



(REVIEW ARTICLE)



## Factors associated with Low Back Pain (LBP) complaints in workers: A literature review

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### Abstract

Low Back Pain (LBP) is one of the health problems often experienced by workers in various industries. This study aims to analyze the factors associated with the incidence of LBP in workers based on the analysis of 10 related research articles. The results of the analysis show that working period, work attitude, and age are the factors that have the most influence on LBP complaints in workers. The longer a person's working period, the higher the risk of experiencing LBP. Incorrect work attitudes, such as prolonged bending and stooping, also increase the risk of LBP. In addition, older age also contributes to the risk of LBP due to decreased bone elasticity. Other factors that contribute to LBP complaints in workers include workload, smoking habits, Body Mass Index, work position, and physical activity.

**Keywords:** Low Back Pain; Occupational Health; Workplace Ergonomics; Employee Well-Being; Musculoskeletal Disorders (MSDs)

### 1. Introduction

Low Back Pain (LBP) represents a pervasive and debilitating health issue that significantly affects the global workforce, with profound implications for both individuals and organizations. The World Health Organization (WHO) recognizes LBP as a major contributor to disability and ranks it among the top concerns affecting work-related health. As the prevalence of LBP continues to rise, understanding the multifaceted factors associated with Low Back Pain complaints in workers becomes crucial for developing effective prevention strategies and promoting overall occupational well-being.

Many studies consistently highlight the high prevalence of Low Back Pain among diverse occupational groups. Workers across various industries frequently report experiencing LBP, contributing to increased absenteeism, decreased productivity, and a substantial economic burden on healthcare systems. These consequences underscore the urgency of exploring the underlying factors contributing to the occurrence and persistence of Low Back Pain in the workplace.

The etiology of Low Back Pain is complex and involves a combination of physical, psychosocial, and occupational factors. Physical factors include poor ergonomics, repetitive movements, and heavy lifting, while psychosocial factors encompass stress, job dissatisfaction, and mental health issues. Additionally, individual characteristics such as age, gender, and lifestyle play pivotal roles in influencing the prevalence and severity of Low Back Pain among workers.

This literature review seeks to provide a comprehensive examination of the existing research on factors associated with Low Back Pain complaints in workers. By synthesizing empirical evidence and theoretical frameworks, the review aims to identify patterns, trends, and gaps in the current understanding of occupational Low Back Pain. Furthermore, a

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critical analysis of prevalence rates and risk factors across different occupations and industries will contribute to a nuanced exploration of the diverse landscape of LBP in the workforce.

Through a systematic exploration of the literature, this review aspires to inform evidence-based interventions and preventive measures tailored to specific workplace contexts. By shedding light on modifiable risk factors and opportunities for ergonomic improvements, this research contributes to the development of targeted strategies aimed at reducing the prevalence and impact of Low Back Pain in the occupational setting. Ultimately, fostering a healthier work environment holds the potential to enhance the overall well-being of workers and mitigate the societal and economic burdens associated with Low Back Pain.

## 2. Material and methods

This research is a qualitative study that uses the literature review method with descriptive analysis. The data used in this study came from national journal scientific articles obtained from Google Scholar and Research Gate with the keywords "low back pain", "occupational health", "workplace ergonomics", "employee well-being", and "Musculoskeletal Disorders (MSDs)". The inclusion criteria in this study are scientific articles published in the last 5 years (2019-2024). The collected data will be analyzed, and conclusions will be drawn based on the analysis.

## 3. Results and discussion

The findings of the articles that have been collected and analyzed are presented as follows.

**Table 1** List of Articles

No.	Author	Method	Result
1	Heri Irawan, Agus Fitriangga, Widi Raharjo	Cross sectional	Variables that have a relationship with LBP complaints in workers are workload and work attitude.
2	Merdiana Ones, Mustakim Sahdan, Deviarbi Sakke Tira	Cross sectional	Age, working period, length of work, and work attitude of weavers were found to be associated with LBP complaints.
3	Silvia Elzadinita dan Budi Hartono	Cross sectional	In this study, there was a significant relationship between worker age $\geq 35$ years and work attitude towards LBP complaints.
4	Atthariq Wahab	Cross sectional	Working period and smoking habits are factors that affect Low Back Pain complaints in fishermen workers.
5	Andriana Marwanto, Agus Widada, Riang Adeko, Prasetyawati	Cross sectional	Factors associated with LBP complaints in brick-making workers are age, working period, and non-ergonomic work attitudes.
6	Anggi Isnani Parinduri, et al	Cross sectional	There is a significant relationship between age and working period with the incidence of low back pain in brickmakers.
7	Durotul Aenia, Anissatul Fathimah, Rubi Ginanjar	Cross sectional	There is a relationship between age, working period, BMI, length of work, and work position with complaints of low back pain.
8	Dheaniar Yahya, Yuliati, A. Mansur Sulolipu	Cross sectional	The results of data analysis showed a relationship between neck work attitude and upper arm work attitude with complaints of low back pain.
9	Shinta Bonita Amalia	Cross sectional	The results of this study are workers with a work period $\geq 5$ years have a risk of experiencing Low Back Pain (LBP) compared to workers who have a work period $\leq 5$ years.
10	Siti Harwanti, Nur Ulfah, Panuwun Joko	Cross sectional	There is a relationship between the factors of Body Mass Index, working period, and physical activity with Low Back Pain (LBP) complaints in workers.

The results of the analysis in the 10 research articles above show the factors associated with Low Back Pain. Table 1 shows that the factor that has the most influence on the incidence of LBP is the working period. The longer a person's working period, the higher the risk of LBP in the worker. Judging from the data that has been presented in the table above that of the 10 journals analyzed, there are 7 journals that mention that there is a relationship between the working period and the incidence of LBP.

The working period is related to low back pain, this is because low back pain is a disease that takes a long time to manifest or cause an impact [4]. So the longer a person's working period, the greater the risk of experiencing LBP when compared to workers with a short working period [5]. Based on Amalia's research (2019) there is a relationship between working period and LBP complaints in workers with a P value = 0.037 and an odds ratio value at a 95% confidence interval of 4.767. This shows that workers with a work period  $\geq 5$  years have a 4.7 times risk of developing LBP compared to workers with a work period  $\geq 5$  years [9].

The next most influential factors on Low Back Pain complaints in workers are work attitude and age. There are 5 articles each that reveal that work attitudes and age are related to LBP complaints in workers. The wrong work attitude will increase the risk of LBP in a person. Attitudes with a bent and bowed position for too long in a long period of time can cause muscles to spasm and will damage soft tissue [2]. The results of Marwanto's research (2021) show that 75% of respondents who have LBP complaints with risky work attitudes are greater than respondents who do not experience LBP complaints, namely 40.60%.

In terms of age, the older a person is, the higher the risk of that person experiencing a decrease in elasticity in the bones which triggers the onset of LBP symptoms [6]. The results of Marwanto's research (2021) show that 64.30% of respondents who have LBP complaints are over 40 years old. The results of statistical tests on the age variable and LBP complaints obtained a p-value: 0.040 ( $p < 0.05$ ). The results of this test indicate that there is a significant relationship between age and LBP complaints. The results of the analysis obtained the Odds Ratio (OR) value: 3.44 meaning that respondents aged more than 40 years have a 3.44 times chance of experiencing LBP complaints compared to respondents aged less than 40 years [5].

Other factors associated with complaints of Low Back Pain in workers include workload, length of work, smoking habits, Body Mass Index, work position, and physical activity.

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#### 4. Conclusion

Based on the analysis of 10 research articles, it can be concluded that factors such as working period, work attitude, and age play an important role in the occurrence of Low Back Pain in workers. Prevention and intervention efforts aimed at reducing the risk of LBP in the work environment need to take these factors into account. Training on work ergonomics and increased awareness of the importance of maintaining good posture can help reduce the risk of LBP. In addition, age management and regular monitoring of health conditions are also necessary to reduce the impact of LBP on worker productivity and well-being. With a better understanding of the factors associated with Low Back Pain in workers, it is hoped that more effective efforts can be made to reduce the burden of this disease in the workplace.

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#### Compliance with ethical standards

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