



Original Article

Prevalence of Pregnancy-Associated Low Back Pain and Its Impact on Daily Activities and Mode of Delivery

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ABSTRACT

Background: Pregnancy-associated low back pain (PLBP) is a common musculoskeletal complaint during pregnancy and may adversely affect functional capacity and quality of life. Despite its high prevalence, its impact on daily activities and mode of delivery remains under-reported, particularly in studies integrating obstetric and orthopedic perspectives.

Objectives: To determine the prevalence of pregnancy-associated low back pain, assess its impact on daily activities, evaluate the need for orthopedic follow-up, and analyze its association with mode of delivery.

Methods: This hospital-based observational study included 100 pregnant women attending antenatal clinics. Demographic and obstetric details were recorded. The presence and severity of low back pain were assessed using the Visual Analog Scale (VAS). Functional impact was evaluated based on limitations in routine daily activities. Women with significant symptoms underwent orthopedic evaluation and conservative management. Mode of delivery was documented. Data were analyzed using descriptive statistics and expressed as frequencies and percentages.

Results: The prevalence of PLBP was 62%. Low back pain was most frequent during the third trimester (45.1%). Moderate pain was the predominant severity (48.4%), followed by mild (27.4%) and severe pain (24.2%). PLBP significantly affected daily activities, with difficulty in prolonged standing (67.7%), limitation in household activities (59.7%), and difficulty in walking (54.8%) being the most commonly reported. Orthopedic consultation was required in 58.1% of affected women, and 72.2% showed symptomatic improvement with conservative management. Vaginal delivery was the most common mode of delivery in both groups; however, cesarean section was relatively higher among women with PLBP (38.7%) compared to those without low back pain (26.3%), with no cesarean section performed solely due to PLBP.

Conclusion: Pregnancy-associated low back pain is highly prevalent and significantly impairs daily activities, especially in late pregnancy. Multidisciplinary obstetric-orthopedic management improves symptoms, while PLBP does not independently influence the mode of delivery.

Keywords: Pregnancy, Low back pain, Functional disability, Orthopedic follow-up, Mode of delivery.

INTRODUCTION

Pregnancy is accompanied by substantial anatomical, hormonal, and biomechanical adaptations that predispose women to musculoskeletal disorders, with low back pain being one of the most frequently reported complaints [1,2]. Progressive weight gain, altered spinal curvature, anterior shift of the center of gravity, and ligamentous laxity mediated by relaxin collectively increase mechanical stress on the lumbosacral region, leading to pregnancy-associated low back pain (PLBP) [2]. Although often perceived as a physiological consequence of pregnancy, PLBP can significantly impair functional ability and maternal well-being [1].

The reported prevalence of PLBP varies widely across populations, ranging from approximately 45% to 75%, influenced by differences in study design, gestational age, parity, and diagnostic criteria [3,4,6]. Several studies have demonstrated that the severity and frequency of symptoms tend to increase during the second and third trimesters, coinciding with maximal biomechanical loading and postural changes [1,6]. Low back pain during pregnancy has been shown to interfere with routine daily activities such as walking, prolonged standing, household work, and sleep, thereby adversely affecting quality of life [2,4].

In addition to functional impairment, concerns have been raised regarding the potential influence of PLBP on obstetric outcomes, particularly the mode of delivery [5]. Fear of pain exacerbation during labor and reduced physical endurance may indirectly affect delivery-related decisions, although existing evidence remains inconsistent [5]. Furthermore, despite its high prevalence, PLBP is often under-recognized in routine antenatal care, and few studies have evaluated the role of orthopedic assessment and conservative management within a multidisciplinary framework [1,3]. These gaps highlight the need for systematic evaluation of PLBP, its functional impact, and its association with delivery outcomes.

In this context, the present study was undertaken to determine the prevalence of pregnancy-associated low back pain, assess its impact on daily activities, evaluate the need for orthopedic follow-up, and examine its association with the mode of delivery among pregnant women attending a tertiary care center.

METHODOLOGY

Study Design and Setting

This hospital-based observational study was conducted at RVM Institute of Medical Sciences and Research Centre, Laxmakkapally, Telangana, India a tertiary care teaching hospital. The study was carried out over a period of eight months, from January 2025 to August 2025.

Study Population and Sample Size

A total of 100 pregnant women attending the antenatal outpatient department were included in the study. Participants were recruited using a consecutive sampling technique until the desired sample size was achieved.

Eligibility Criteria

Pregnant women aged 18–40 years, at any gestational age, who were willing to participate and provided written informed consent were included. Women with pre-existing chronic low back pain prior to pregnancy, history of spinal surgery or trauma, diagnosed musculoskeletal or neurological disorders, inflammatory spinal diseases, multiple gestations, or obstetric complications requiring urgent intervention were excluded.

Data Collection and Clinical Assessment

Data were collected using a predesigned and structured proforma. Baseline demographic variables and obstetric details, including age, gravidity, and trimester at presentation, were recorded. The presence of pregnancy-associated low back pain was assessed through direct interview. Pain intensity was measured using the Visual Analog Scale (VAS) and categorized as mild (1–3), moderate (4–6), or severe (≥ 7).

Assessment of Functional Impact

The impact of low back pain on daily activities was evaluated based on self-reported difficulty in prolonged standing, walking, sitting or posture changes, household activities, and sleep. Functional disability was graded as mild, moderate, or severe according to the extent of activity limitation.

Orthopedic Evaluation and Follow-Up

Women reporting moderate-to-severe low back pain were referred for orthopedic evaluation. Conservative management, including posture correction advice, activity modification, physiotherapy-based exercises, and use of lumbar or pelvic support belts when indicated, was provided. Symptomatic improvement was assessed during subsequent antenatal follow-up visits.

Obstetric Outcome Assessment

The mode of delivery, categorized as vaginal delivery or cesarean section, was recorded after delivery from hospital medical records.

Ethical Considerations

The study was approved by the Institutional Ethics Committee of RVM Institute of Medical Sciences and Research Centre. Written informed consent was obtained from all participants prior to enrollment. Participant confidentiality was strictly maintained, and data were used solely for research purposes. The study adhered to the ethical principles outlined in the Declaration of Helsinki.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using appropriate statistical software. Descriptive statistics were applied, and results were expressed as frequencies and percentages.

RESULTS

A total of 100 pregnant women were enrolled and analyzed in the present study. The baseline demographic and obstetric profile of the participants is summarized in **Table 1**. Most women were in the 21–30-year age group (62%), and more than half were multigravida (58%). The majority presented during the third trimester of pregnancy (46%), followed by the second trimester (36%).

Table 1. Baseline Demographic and Obstetric Characteristics of the Study Population (n = 100)

Variable	Number (%)
Age group (years)	
≤20	12 (12.0)
21–30	62 (62.0)
31–40	26 (26.0)
Gravidity	
Primigravida	42 (42.0)
Multigravida	58 (58.0)
Trimester at presentation	
First trimester	18 (18.0)
Second trimester	36 (36.0)
Third trimester	46 (46.0)

The overall prevalence of pregnancy-associated low back pain (PLBP) was 62%, while 38% of women reported no back pain during pregnancy (**Table 2**). Among those with PLBP, the condition was most commonly observed in the third trimester (45.1%), with progressively lower prevalence in the second (33.9%) and first trimesters (21%). Based on Visual Analog Scale (VAS) assessment, moderate pain was the most frequent presentation (48.4%), followed by mild pain in 27.4% and severe pain in 24.2% of affected women.

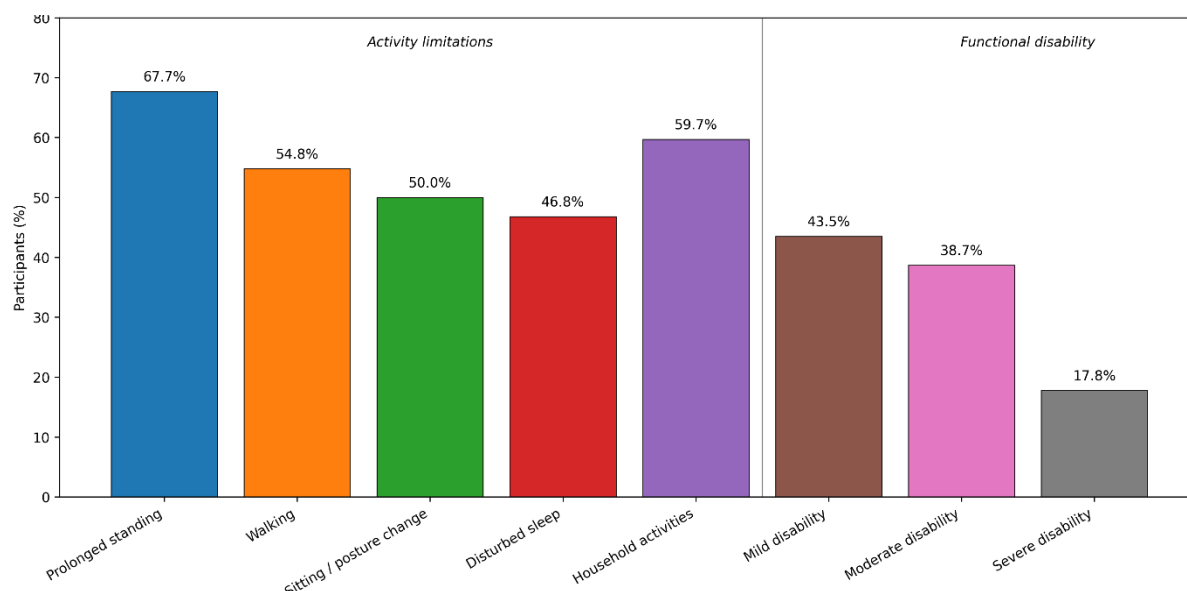
Table 2. Prevalence and Clinical Characteristics of Pregnancy-Associated Low Back Pain (PLBP)

Parameter	Number (%)
Presence of low back pain	
Yes	62 (62.0)
No	38 (38.0)
Trimester-wise distribution of PLBP (n = 62)	
First trimester	13 (21.0)
Second trimester	21 (33.9)
Third trimester	28 (45.1)
Pain severity (VAS score)	
Mild (VAS 1–3)	17 (27.4)
Moderate (VAS 4–6)	30 (48.4)
Severe (VAS ≥7)	15 (24.2)

The functional impact of PLBP on daily activities is detailed in **Table 3**. Difficulty in prolonged standing was the most commonly reported limitation (67.7%), followed by restriction in household activities (59.7%) and difficulty in walking (54.8%). Sleep disturbance was reported by nearly half of the affected participants (46.8%). Functional disability assessment showed that 43.5% had mild disability, 38.7% had moderate disability, and 17.8% experienced severe disability due to low back pain.

Table 3. Impact of Pregnancy-Associated Low Back Pain on Daily Activities (n = 62)

Affected Activity	Number (%)
Difficulty in prolonged standing	42 (67.7)
Difficulty in walking	34 (54.8)
Difficulty in sitting or posture change	31 (50.0)
Disturbed sleep	29 (46.8)
Limitation in household activities	37 (59.7)
Functional disability grade	
Mild disability	27 (43.5)
Moderate disability	24 (38.7)
Severe disability	11 (17.8)

**Figure 1: Impact of Pregnancy-Associated Low Back Pain on Daily Activities (n = 62)**

Orthopedic follow-up and obstetric outcomes are presented in **Table 4**. More than half of the women with PLBP (58.1%) required orthopedic consultation, and all were managed conservatively with posture advice, activity modification, and physiotherapy-based interventions. Symptomatic improvement during follow-up was reported by 72.2% of these patients. With regard to mode of delivery, vaginal delivery was more common in both groups; however, cesarean section was relatively higher among women with PLBP (38.7%) compared to those without low back pain (26.3%). No cesarean section was performed solely due to the presence of low back pain.

Table 4. Orthopedic Follow-Up and Mode of Delivery in Relation to Low Back Pain

Variable	PLBP Present (n = 62)	PLBP Absent (n = 38)
Orthopedic consultation required	36 (58.1%)	—
Conservative management advised	36 (100%)	—
Symptomatic improvement on follow-up	26 (72.2%)	—
Mode of delivery		
Vaginal delivery	38 (61.3%)	28 (73.7%)
Cesarean section	24 (38.7%)	10 (26.3%)

DISCUSSION

The present hospital-based observational study highlights the high burden of pregnancy-associated low back pain (PLBP) and its functional implications among pregnant women attending a tertiary care teaching hospital. The observed prevalence of 62% reinforces the growing body of evidence that low back pain remains a frequent and clinically significant musculoskeletal complaint during pregnancy. Comparable prevalence rates have been documented across diverse populations and healthcare settings, underscoring the global nature of this problem [9,12].

The predominance of PLBP in the later stages of pregnancy observed in this study is consistent with earlier biomechanical and clinical investigations. Progressive postural alterations, increased lumbar lordosis, and changes in spinal loading during pregnancy have been shown to significantly influence the onset and severity of back pain [10].

Prospective cohort data have further demonstrated that specific movements and daily activities during pregnancy contribute to mechanical stress on the lumbopelvic region, thereby exacerbating pain symptoms [8].

In the present study, moderate-to-severe pain was associated with substantial functional limitations, including difficulty in standing, walking, and household activities, as well as sleep disturbance. Similar functional impairment has been reported in previous studies, which emphasize that PLBP adversely affects quality of life and physical performance during pregnancy [12]. Persistent pain extending into the postpartum period has also been documented, suggesting that pregnancy-related low back pain may not always be self-limiting [7].

More than half of the affected women in this study required orthopedic evaluation, highlighting the importance of multidisciplinary care. Conservative, non-pharmacological interventions led to symptomatic improvement in the majority, aligning with existing evidence supporting physiotherapy and posture-based interventions for pregnancy-related low back pain [8,10]. Such approaches are particularly valuable given the limitations on pharmacological pain management during pregnancy.

With respect to obstetric outcomes, vaginal delivery remained the predominant mode of delivery, and PLBP did not independently determine cesarean section. This finding is consistent with prior research indicating that, despite its significant functional impact, low back pain alone does not dictate delivery outcomes [12]. Overall, these findings support the need for early identification and integrated obstetric–orthopedic management to mitigate disability and improve maternal well-being during pregnancy.

CONCLUSION

Pregnancy-associated low back pain is a common musculoskeletal complaint, affecting nearly two-thirds of pregnant women, with increasing prevalence in the later trimesters. The condition substantially interferes with daily activities, including standing, walking, household work, and sleep, thereby impacting maternal functional capacity and overall well-being. Moderate-to-severe pain frequently necessitates orthopedic evaluation, and most women benefit from conservative, non-pharmacological management strategies such as posture correction and physiotherapy. Importantly, although the incidence of cesarean section was relatively higher among women with low back pain, pregnancy-associated low back pain did not independently influence the final mode of delivery. Early recognition and a multidisciplinary obstetric–orthopedic approach are essential to improve maternal comfort and quality of antenatal care.

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