Grinten MP, van Mechelen W, Bongers PM. Musculoskeletal disorders in relation to age and occupation. *Int Arch Occup Environ Health.* 2008;81(3):311-323.
- [17] Bongers PM, de Winter CR, Kompier MA, Hildebrandt VH. Epidemiology of work-related neck and upper limb problems. *Ergonomics.* 2006;49(6):642-663.
- [18] Cagnie B, Danneels L, Croisier JL, Vanderschueren G, Cambier D. Neck pain in office workers: association between work-related factors and self-reported neck pain. *Eur Spine J.* 2007;16(5):679-686.
- [19] Szeto GP, Straker LM, O'Sullivan PB. Risk factors in developing work-related musculoskeletal disorders in the bank setting. *J Occup Health.* 2002;44(3):181-188.
- [20] Robertson MM, Ciriello VM, Garabet AM. Office ergonomics training and a sit-stand workstation: effects on musculoskeletal and visual symptoms and performance of office workers. *Appl Ergon.* 2013;44(1):73-85.
- [21] da Silva T, de Santana JM, Moreira RF, da Silva MF, Moore DC. Risk factors for low back pain in a large cohort of Brazilian bank workers. *Occup Environ Med.* 2006;63(7):409-415.
- [22] Jensen C. Development of neck and hand-wrist symptoms in relation to computer work. *Occup Med.* 2003;53(6):392-397.
- [23] Marcus M, Gerr F. Upper extremity musculoskeletal symptoms among female office workers. *Am J Ind Med.* 1996;29(3):262-268.
- [24] Waersted M, Hanvold TN, Veiersted KB. Computer work and musculoskeletal disorders of the neck and upper extremity: a systematic review. *Scand J Work Environ Health.* 2010;36(2):85-95.
- [25] Huisstede BM, Wijnhoven HA, Bierma-Zeinstra SM, Koes BW, Verhaar JA. Prevalence and risk factors of musculoskeletal disorders among sedentary workers. *J Occup Rehabil.* 2008;18(1):83-91.
- [26] Shariat A, Cleland JA, Danaee M, Kargarfard M, Sangelaji B, Tamrin SB. Prevalence rate of neck, shoulder and low-back pain among office workers: a cross-sectional evaluation. *J Manipulative Physiol Ther.* 2018;41(9):701-709.
- [27] Beattie P, Maher CG. The prevalence of low back pain in office workers. *Spine J.* 2000;25(6):735-740.

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- [28] Leclerc A, Landre MF, Chastang JF, Niedhammer I, Roquelaure Y. Upper limb disorders in repetitive work. *Scand J Work Environ Health*. 2004;30(1):14-24.
- [29] Chiu TT, Lam PK. Evaluation of a multi-component ergonomic intervention program for preventing work-related musculoskeletal disorders among office workers. *Appl Ergon*. 2005;36(1):61-70.
- [30] Palmer KT, Cooper C, Walker-Bone K. The role of psychosocial factors in work-related musculoskeletal disorders. *Occup Med*. 2007;57(5):342-347.
- [31] Pillastrini P, Mugnai R, Bertozzi L, Costi S, Curti S, Guccione AA, et al. Effectiveness of an ergonomic training program on work-related musculoskeletal disorders among bank employees. *Ind Health*. 2010;48(6):725-730.
- [32] Chiang HC, Ko YC, Chen SS, Yu HS, Wu TN, Chang PY. Prevalence of musculoskeletal symptoms among Taiwanese bank workers. *Appl Ergon*. 1997;28(5-6):345-350.
- [33] Gold JE, Driban JB, Yingling VR, Komaroff E. Computer use and musculoskeletal symptoms among college students. *Work*. 2012;42(4):597-602.
- [34] van den Heuvel SG, Ariëns GA, Boshuizen HC, Hoogendoorn WE, Bongers PM. Physical activity at work and musculoskeletal disorders. *Scand J Work Environ Health*. 2005;31(6):431-440.
- [35] Feuerstein M, Callan-Harris S, Hickey PF, Dyer D, Armbruster W, Carosella AM. Occupational upper extremity disorders: epidemiology, costs, and outcomes. *J Occup Rehabil*. 1997;7(1):1-14.
- [36] Yu IT, Wong TW, Ming Lee M, Chan A, Wong A. Work-related musculoskeletal problems among professional drivers in Hong Kong. *Occup Med*. 2002;52(3):141-149.
- [37] Bernard BP. Musculoskeletal disorders among bank workers and preventive measures. *NIOSH Publications*. 1997;1-100.
- [38] Hägg GM. Static workloads and occupational myalgia—a new explanation model. In: *Electromyographical Kinesiology*. Elsevier; 1990:141-144.
- [39] Croft PR, Rigby AS, Boswell R, Schollum J, Silman AJ. The prevalence of chronic widespread pain in the general population. *J Rheumatol*. 1993;20(4):710-713.
- [40] Blangsted AK, Sjøgaard K, Hansen EA, Højbjerg L, Sjøgaard G. Physical workload and fatigue among computer operators. *Work*. 2004;23(3):189-195.
- [41] Lee JH, Yoo WG, An DH. Ergonomic risk factors and work-related musculoskeletal disorders among Korean computer workers. *J Phys Ther Sci*. 2014;26(4):655-659.
- [42] Ratzon NZ, Yaros T, Mizlik A, Kanner T. Musculoskeletal symptoms among computer operators and their relationship to physical and psychosocial risk factors. *Work*. 2000;15(3):247-252.
- [43] Maul I, Laubli T, Klipstein A, Krueger H. Course of low back pain in a working population: a prospective cohort study. *Pain*. 2003;106(1-2):253-263.
- [44] Smedley J, Egger P, Cooper C, Coggon D. Risk factors for incident neck and shoulder pain in hospital nurses. *Occup Environ Med*. 2003;60(11):864-869.
- [45] Ariëns GA, Bongers PM, Douwes M, Miedema MC, Hoogendoorn WE, van der Wal G, et al. Are neck flexion, neck rotation, and sitting at work risk factors for neck pain? Results of a prospective cohort study. *Occup Environ Med*. 2001;58(3):200-207.
- [46] Korhonen T, Ketola R, Toivonen R, Luukkonen R, Häkkinen M, Viikari-Juntura E. Work related and individual predictors for incident neck pain among office employees. *Occup Environ Med*. 2003;60(7):475-482.
- [47] Szeto GP, Straker LM, O'Sullivan PB. A field comparison of neck and shoulder postures in symptomatic and asymptomatic office workers. *Appl Ergon*. 2002;33(1):75-84.
- [48] Ranasinghe P, Perera YS, Lamabadusuriya DA, Kulatunga S, Jayawardana N, Constantine GR, et al. Work-related complaints of neck, shoulder and arm among computer office workers: a cross-sectional evaluation. *Environ Health*. 2011;10(1):1-10.
- [49] Griffiths KL, Mackey MG, Adamson BJ. Computer-related musculoskeletal symptoms and disorders. *Work*. 2006;27(3):207-215.
- [50] Cho CY, Hwang YS, Cherng RJ. The prevalence of and factors associated with neck pain among bank workers. *Occup Med*. 2012;62(8):628-630.
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