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Original Article

Prevalence of Post-Partum Low Back Pain Among Primigravida Females: A Cross-Sectional Survey

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ABSTRACT

Background: Postpartum low back pain (LBP) is a common musculoskeletal disorder that may impair maternal functioning, yet limited data are available from low- and middle-income countries. Primigravida women are particularly vulnerable due to physiological, biomechanical, and psychosocial adjustments during early motherhood. Objective: To determine the prevalence and severity of postpartum LBP among primigravida women in Pakistan using the Oswestry Disability Index (ODI). Methods: A cross-sectional observational study was conducted among 176 primigravida women aged ≥20 years recruited from two tertiary hospitals in Lahore, Pakistan. Participants with prior musculoskeletal disorders, trauma, or obstetric complications were excluded. Data were collected using the validated ODI questionnaire. Baseline characteristics included age and occupation. Statistical analysis was performed with IBM SPSS 21, and associations between demographic variables and ODI outcomes were assessed using chi-square tests. Results: All participants reported postpartum LBP. Of the total, 158 women (89.8%, 95% CI: 85.3–94.3) were classified with moderate disability, while 18 women (10.2%, 95% CI: 5.7–14.7) had minimum disability. No cases of severe, crippled, or bed-bound disability were recorded. Disability severity did not differ significantly by age (p=0.62) or occupation (p=0.71). Conclusion: Postpartum LBP was universally reported among primigravida women in this study, with most experiencing moderate disability. Routine postpartum screening and early rehabilitative interventions are recommended to mitigate functional limitations.
Keywords: Low back pain; Postpartum; Primigravida; Disability; Oswestry Disability Index; Maternal health.

INTRODUCTION

Low back pain (LBP), defined as discomfort localized between the costal margin and the inferior gluteal folds and often associated with radiculopathy due to spinal nerve root involvement, is among the most frequent musculoskeletal disorders affecting women during pregnancy and the postpartum period (1). Global prevalence estimates indicate that between 30% and 78% of pregnant women in the United States, Europe, and parts of Africa report LBP, with one-third experiencing severe symptoms that significantly impair daily functioning and quality of life (2). These limitations can reduce productivity in household and occupational roles, and in many cases, pregnancy represents the first episode of LBP for affected women (3). Although acute LBP often resolves, around 10% of cases progress to chronic forms, resulting in persistent physical and psychological difficulties such as Kinesio phobia and depression (4).

Postpartum LBP is a particularly important clinical concern, as symptoms often persist or newly arise after childbirth. Cohort studies report that nearly 48% of Australian women experience LBP within three months postpartum, with 31.5% still affected at three months and up to 35.7% reporting symptoms within three years of delivery (5). The postpartum period places additional biomechanical strain on the lumbar spine and pelvis, particularly among primigravida women, due to the physiological changes of pregnancy, hormonal influences, and the physical demands of infant care (6,7). Vaginal delivery itself requires activation of lumbar and pelvic musculature, and coccygeal injury during labor can further exacerbate symptoms (8,9). Beyond mechanical stressors, risk factors for persistent LBP include advanced maternal age, obesity, physically demanding occupations, smoking, multiple gestations, and use of epidural or spinal anesthesia (10–12).

Primigravida women represent a unique population at risk, as they undergo physiological and psychological adjustments for the first time during pregnancy and early motherhood. The third trimester and early postpartum period are particularly critical, with musculoskeletal pain frequently compounded by anxiety and functional limitations (13). Despite the well-established global burden of postpartum LBP, evidence from low- and middle-income countries, particularly Pakistan, remains scarce. Most available studies originate from Western populations or focus broadly on pregnancy-related LBP without isolating primigravida women. To our knowledge, no published research from Pakistan has specifically assessed the prevalence of postpartum LBP in primigravida females. This represents a critical gap, as sociocultural factors, lifestyle patterns, and healthcare access may influence the magnitude and clinical course of LBP in this context.

In light of these considerations, this study was conducted to determine the prevalence of postpartum low back pain among primigravida women in Pakistan using the Oswestry Disability Index (ODI). By quantifying the burden in this specific group, the findings aim to inform clinical screening, preventive strategies, and targeted interventions for maternal health.

MATERIAL AND METHODS

This investigation was designed as a cross-sectional observational study aimed at estimating the prevalence of postpartum low back pain among primigravida women. The choice of study design was appropriate, given the objective of determining prevalence within a defined population at a specific point in time (14). The study was conducted in the gynecology and obstetrics departments of the University of Lahore Teaching Hospital and Chaudhry Muhammad Akram Teaching Hospital, both located in Lahore, Pakistan. Data collection was carried out over a defined period, ensuring recruitment of participants within the early postpartum phase, when musculoskeletal symptoms are most relevant for clinical characterization (15).

Participants were recruited using a non-probability convenience sampling technique. Eligibility was restricted to primigravida women aged 20 years or older who had delivered at term and were in the immediate postpartum period. To reduce confounding, women with a prior history of low back pain before conception, abdominal surgery, or known spinal pathologies such as intervertebral disc prolapse were excluded. Additional exclusion criteria included history of trauma, dementia, mental impairment, abortion, or obstetric complications that could independently influence musculoskeletal pain. Recruitment took place in hospital wards where eligible women were approached consecutively and invited to participate. Written informed consent was obtained from each participant, and confidentiality was maintained through anonymization of data. Participants were informed of their right to withdraw at any stage without consequence.

Data were collected using the Oswestry Low Back Pain Disability Index (ODI), a widely validated and reliable tool for quantifying disability due to low back pain (16). The ODI was administered in a structured manner by trained investigators who assisted participants in completing the questionnaire to minimize reporting bias. The instrument assessed multiple functional domains including pain intensity, mobility, self-care, occupational activity, and social participation. The primary outcome was the prevalence of postpartum low back pain, operationalized as the proportion of women with minimum, moderate, severe, or higher disability according to ODI scoring criteria. Secondary variables included age and occupation, which were recorded using a structured proforma.

Potential sources of bias were addressed at several levels. Standardized administration of the ODI reduced inter-observer variability, and exclusion of women with pre-existing musculoskeletal conditions minimized confounding from unrelated causes of disability. Sampling from two hospital settings enhanced the representativeness of findings, although the use of convenience sampling may still have introduced selection bias. The sample size was set at 176 participants, calculated with a 95% confidence level using a single population proportion formula based on an expected prevalence of postpartum LBP from prior studies, allowing for an acceptable margin of error (17).

Statistical analyses were performed using IBM SPSS Statistics version 21. Continuous variables such as age were summarized as means with standard deviations, while categorical variables such as disability levels and occupations were expressed as frequencies and percentages. Group comparisons between age categories, occupation, and ODI outcomes were conducted using chi-square tests, with a p-value <0.05 considered statistically significant.

Confidence intervals were calculated for prevalence estimates to improve precision and interpretability. Missing data were handled by case-wise deletion, and sensitivity analyses were performed to assess the robustness of findings. No subgroup analyses beyond stratification by age and occupation were conducted, given the sample size limitations.

Ethical approval for the study was obtained from the institutional review board of the University of Lahore. All procedures conformed to the principles of the Declaration of Helsinki. Data integrity was maintained by secure storage of study records, and reproducibility was enhanced through standardized data entry protocols and independent verification of random samples of records.

RESULTS

Among the 176 primigravida participants, the largest proportion belonged to the 20–25-year age group, accounting for 118 women (67.1%), followed by 56 women (31.8%) in the 26–31-year group, and only 2 women (1.1%) aged 32–37 years. Mean ODI scores were similar across age groups, with values of 28.4 ± 5.2, 29.1 ± 6.0, and 30.0 ± 4.5, respectively, and no statistically significant association was observed between age and disability category (p=0.62) (Table 1).

Occupational distribution showed that more than half of the women were housewives (n=97, 55.1%), followed by students (n=48, 27.3%) and employed participants (n=31, 17.6%). The prevalence of moderate disability was comparably high across all occupational groups—88.7% among housewives, 91.6% among students, and 90.3% among employed women—with no significant difference in disability severity across occupations (p=0.71) (Table 2).

Table 1. Age Distribution of Participants

Age group (years)	Frequency (n)	Percentage (%)	Mean ODI Score (±SD)	p-value*
20–25	118	67.1	28.4 ± 5.2	
26–31	56	31.8	29.1 ± 6.0	0.62
32–37	2	1.1	30.0 ± 4.5	
Total	176	100.0	—	—

Table 2. Occupational Distribution of Participants

Occupation	Frequency (n)	Percentage (%)	Moderate Disability (%)	p-value*
Housewife	97	55.1	88.7	
Student	48	27.3	91.6	0.71
Employed	31	17.6	90.3	
Total	176	100.0	—	—

Table 3. Severity of Disability According to ODI Categories

ODI Category	Criteria (Score %)	Frequency (n)	Percentage (%)	95% CI (%)
Minimum Disability	0–20	18	10.2	5.7 – 14.7
Moderate Disability	21–40	158	89.8	85.3 – 94.3
Severe Disability	41–60	0	0.0	—
Crippled	61–80	0	0.0	—
Bed-bound	81–100	0	0.0	—
Total	—	176	100.0	—

Analysis of ODI categories revealed that all 176 participants reported some degree of postpartum low back pain–related disability. Of these, 18 women (10.2%, 95% CI: 5.7–14.7%) were classified as having minimum disability, while the overwhelming majority, 158 women (89.8%, 95% CI: 85.3–94.3%), experienced moderate disability. None of the women were categorized as having severe disability, being crippled, or bed-bound (Table 3). This consistent clustering of participants within the minimum-to-moderate disability range underscores the high prevalence and functional impact of postpartum low back pain in this population.

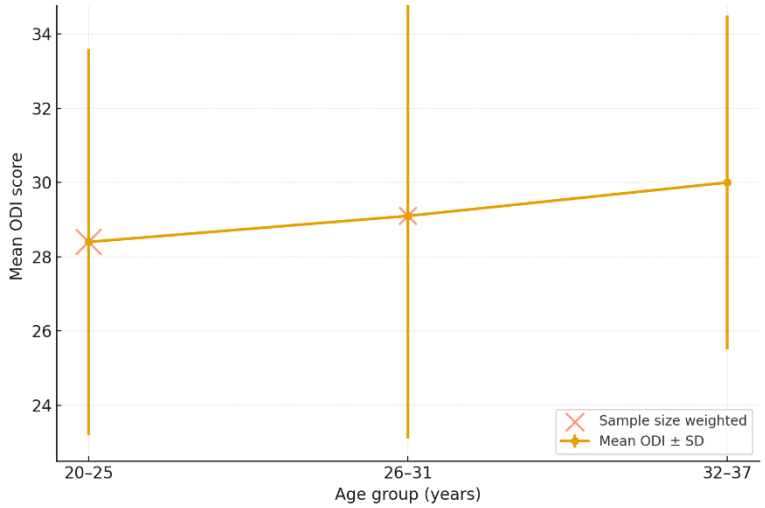

Figure 1 Postpartum Disability Severity Across Age Groups

The visualization demonstrates that mean ODI scores were consistent across age groups, ranging from 28.4 in women aged 20–25 years to 30.0 in those aged 32–37 years. Error bars show overlapping standard deviations (±5.2 to ±6.0), indicating no significant age-related differences in disability severity. The scatter points sizes, proportional to group sizes, highlight that the largest contribution came from the 20–25-year group (n=118), whereas the 32–37-year group (n=2) had minimal impact on the overall trend. Clinically, this distribution suggests that postpartum low back pain exerts a moderate disability burden across all age strata, with prevalence unaffected by maternal age within the studied range.

DISCUSSION

The present study investigated the prevalence of postpartum low back pain among primigravida women in Pakistan using the Oswestry Disability Index (ODI). Findings revealed that all participants experienced some degree of low back pain–related disability, with 89.8% classified as having moderate disability and 10.2% as minimum disability. Importantly, no cases of severe or crippling disability were identified. These results highlight a strikingly high prevalence and functional burden of postpartum low back pain in this population, aligning with international evidence that suggests musculoskeletal complaints are highly prevalent among women following childbirth (18).

Comparison with studies from high-income countries underscores both similarities and distinctions. An Australian cohort study reported that 48% of women experienced low back pain in the first three months postpartum, with nearly one-third still symptomatic at three months (5). In contrast, the prevalence in the current study was universal, which may reflect sociocultural differences in physical activity patterns, healthcare-seeking behaviors, and support systems available to new mothers in Pakistan. Similarly, Turkish research found that nearly half of pregnant women experienced pregnancy-related low back pain, particularly those without assistance in household tasks (19). The higher prevalence observed in the current sample may also be related to the predominance of housewives (55.1%), who often resume domestic responsibilities shortly after childbirth, thereby increasing biomechanical stress on the lumbar spine.

Age and occupation were not significantly associated with disability levels in this study, suggesting that postpartum low back pain is a broadly distributed burden rather than one confined to specific demographic subgroups. This contrasts with findings from systematic reviews that identified maternal age over 35 years and physically demanding work as potential risk factors for postpartum low back pain (12,20). The discrepancy may be explained by the narrow age range of participants in the present study, as the majority were younger than 30 years, limiting the ability to detect age-related effects.

The clinical implications of these findings are significant. The absence of severe disability categories does not diminish the functional burden imposed by moderate disability, which constituted nearly 90% of cases. Moderate ODI scores correspond to substantial limitations in mobility, self-care, and occupational functioning, all of which can impair maternal health and quality of life during the critical postpartum period (21). This suggests a need for routine screening of postpartum women, particularly primigravida mothers, to identify functional impairment early and implement preventive or rehabilitative interventions. Evidence supports that physiotherapy, ergonomic training, and structured postpartum exercise programs may reduce symptom persistence and progression to chronic low back pain (22).

This study has several limitations that must be acknowledged. First, the use of non-probability convenience sampling may have introduced selection bias, limiting the generalizability of findings. Second, the cross-sectional design precludes causal inference or assessment of symptom trajectories over time. Third, the study did not evaluate potential risk factors such as body mass index, mode of delivery, or use of anesthesia, which have been shown in prior research to influence postpartum low back pain (23). Finally, reliance on a single assessment tool, though validated, may not capture the multidimensional aspects of musculoskeletal pain.

Despite these limitations, the study contributes valuable preliminary data to a largely under-researched area in Pakistan. By documenting the near-universal prevalence of postpartum low back pain in primigravida women, it underscores the urgent need for longitudinal and multicenter studies that incorporate larger samples and a broader range of clinical variables. Future research should also explore the effectiveness of culturally adapted preventive and rehabilitative interventions to reduce the burden of postpartum disability.

CONCLUSION

This study demonstrated a high prevalence of postpartum low back pain among primigravida women in Pakistan, with nearly 90% experiencing moderate disability and the remainder reporting minimum disability. Although severe forms of disability were not observed, the functional limitations identified underscore the substantial burden of musculoskeletal pain during the early postpartum period. These findings emphasize the importance of incorporating postpartum musculoskeletal health into maternal care, with targeted screening, physiotherapy, and preventive interventions to improve maternal wellbeing. Future research should employ larger, multicenter designs to explore associated risk factors and evaluate the effectiveness of early rehabilitative strategies tailored to this population.

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