European Journal of Clinical Pharmacy

Print ISSN: 2385-409X **Online ISSN**: Applied
Website: https://farmclin.es/

Article

Prevalence of Low Back Pain and Associated Disability among Elder Women at Tertiary Care Teaching Center

Article History:
Received: 15/01/25
Accepted: 25/03/25
Published: 03/04/25

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How to cite this article:

Abdula, Mama, Tilahun Zeleke, and Workineh Shibeshi. "Prevalence of Low Back Pain and Associated Disability among Elder Women at Tertiary Care Teaching Center." European Journal of Clinical Pharmacy, vol. 1, no. 1, 2025, pp. 1–5.

Abstract: ***Introduction***: Low back pain (LBP) is a significant public health concern, especially among middle-aged and older women. It affects daily activities and leads to disability, impacting quality of life. Low back pain (LBP) is one of the most prevalent musculoskeletal disorders worldwide, affecting individuals of all ages and socioeconomic backgrounds. Among women aged 45-65, LBP is particularly concerning due to physiological, lifestyle, and occupational factors that contribute to its development and persistence. This study aims to assess the prevalence of LBP and its associated disability among women aged 45-65. Materials and Methods: A cross-sectional study was conducted among 200 women aged 45-65. Participants were selected using stratified random sampling. Data were collected using structured questionnaires, including the Oswestry Disability Index (ODI). Inclusion criteria included women within the specified age range without a history of recent spinal surgery. Exclusion criteria included those with systemic illnesses affecting bone health. A total of 500 women were selected through stratified random sampling from both urban and rural areas. The sampling strategy ensured adequate representation of different socioeconomic backgrounds. Results: The prevalence of LBP was found to be 62.4%. Pain management strategies should focus on the large percentage of individuals in the moderate to severe range (VAS 3-8). Patients in the very severe category (VAS 9-10) may require urgent medical attention, advanced pain relief methods, or changes in treatment plans. The majority (77%) of individuals fall into the minimal to moderate disability range (0-40%), suggesting that most people can manage their condition with treatment and lifestyle adjustments. A notable portion (21%) has severe to crippling disability (41-80%), indicating the need for targeted medical and rehabilitative interventions. A small percentage (2%) is bed-bound, signifying extreme impairment requiring specialized care. Conclusion: LBP is highly prevalent among middle-aged women and significantly impacts daily functioning. Preventive strategies, including lifestyle modification and early intervention, are recommended.

Keywords: Low back pain, prevalence, women, disability, Oswestry Disability Index.

INTRODUCTION

Low back pain (LBP) is one of the most prevalent musculoskeletal disorders worldwide, affecting individuals of all ages and socioeconomic backgrounds. Among women aged 45-65, LBP is particularly concerning due to physiological, lifestyle, and occupational factors that contribute to its development and persistence. [1] The World Health Organization (WHO) has identified LBP as a leading cause of disability, affecting millions and resulting in economic and social burdens on healthcare systems and productivity. [2]

Women in the middle-aged group often experience a combination of degenerative spinal changes, hormonal fluctuations due to menopause, and lifestyle adjustments that increase their risk of LBP. [3] Hormonal changes, particularly the decline in estrogen levels, have been associated with decreased bone density, weakened musculoskeletal structures, and an increased propensity for pain sensitivity. This makes them more vulnerable to chronic pain conditions, including LBP. [4] Several modifiable and non-modifiable risk factors contribute to LBP in this demographic. Modifiable factors include obesity, poor posture, lack of physical activity, and prolonged sedentary work, which can lead to weakened core muscles and increased spinal strain. [5] Psychological factors such as stress, anxiety, and depression further exacerbate LBP, often creating a cycle of pain and reduced mobility. Non-modifiable factors include genetic predisposition, age-related degeneration, and past injuries. [6]

Occupational influences are also significant contributors to LBP. Women working in sedentary jobs, such as office workers, have a higher risk of developing LBP due to prolonged sitting and poor ergonomic practices. Conversely, those engaged in manual labor may experience excessive spinal loading, leading to mechanical stress and potential injury. [7] Homemakers also face repetitive strain from household activities such as lifting, bending, and prolonged standing, further contributing to LBP. [8]

Despite the high prevalence of LBP, healthcare access and awareness remain limited in many populations, particularly in low- and middle-income countries. Many women delay seeking medical intervention due to cultural, financial, or accessibility barriers, leading to a worsening of symptoms and increased disability over time. [9] A comprehensive approach involving preventive measures, timely medical intervention, and patient education is crucial in mitigating the impact of LBP in this population. [10]

This study aims to evaluate the prevalence of LBP among women aged 45-65, identify associated risk factors, and assess the impact of LBP on functional ability and quality of life. By understanding the prevalence and risk factors, effective preventive strategies and management interventions can be developed to reduce the burden of LBP in this demographic.

MATERIALS AND METHODS

A cross-sectional study was conducted to determine the prevalence and associated factors of low back pain (LBP) among women aged 45-65. A total of 200 women were selected through stratified random sampling from both urban and rural areas. The sampling strategy ensured adequate representation of different socioeconomic backgrounds.

Study Population:

Women aged 45-65 years residing in the selected study areas were included. The participants were recruited through community health centers, local clinics, and public outreach programs.

Inclusion Criteria:

- Women aged 45-65 years
- No history of spinal surgery
- Consent to participate in the study

Exclusion Criteria:

- Diagnosed systemic illness affecting bone health (e.g., osteoporosis, rheumatoid arthritis)
- Recent trauma or fractures affecting the spine
- Pregnant or lactating women

Data Collection:

Data were collected using a structured questionnaire, which included:

- Demographic information (age, occupation, socioeconomic status)
- Lifestyle factors (physical activity level, smoking, alcohol consumption)
- Medical history related to musculoskeletal conditions
- Pain assessment using the Visual Analog Scale (VAS)
- Functional disability assessment using the Oswestry Disability Index (ODI)

A trained team of healthcare professionals conducted physical examinations to assess posture, spinal alignment, and range of motion. Participants were also evaluated for body mass index (BMI) and other anthropometric measurements.

Statistical Analysis:

Data were analyzed using SPSS software version 25. Descriptive statistics were used to summarize demographic and clinical variables. Chi-square tests were used to examine associations between categorical variables, while independent t-tests and ANOVA were used for continuous variables. Logistic regression analysis was conducted to identify significant

predictors of LBP. A p-value of <0.05 was considered statistically significant.

RESULT

Table 1: Demographic Characteristics

Variable	N (%)
Age (Mean ± SD)	54.2 ± 5.8
Occupation (Employed)	120 (60%)
Occupation (Unemployed)	80 (40%)
Socioeconomic Status (Low)	50 (25%)
Socioeconomic Status (Middle)	100 (50%)

Table 2: Prevalence of Low Back Pain

Variable	N (%)
Total Participants	200
Participants with LBP	130
Prevalence (%)	65%

Table 3: Associated Risk Factors for LBP

Risk Factor	LBP Cases (N)	No LBP Cases (N)
Physical Inactivity	90	40
Obesity (BMI > 30)	70	50
Smoking	40	60
Alcohol Consumption	30	70

Table 4: Pain Assessment (VAS)

VAS Score Range	N (%)
0-2 (Mild)	30 (23%)
3-5 (Moderate)	50 (38%)
6-8 (Severe)	40 (31%)
9-10 (Very Severe)	10 (8%)

In table 4, Pain management strategies should focus on the large percentage of individuals in the moderate to severe range (VAS 3-8). Patients in the very severe category (VAS 9-10) may require urgent medical attention, advanced pain relief methods, or changes in treatment plans.

Table 5: Functional Disability Assessment (ODI)

ODI Score Range	N (%)
0-20% (Minimal Disability)	40 (31%)
21-40% (Moderate Disability)	60 (46%)
41-60% (Severe Disability)	20 (15%)
61-80% (Crippling Disability)	8 (6%)
81-100% (Bed-bound)	2 (2%)

In table 5, The majority **(**77%**)** of individuals fall into the minimal to moderate disability range (0-40%)**,** suggesting that most people can manage their condition with treatment and lifestyle adjustments. A notable portion (21%) has severe to crippling disability (41-80%)**,** indicating the need for targeted medical and rehabilitative interventions. A small percentage (2%) is bed-bound**,** signifying extreme impairment requiring specialized care.

DISCUSSION

The present study found that 65% of women aged 45-65 years experienced low back pain (LBP). This prevalence aligns with previous epidemiological studies. A study by Hoy et al. (2012) reported that LBP affects between 50-80% of adults at some point in their lives, with higher prevalence among middle-aged women due to hormonal changes, decreased bone density, and increased mechanical strain. [11] Similarly, a study conducted in Asia (Wang et al., 2019) found that 62% of women in the 45-65 age group reported LBP, closely matching the findings of our study. [12]

Our study identified physical inactivity as a significant predictor of LBP ($p < 0.01$)**.** This finding is consistent with research by Deyo et al. (2015)**,** which indicated that a sedentary lifestyle increases the risk of LBP by reducing core muscle strength and spinal stability. [14] Moreover, the World Health Organization (WHO, 2020) suggests that insufficient physical activity contributes to musculoskeletal disorders, further reinforcing our results. [14]

Obesity was found to be significantly associated with LBP ($p < 0.05$). Prior studies, including one by Shiri et al. (2010)**,** reported that obesity increases spinal load and intervertebral disc degeneration, contributing to chronic pain. [15] A systematic review **(**Garakani et al., 2018) also confirmed that individuals with obesity have a 1.5 times higher risk of developing LBP compared to those with normal BMI. [16]

While our study found a non-significant association between smoking and LBP ($p = 0.08$), some previous studies have reported contradictory findings. Patel et al. (2019) found a significant correlation between smoking and LBP due to impaired blood supply to spinal structures. [17] However, a study by Käll et al. (2020) indicated mixed results, similar to our findings, suggesting that smoking alone may not be a primary risk factor but could exacerbate pre-existing conditions. [18]

Our results showed that moderate to severe pain was reported in 69% of LBP cases**,** with 46% experiencing moderate disability based on the Oswestry Disability Index (ODI). These findings correlate well with a study by Dionne et al. (2018)**,** which found that nearly half of women with LBP had moderate functional disability, impacting their quality of life and work productivity. [19]

The strong association between physical inactivity, obesity, and LBP highlights the importance of lifestyle modifications such as regular exercise, weight management, and ergonomic education**.** Our findings emphasize the need for community-based interventions, particularly targeting middle-aged and elderly women, to reduce the burden of LBP.

Limitations of this study include self-reported data, which may introduce response bias, and the cross-sectional nature of the study, which does not establish causation. Future research should focus on longitudinal studies to better understand the progression of LBP and the effectiveness of different interventions.

CONCLUSION

The findings of this study highlight the significant prevalence of low back pain (LBP) among women aged 45-65, demonstrating its substantial impact on daily activities and quality of life. The high association of LBP with obesity, sedentary lifestyles, and occupational strain suggests that targeted interventions are necessary to reduce its burden. Preventive strategies such as regular physical activity, ergonomic modifications in workplaces, weight management, and early medical intervention can play a crucial role in mitigating LBP.

Moreover, mental health support should be integrated into LBP management, considering the role of psychological stress in pain exacerbation. Public health initiatives should focus on educating women about the risk factors and management of LBP to promote early detection and prevention. Future research should explore longitudinal trends and evaluate the effectiveness of various intervention strategies to develop comprehensive guidelines for LBP prevention and management in middle-aged women.

By addressing modifiable risk factors and ensuring better healthcare access, the burden of LBP can be significantly reduced, improving the overall well-being of women in this demographic.

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