



Prevalence Of Pregnancy-Associated Low Back Pain And Pelvic Girdle Pain: A Cross-Sectional Study And Analysis Of Maternal Risk Factors.

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Received: 06-08-2026

Revised: 21-08-2026

Accepted: 14-09-2026

Published: 19-09-2026

Abstract

Background: Pregnancy-associated low back pain (LBP) and pelvic girdle pain (PGP) are among the most common musculoskeletal complaints during pregnancy and may adversely affect mobility, daily activities, and quality of life. **Objective:** To determine the prevalence of pregnancy-associated LBP and PGP and to evaluate maternal factors associated with their occurrence. **Materials and Methods:** A clinic-based cross-sectional study was conducted among 250 pregnant women attending the antenatal clinic. Demographic and obstetric characteristics, pain location, severity, and potential maternal risk factors were recorded using a structured questionnaire. Statistical analysis was performed using SPSS version 26.0, and $p < 0.05$ was considered statistically significant. **Results:** Pregnancy-associated LBP and/or PGP were observed in 156 (62.4%) participants. Higher maternal age, multiparity, increased body mass index, advanced gestational age, and previous history of back pain were significantly associated with pain occurrence ($p < 0.05$). **Conclusion:** Pregnancy-associated LBP and PGP are highly prevalent and are influenced by several maternal characteristics. Early identification of high-risk women may facilitate timely preventive and supportive interventions.

Keywords: Pregnancy, Low back pain, Pelvic girdle pain, Maternal risk factors, Cross-sectional study, Pregnancy-associated musculoskeletal pain.



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INTRODUCTION

Pregnancy is accompanied by profound anatomical, biomechanical, and hormonal changes that predispose women to a variety of musculoskeletal disorders, among which low back pain (LBP) and pelvic girdle pain (PGP) are the most frequently reported complaints. These conditions may develop independently or coexist during pregnancy and can substantially impair physical function, sleep quality, occupational performance, and overall quality of life. The reported prevalence of pregnancy-associated LBP and PGP varies widely across populations, ranging from 20% to over 70%, depending on diagnostic criteria, gestational age, and study methodology [1,2].

The etiology of pregnancy-associated LBP and PGP is multifactorial. Hormonal influences, particularly increased relaxin levels, contribute to ligamentous laxity, while progressive weight gain, altered posture, increased lumbar lordosis, and displacement of the body's center of gravity impose additional mechanical stress on the spine and pelvic joints. Maternal characteristics such as advanced maternal age, multiparity, elevated body mass index (BMI), previous history of low back pain, physically demanding occupations, and lower levels of physical activity have also been identified as potential risk factors for developing these conditions [3,4].

Although pregnancy-associated LBP and PGP are generally considered self-limiting, they may persist beyond childbirth in a proportion of women, leading to chronic pain and functional disability. Despite their high prevalence, these conditions remain under-recognized in routine antenatal care, particularly in low- and middle-income countries, where screening and early intervention are often inadequate. Identifying the burden of disease and associated maternal risk factors is essential for improving antenatal management and implementing preventive strategies [5,6].

Therefore, the present study was undertaken to determine the prevalence of pregnancy-associated low back pain and pelvic girdle pain among pregnant women attending a tertiary care hospital and to analyze the maternal risk factors associated with their occurrence.

MATERIALS AND METHODS

A clinic-based cross-sectional study was conducted in the Obstetrics and Gynecology setup in a private hospital at central India, over a period of 18 months (January 2025 to June 2026). A total of 250 pregnant women attending the antenatal outpatient department and fulfilling the eligibility criteria were enrolled using consecutive sampling. After obtaining informed consent, demographic details, obstetric history, body mass index (BMI), gestational age, parity, previous history of low back pain, occupation, and physical activity were recorded using a pre-designed structured proforma. Pregnancy-associated low back pain and pelvic girdle pain were identified based on clinical history and physical examination. Pain severity was assessed using the Visual Analogue Scale (VAS).

Inclusion Criteria

- Pregnant women aged 18–40 years.
- Singleton pregnancy.
- Gestational age of ≥ 12 weeks.
- Women willing to participate in the study.

Exclusion Criteria

- History of spinal trauma or spinal surgery.
- Congenital spinal deformities or known musculoskeletal disorders.
- Pre-existing neurological disorders affecting gait or posture.
- High-risk pregnancies requiring emergency intervention.
- Women unwilling to participate.

Statistical Analysis

Data were analyzed using SPSS version 26.0. Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as mean $\pm$ standard deviation. The Chi-square test and independent t-test were used for comparison as appropriate.

Multivariable logistic regression analysis was performed to identify independent maternal risk factors associated with pregnancy-related low back pain and pelvic girdle pain. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 250 pregnant women were included in the study. The mean maternal age was 27.8 ± 4.6 years, and the mean gestational age was 28.9 ± 7.4 weeks. Pregnancy-associated low back pain and/or pelvic girdle pain were reported in 156 (62.4%) participants, while 94 (37.6%) women did not report pain.

The prevalence of pain increased with advancing gestational age and was more common among multiparous women, those with higher body mass index, and women with a previous history of low back pain.

Table 1: Baseline Characteristics of the Study Participants (n = 250)

Variable		Number	Percentage
Age (years)	<25	68	27.2%
	25–30	112	44.8%
	>30	70	28%
Parity	Primigravida	104	41.6%
	Multigravida	146	58.4%
Gestational Age	Second trimester	98	39.2%
	Third trimester	152	60.8%
BMI (kg/m ²)	Normal	86	34.4%
	Overweight	108	43.2%
	Obese	56	22.4%

Most participants were aged 25–30 years (44.8%), were multigravida (58.4%), in the third trimester (60.8%), and were overweight (43.2%).

Table 2: Prevalence of Pregnancy-Associated Low Back Pain and Pelvic Girdle Pain (n = 250)

Pain Status	Number	Percentage
Low back pain only	86	34.4%
Pelvic girdle pain only	24	9.6%
Both low back pain and pelvic girdle pain	46	18.4%
No pain	94	37.6%

Overall, 156 (62.4%) pregnant women experienced pregnancy-associated low back pain and/or pelvic girdle pain. Low back pain alone was the most common presentation.

Table 3: Association of Maternal Risk Factors with Pregnancy-Associated Low Back Pain and Pelvic Girdle Pain

Risk Factor	Pain Present (n=156)	Pain Absent (n=94)	p-value
Age >30 years	56 (35.9%)	14 (14.9%)	0.001
Multigravida	108 (69.2%)	38 (40.4%)	<0.001
BMI ≥ 25 kg/m ²	118 (75.6%)	46 (48.9%)	<0.001
Third trimester	112 (71.8%)	40 (42.6%)	<0.001
Previous history of back pain	48 (30.8%)	10 (10.6%)	0.001

Advanced maternal age, multiparity, higher BMI, third-trimester pregnancy, and a previous history of back pain were significantly associated with pregnancy-associated low back pain and pelvic girdle pain.

Table 4: Severity of Pain According to Visual Analogue Scale (VAS) (n = 156)

Pain Severity	Number	Percentage
Mild (VAS 1–3)	38	24.4%
Moderate (VAS 4–6)	82	52.6%
Severe (VAS 7–10)	36	23%

Moderate pain was the most frequent presentation, affecting 52.6% of women with pregnancy-associated low back pain and/or pelvic girdle pain.

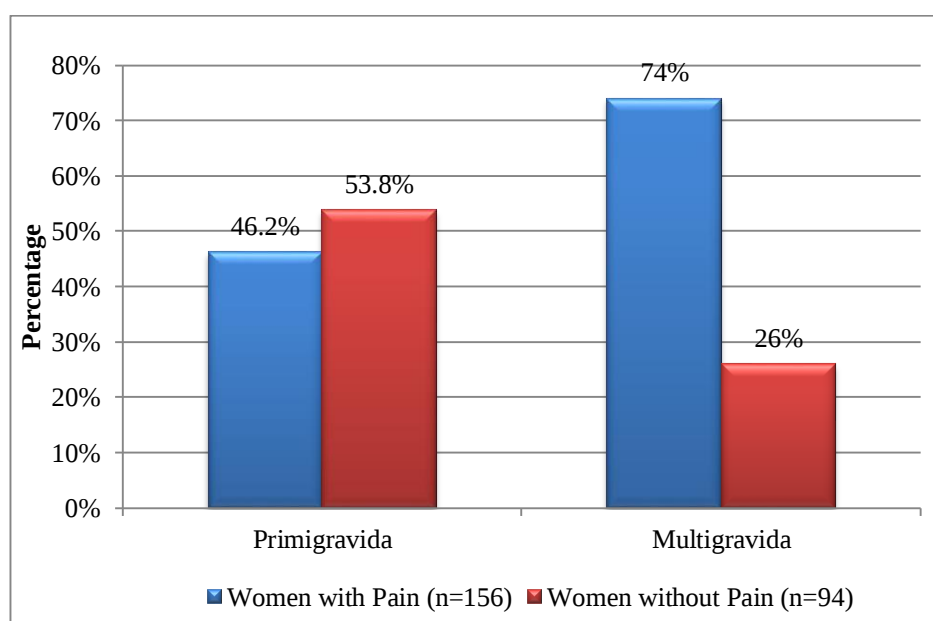


Figure 1: Distribution of Pregnancy-Associated Low Back Pain and Pelvic Girdle Pain According to Parity

Pregnancy-associated low back pain and pelvic girdle pain were observed more frequently among multigravida women than primigravida women, suggesting that multiparity is associated with a higher prevalence of pregnancy-associated low back pain and pelvic girdle pain in the study population.

DISCUSSION

The present study demonstrated that 62.4% of pregnant women experienced pregnancy-associated low back pain (LBP) and/or pelvic girdle pain (PGP), indicating that lumbopelvic pain remains one of the most common musculoskeletal complaints during pregnancy. The prevalence observed in the present study is comparable with findings from recent systematic reviews and observational studies, which have reported that pregnancy-related LBP and PGP affect a substantial

proportion of pregnant women and are associated with reduced mobility, impaired functional capacity, and poorer quality of life [7,8].

Maternal age was significantly associated with the occurrence of pregnancy-related pain in the present study. Women aged more than 30 years showed a higher prevalence of LBP and PGP than younger women. In addition, a previous history of low back pain was significantly associated with the development of pregnancy-related pain. Similar findings have been reported in recent systematic reviews, which identified advanced maternal age and pre-existing back pain as important predictors for the occurrence and persistence of lumbopelvic pain during and after pregnancy [9,10].

Multiparity was another significant maternal risk factor identified in this study. Multigravida women experienced pregnancy-associated pain more frequently than primigravida women, possibly because repeated pregnancies expose the lumbar spine and pelvic joints to cumulative biomechanical stress, ligamentous laxity, and reduced muscular support. Recent evidence has also highlighted parity as an important determinant of pregnancy-related pelvic girdle pain and its persistence beyond childbirth [8].

Higher body mass index and advancing gestational age were independently associated with pregnancy-associated LBP and PGP. Maternal weight gain, altered posture, increased lumbar lordosis, and progressive fetal growth increase mechanical loading of the lumbopelvic region, particularly during the third trimester. These findings are consistent with recent observational studies and systematic reviews demonstrating that overweight women and those in late pregnancy are more likely to experience pregnancy-related musculoskeletal pain [8,11].

The findings of the present study emphasize the importance of routine screening for pregnancy-associated LBP and PGP during antenatal care. Early identification of women at increased risk, together with appropriate counselling regarding posture, supervised exercise, ergonomic modifications, and physical activity, may reduce pain severity and improve maternal functional status. Recent evidence supports the effectiveness of exercise-based interventions and preventive strategies in improving pregnancy-related lumbopelvic pain and quality of life [7,11,12].

CONCLUSION

Pregnancy-associated low back pain and pelvic girdle pain were highly prevalent among pregnant women in the present study, affecting nearly two-thirds of the participants. Advanced maternal age, multiparity, higher body mass index, third-trimester pregnancy, and a previous history of low back pain were identified as significant maternal risk factors. Early recognition of women at increased risk during routine antenatal care may facilitate timely counselling, appropriate exercise-based interventions, and ergonomic advice to reduce pain severity and improve maternal functional status. Incorporating screening for pregnancy-related musculoskeletal pain into standard antenatal practice may enhance maternal well-being and quality of life throughout pregnancy.

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