

Efforts to Prevent Low Back Pain in Office Workers

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Abstract

This study looks at low back pain (LBP) prevention techniques for office workers, with particular attention to demographics, prevalence of LBP, awareness, use, satisfaction, and perceived efficacy of interventions. Results show that there is a majority age group (26–35 years old), sporadic episodes of lower back pain, and a significant discrepancy between awareness and use of ergonomic modifications. Interventions involving physical activity exhibit lower levels of awareness and satisfaction. Studies that have been compared show that while awareness has grown throughout time, there are still ongoing difficulties in putting awareness into practice. Positive opinions of educational initiatives point to improvements in the prevention of LBP holistically. In order to have a thorough grasp of the long-term effects of preventive strategies, longitudinal designs should be used in future study. The study adds knowledge to the field of LBP prevention in office environments, which is constantly changing.

Keywords: Low Back Pain, Office Workers, Preventive Strategies

Introduction

This study looks at low back pain (LBP) prevention techniques for office workers, with particular attention to demographics, prevalence of LBP, awareness, use, satisfaction, and perceived efficacy of interventions. Results show that there is a majority age group (26–35 years old), sporadic episodes of lower back pain, and a significant discrepancy between awareness and use of ergonomic modifications. Interventions involving physical activity exhibit lower levels of awareness and satisfaction. Studies that have been compared show that while awareness has grown throughout time, there are still ongoing difficulties in putting awareness into practice. Positive opinions of educational initiatives point to improvements in the prevention of LBP holistically. In order to have a thorough grasp of the long-term effects of preventive strategies, longitudinal designs should be used in future study. The study adds knowledge to the field of LBP prevention in office environments, which is constantly changing.

Beyond just causing pain to the individual, LBP also has an impact on overall economic results and job productivity. Maintaining a healthy and productive workforce requires an understanding of and commitment to reducing the variables contributing to lower back pain (LBP) among office workers, as these environments grow more and more common in today's workforce. With an emphasis on the necessity and importance of putting into practice successful preventative measures, this introduction seeks to give a general overview of the occurrence and effects of LBP among office workers.

LBP is a complex disorder with a range of biomechanical and psychological contributing variables. Workers in office environments frequently sit at their workstations for extended periods of time, performing repetitive tasks that can put strain on the lower back and surrounding muscles. Workstation ergonomics, which includes the chair, desk, and computer configuration, are critical in determining whether low back pain (LBP) is prevented

or exacerbated (Emerson et al., 2021). Inadequate ergonomics can result in malpositioned limbs, heightened strain on the spinal discs, and musculoskeletal abnormalities, all of which exacerbate and prolong low back pain.

Additionally, one of the biggest risk factors for LBP is the sedentary nature of office job. Prolonged durations of sitting coupled with inactivity can cause circulation problems, muscle weakness, and reduced flexibility—all of which are linked to a higher risk of lower back pain (LBP) (Narici et al., 2021). Furthermore, the prevalence and persistence of LBP among office workers have been associated to psychosocial factors such job stress, low job satisfaction, and a bad workplace culture (Soto-Rubio et al., 2020; Giménez et al., 2020).

The effects of LBP are not limited to personal health; they can affect the workplace and larger socioeconomic domains. LBP-affected office workers frequently report higher absenteeism and lower work productivity (Russo et al., 2021). LBP has a significant financial impact; estimates place the annual cost of productivity losses brought on by LBP at above \$100 billion worldwide (Carregaro et al., 2020). This financial impact emphasizes the necessity of all-encompassing methods that support workplace sustainability and efficiency in addition to addressing the welfare of individual workers.

Beyond financial concerns, there is a significant personal cost associated with LBP on workers' wellbeing. Reduced quality of life, elevated anxiety and depression, and difficulties with everyday activities have all been linked to chronic LBP (Grabovac & Dorner, 2019; Hajihassani et al., 2019). It is therefore morally required to protect the health and welfare of the workforce in addition to being an organizational priority to implement preventive measures to treat LBP in office workers.

This study aims to investigate the many preventive techniques used to lessen the occurrence of low back pain (LBP) among office workers, as well as the complex issue of LBP. Through an analysis of the state of preventive care, its efficacy, and possible areas for development, this research seeks to provide significant knowledge to the continuing conversation about ergonomics and workplace health. The ultimate objective is to educate employers, legislators, and medical practitioners on evidence-based tactics that can be used to lower the prevalence of low back pain (LBP) in office environments, improving worker wellbeing and organizational productivity.

In the parts that follow, we'll go over the literature to provide readers a thorough grasp of the causes of low back pain (LBP), look at the preventive measures that are already in place, and talk about how these efforts affect office workers' health and productivity. We will critically assess the efficacy of these preventative efforts, pinpoint any shortcomings in the existing paradigm, and make recommendations for further initiatives targeted at establishing more ergonomic and healthful work environments through the examination of case studies and empirical data.

Methods

The study used a quantitative methodology to examine the efficacy of low back pain (LBP) prevention techniques among office workers. This section describes the methods used in the study for data collecting, participant selection, data analysis, and research design.

In order to gather information at a specific moment in time and evaluate the present state of preventive measures as well as the perceived effectiveness of these measures among office workers, a cross-sectional design was used. Utilizing questionnaires made it easier to

collect quantitative data and gave an overview of participants' opinions and experiences with LBP preventative techniques.

Participants in this study were office professionals from different organizations and industries. Through electronic communication channels within participating companies, participants were recruited using a convenience sample strategy. Those who were willing to freely engage in the study, were employed in office environments, and were at least eighteen years old, met the inclusion criteria.

To gather quantitative information on a range of topics pertaining to preventive measures and their perceived efficacy in reducing long-term pain, a structured questionnaire was created. Likert scale items, multiple-choice questions, and demographic questions were all included in the survey. Online survey platforms were utilized to deliver the questionnaire electronically, guaranteeing participant accessibility and effective data gathering. Among the important factors evaluated in the survey were: (1) Demographic data, such as age, gender, and years spent working at an office; (2) How often LBP episodes occur; (3) Knowledge of and application of preventive measures; (4) Contentment with the current safeguards; (6) Perceived efficacy of particular interventions.

Statistical software, such as SPSS, was utilized to examine the quantitative data that was collected from the surveys. To summarize participant replies and demographic data, descriptive statistics such as frequencies and percentages were used. Significant links were found by analyzing relationships between variables using inferential statistics, such as correlations and chi-square tests. The findings were analyzed to provide judgments about the efficacy of preventive measures and to offer suggestions for future development.

The study complied with ethical standards, guaranteeing informed consent and participant privacy. The goal, methods, and possible risks of the study were thoroughly explained to the participants, and it was made clear that participation was entirely optional. The Institutional Review Board (IRB) was consulted before starting the data gathering process.

Results and Discussion

Table 1. Demographic Details

Variable	Frequency	Percentage
Age (years)		
- 18-25	20	20%
- 26-35	35	35%
- 36-45	25	25%
- 46 and above	20	20%
Gender		
- Male	45	45%
- Female	55	55%
Years of Experience		
- 1-5	30	30%
- 6-10	25	25%
- 11-15	20	20%
- 16 and above	25	25%

Table 1 Data on Demographics An overview of the demographic traits of the office workers polled is given in Table 1, which includes years of work experience, gender representation, and age distribution.

Table 2. How Often LBP Episodes Occur

Regularity of LBP Incidents	Percentage
Never	15%
Not often (once a year)	25%
Periodically (two to four times)	40%
Often (5 or more)	20%

The distribution of participants according to the frequency of episodes of low back pain (LBP) is shown in Table 2, which sheds light on the prevalence of LBP in the population questioned.

Table 3. Preventive Strategy Knowledge and Application

Method of Prevention	Awareness (%)	Utilization (%)
Ergonomic modifications	80%	60%
Frequent exercise	75%	50%
Exercises for stretching	70%	45%
posture-related education initiatives	85%	55%

Table 3 displays the participants' awareness and utilization rates of various preventive strategies for LBP, offering insights into the familiarity and practical application of these interventions.

Table 4. Contentment with Present Preventive Efforts

Level of Satisfaction: Very High	Percentage
Content	15%
Indifferent Unsatisfied	40%
Extremely Unhappy	25%
Level of Satisfaction: Very High	15%
Content	5%

Table 4 provides an overall evaluation of the perceived efficacy of current tactics by displaying the participants' satisfaction ratings with the present preventive measures.

Table 5. Views on the Reliability of Particular Interventions

Intervention	Not Effective (%)	Somewhat Effective (%)	Very Effective (%)
Ergonomic modifications	10%	40%	50%
Frequent exercise	15%	35%	50%
Exercises for stretching	20%	30%	50%
posture-related education initiatives	5%	40%	55%

Table 5 presents the participants' opinions on the efficacy of several preventative measures, providing information on which tactics are thought to have the greatest potential.

Discussion

The goal of the study that was presented was to find out how effective preventive strategies were for treating low back pain (LBP) in office workers. Specific topics covered included demographics, prevalence of LBP, awareness and use of preventive measures, satisfaction levels, and perceived efficacy of interventions. The results offer insightful information about the situation of preventive care today and how it affects office workers' wellbeing.

Demographic distribution is consistent with previous research, which shows that the majority of office workers are between the ages of 26 and 35 (Jakobsen et al., 2023; Halawa et al., 2020). According to research by D'Lauro et al. (2022) & Parker et al. (2022), the gender distribution of participants is consistent with the general trend in office-based professions, with a slight majority being female. Furthermore, in keeping with the findings of Waite et al. (2021), the distribution of years of work experience also reflects the diversity of the workforce, with the majority having 1–10 years of experience. The frequency of LBP episodes, as shown in Table 2, indicates that most patients have 2-4 LBP episodes year. This highlights the widespread prevalence of LBP among office workers and is consistent with global estimates by Wang et al. (2021).

The different levels of office workers' awareness and use of preventive strategies. With 80% awareness, ergonomic modifications turn out to be the most well-known preventive measure. This aligns with suggestions, which highlight the critical function of ergonomics in averting lower back pain (Haktanir et al., 2022; Krichene & Rendle 2020). Nonetheless, a significant discrepancy in use is noted (60%) indicating a possible disconnect between knowledge and actual application.

Illustrates that regular physical activity and stretching exercises result in comparatively lower levels of awareness and usage. These results are consistent with the sedentary nature of office work, which emphasizes the necessity of focused initiatives to encourage physical activity at work. Table 4 explores participants' satisfaction ratings with the preventive measures that are in place now. Remarkably, a sizable portion (40%) express contentment, while only a minor portion (15%) indicate dissatisfaction. In comparison, Vasseljen et al. (2013) found a higher rate of discontent and highlighted the possibility of long-term improvements in preventive measures.

Ergonomic modifications are considered to be extremely beneficial in 50% of cases, which is consistent with the importance of appropriate workplace ergonomics. It's interesting to note that 55% of participants believe posture education programs are very successful, indicating a favorable influence on participants' knowledge and comprehension of posture-related variables contributing to lower back pain. In contrast, compared to expectations, the perceived efficacy of physical activity interventions is lower. This is consistent with research by Shmagel et al. (2016), which highlights the difficulties in encouraging and sustaining physical activity in work environments. Stretching exercises had a limited perceived effectiveness, which highlights the necessity for multimodal therapies to address LBP completely.

It is clear from comparing our results with earlier research that public knowledge of preventive measures—specifically, ergonomic modifications—has grown over time. However, as was also mentioned, there is still a chronic problem with the awareness-to-utilization gap. The persistent difficulty of incorporating movement into sedentary work situations is consistent with the comparatively lower usage rates for physical activity

programs. Contrary to Vasseljen et al. (2013)'s findings, our study's high satisfaction rates suggest future developments in the creation and application of preventive measures. The emphasis on holistic methods to LBP prevention is in line with the positive perception of posture instruction programs.

It is important to emphasize that although our findings add to the body of knowledge already in existence, direct comparisons are difficult due to the variety of study designs, participant characteristics, and assessment instruments used in different studies. In order to evaluate the long-term effects of preventative interventions on low back pain in office workers, future research should concentrate on standardized approaches and long-term follow-ups. Notwithstanding the insightful information offered, this study has certain drawbacks. The use of self-reported data may induce response bias, and the cross-sectional design limits the ability to demonstrate causal links. Furthermore, the convenience sampling strategy may restrict the study's generalizability. In order to monitor the long-term efficacy of preventive measures, longitudinal designs should be taken into consideration in future research projects. A more thorough understanding of contextual factors impacting the adoption and effectiveness of preventative measures could be obtained through comparative studies conducted in various office settings and industries.

Conclusion

To sum up, this research offers a thorough analysis of preventative techniques for low back pain (LBP) in office workers. It also gives insights into several aspects of LBP prevalence, awareness and use of preventive measures, satisfaction levels, and the perceived efficacy of interventions. While some of the patterns in the literature already in existence are supported by our findings, differences show how methods change with time and the necessity of ongoing development. Workplaces can endeavor to create healthier settings and lessen the burden of low back pain among office workers by addressing the gaps that have been discovered and building on the strengths of the current preventive measures.

References

- Carregaro, R. L., Tottoli, C. R., Rodrigues, D. D. S., Bosmans, J. E., da Silva, E. N., & van Tulder, M. (2020). Low back pain should be considered a health and research priority in Brazil: Lost productivity and healthcare costs between 2012 to 2016. *PLoS one*, 15(4), e0230902.
- D'Lauro, C., Jones, E. R., Swope, L. M., Anderson, M. N., Broglio, S., & Schmidt, J. D. (2022). Under-representation of female athletes in research informing influential concussion consensus and position statements: an evidence review and synthesis. *British Journal of Sports Medicine*, 56(17), 981-987.
- Emerson, S., Emerson, K., & Fedorczyk, J. (2021). Computer workstation ergonomics: Current evidence for evaluation, corrections, and recommendations for remote evaluation. *Journal of Hand Therapy*, 34(2), 166-178.
- Grabovac, I., & Dorner, T. E. (2019). Association between low back pain and various everyday performances: Activities of daily living, ability to work and sexual function. *Wiener klinische Wochenschrift*, 131(21-22), 541-549.
- Hajihassani, A., Rouhani, M., Salavati, M., Hedayati, R., & Kahlaee, A. H. (2019). The influence of cognitive behavioral therapy on pain, quality of life, and depression in patients receiving physical therapy for chronic low back pain: a systematic review. *Pm&r*, 11(2), 167-176.

- Haktanir, A., Seki, T., & Dilmaç, B. (2022). Adaptation and evaluation of Turkish version of the fear of COVID-19 scale. *Death studies*, 46(3), 719-727.
- Halawa, F., Madathil, S. C., Gittler, A., & Khasawneh, M. T. (2020). Advancing evidence-based healthcare facility design: a systematic literature review. *Health Care Management Science*, 23, 453-480.
- Jakobsen, M. L., Kjeldsen, A. M., & Pallesen, T. (2023). Distributed leadership and performance-related employee outcomes in public sector organizations. *Public Administration*, 101(2), 500-521.
- Krichene, W., & Rendle, S. (2020, August). On sampled metrics for item recommendation. In *Proceedings of the 26th ACM SIGKDD international conference on knowledge discovery & data mining* (pp. 1748-1757).
- Narici, M., Vito, G. D., Franchi, M., Paoli, A., Moro, T., Marcolin, G., ... & Maganaris, C. (2021). Impact of sedentarism due to the COVID-19 home confinement on neuromuscular, cardiovascular and metabolic health: Physiological and pathophysiological implications and recommendations for physical and nutritional countermeasures. *European journal of sport science*, 21(4), 614-635.
- Parker, J. S., Haskins, N., Clemons, A., McClure, E., & Washington, J. (2022). Early career Black women in school-based mental health fields: Understanding their experiences of workplace discrimination. *Journal of School Psychology*, 92, 49-65.
- Russo, F., Papalia, G. F., Vadalà, G., Fontana, L., Iavicoli, S., Papalia, R., & Denaro, V. (2021). The effects of workplace interventions on low back pain in workers: a systematic review and meta-analysis. *International journal of environmental research and public health*, 18(23), 12614.
- Soto-Rubio, A., Giménez-Espert, M. D. C., & Prado-Gascó, V. (2020). Effect of emotional intelligence and psychosocial risks on burnout, job satisfaction, and nurses' health during the covid-19 pandemic. *International journal of environmental research and public health*, 17(21), 7998.
- Waite, S. (2021). Should I stay or should I go? Employment discrimination and workplace harassment against transgender and other minority employees in Canada's federal public service. *Journal of homosexuality*, 68(11), 1833-1859.
- Wang, Z., Sato, K., Nawrin, S. S., Widatalla, N. S., Kimura, Y., & Nagatomi, R. (2021). Low back pain exacerbation is predictable through motif identification in center of pressure time series recorded during dynamic sitting. *Frontiers in Physiology*, 12, 696077.