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# Low Back Pain During Pregnancy: Prevalence, Risk Factors and Clinical Profile At Tertiary Hospital-A Cross-Sectional Study

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## ABSTRACT

**Background:** Low back pain (LBP) is a significant musculoskeletal problem during pregnancy, which can negatively affect a woman's quality of life. The aim of this study was to determine the prevalence, the clinical characteristics and the factors associated with LBP during pregnancy among women attending in the OPD of Shaheed Ziaur Rahman Medical College Hospital, Bogura Bangladesh.

**Methods:** A cross-sectional study was carried out from January 2025 to December 2025. We included all pregnant women who came for antenatal consultation during the study period and who gave their informed consent to participate in the study. A pretested, interviewer-administered questionnaire was used to collect data on the sociodemographic characteristics of the participants, the occurrence of LBP, its clinical characteristics and the factors associated with its occurrence. Data were analyzed using SPSS version 25.0. A p-value of $< 0.05$ was considered statistically significant.

**Results:** A total of 100 participants were included in the study. The prevalence of LBP in pregnancy was 54.0%. The prevalences of lumbar pain and pelvic girdle pain were 35.0% and 26.0%, respectively. The factors that were associated with a higher likelihood of reporting LBP in a previous pregnancy ($p = < 0.001$), obesity ($p = < 0.001$), and using a soft mattress ($p = 0.006$). Exercise during pregnancy was found to be a protective factor ($p = < 0.001$).

**Conclusion:** Low back pain during pregnancy is a common problem among pregnant women attending in the OPD of Shaheed Ziaur Rahman Medical College Hospital. Health workers need to identify LBP in pregnancy and managing it promptly.

**Keywords:** Low back pain, Pregnancy, Prevalence, Risk factors.

## INTRODUCTION

Low back pain (LBP) is defined as pain between the costal margin and the inferior gluteal fold which may be referred down to the leg and is usually accompanied by painful limitation of movement[1, 2]. LBP in pregnancy is defined as recurrent or continuous pain for more than one week from the lumbar spine or pelvis during pregnancy[3]. LBP could be pelvic girdle pain (PGP) or lumbar pain (LP)[4, 5]. PGP presents as pain between the posterior iliac crest and the gluteal fold which radiates towards the postero-lateral thigh and knee but not the foot [6]. On the other hand, LP is characterized as pain over and around the lumbar spine, above the sacrum, which may or may not radiate to the foot; tenderness over the paravertebral muscles is a common clinical finding[7]. The posterior pain provocation test is positive, in case of PGP[8, 9] and helps to differentiate PGP from other conditions. History of pelvic trauma, chronic LBP, and LBP during a previous pregnancy are the most common and widely accepted risk factors[14]. The majority of women are affected in their first pregnancy [15] and 85% of women

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with back pain in a previous pregnancy will develop LBP in a subsequent pregnancy[16]. The number of previous pregnancies also seems to increase this risk [6]. The onset of pain during pregnancy, elective caesarean section, body mass index (BMI) as well as hypermobility are strong predictors of persistent LBP in pregnancy[17]. LBP during menstruation[15] and some movements like sitting up, standing up from a chair, tossing, repetitive lifting, turning around are additional risk factors for pregnancy-related LBP[18]. Pregnancy related LBP seems to be a result of hormonal, mechanical and other factors [19, 20]. The hormonal changes (increase in relaxin) cause softening of ligaments and joints. In conjunction with lengthening of the abdominal and pelvic floor muscles[19], this compromises the stability of the spine[12, 13], which loses the ability to maintain body posture, causing the lower back to support most of the increased weight of the torso[20]. The result is excess mobility of the joints which may be the cause of discomfort or pain in the Sacro-iliac joint, lower back and posterior pelvis[14,15]. Also, the enlarging gravid uterus changes the load and body mechanics which leads to a shift in the Centre of gravity forwards thereby increasing the stress on the lower back. Postural changes can be used to balance the anterior shift possibly causing an extra lordosis which further increasing stress on the lower back [17, 18]. The extra stress on the intervertebral disc responds to the axial loading by expelling fluid, resulting in decreased height and an overall compression of the spine[16]. LBP has a negative impact on women's daily activities, quality of life, and ability to work but women do not always seek medical attention[3]. The appropriate treatment aims to reduce discomfort and the impact on the pregnant woman's quality of life. Treatment options include physiotherapy, acupuncture, massage, relaxation, yoga, stabilization belts, nerve stimulation and eventually pharmacological treatment[19]. Despite the impact of LBP in pregnancy on the quality of life, there is little or no information on this pathology in our setting. Therefore, the aim of this study was to determine the prevalence, the clinical characteristics and the factors associated with LBP during pregnancy.

## MATERIAL AND METHODS

**Study design and setting:**

This study was a cross-sectional study carried out in the OPD of Shaheed Ziaur Rahman Medical College Hospital, Bogura Bangladesh from January 2025 to December 2025.

**Inclusion Criteria:**

All pregnant women attending their antenatal care during the study period who gave informed consent were included in the study.

**Exclusion Criteria:**

Pregnant women who had been experiencing back pain caused by an underlying pathology such as fractures or direct trauma were excluded.

**Study procedure:**

Data was collected by the principal investigator with informed consent was signed before the participant was enrolled in the study. Data was collected on sociodemographic characteristics, obstetrical and gynecologic characteristics, clinical characteristics of pain, medical history of low back pain and lifestyle habits such as prolonged postural habit, physical activity, and the firmness of the mattress. The Visual Analog Scale (VAS) is a tool used to assess pain intensity, commonly employed in research and routine clinical practice.

## RESULTS

Among the 100 participants, the mean age (SD) was 27.31 (5.61) years with the minimum age being 15 years and maximum 47 years. Most of the women, 74.0% were aged ≤ 30 years, 98.0% were Muslims, 99.0% were married, 48.0% had a secondary school level of education and 65.0% were employed (Table 1).

**Table 1. Association between sociodemographic characteristics and low back pain during pregnancy**

| Variable | Category | Presence of pain *n*(%) | | | Odd ratio | *P* value |
|---|---|---|---|---|---|---|
| | | Total (*N* = 100) | Yes (n = 55) | No (n = 45) | | |
| Age group (years) | ≤ 30 | 76 (73.9%) | 40 (76.0%) | 36 (71.4%) | 0.547(0.154–2.325) | 0.282 |
| | > 30 | 27 (26.1%) | 13 (24.0%) | 14 (28.6%) | 1.268 (0.815–1.972) | 0.172 |
| Religion | Muslim | 98 (98.0%) | 50 (97.8%) | 48 (98.4%) | 0.587 (0.154–2.675) | 0.192 |
| | Hindus | 2 (2.0%) | 1 (1.0%) | 1 (1.0%) | 0.697 (0.164–2.995) | 0.624 |
| Educational level | Primary | 10 (10.0%) | 4 (7.7%) | 6 (12.7%) | 0.519 (0.260–1.863) | 0.062 |
| | Secondary | 49 (47.3%) | 26 (46.6%) | 23 (48.1%) | 0.829 (0.549–1.251) | 0.829 |
| | Tertiary | 44 (42.7%) | 25 (45.7%) | 19 (39.2%) | 1.293 (0.803–2.082) | 0.290 |
| Marital status | Single | 21 (21.0%) | 10 (19.0%) | 11 (23.3%) | 0.273 (0.703–2.062) | 0.270 |
| | Married or cohabiting | 100 (100%) | 51 (51.0%) | 49 (49.0%) | 1.293 (0.803–2.082) | 0.190 |
| Occupation | Employed | 64 (64.0%) | 34 (63.8%) | 30 (65.6%) | 1.193 (0.603–2.042) | 0.703 |
| | Unemployed | 36 (36.0%) | 20 (36.2%) | 16 (34.4%) | 0.924 (0.615–1.388) | 0.170 |

The mean gestational age (SD) was 26.02 (± 7.997) weeks with a range from 8 weeks to 41 weeks of gestation. Concerning the obstetrical profile, 69.0% were multigravida, 38.0% were multiparous and 56.0% were in the second trimester of pregnancy. Among the 65 women who had delivered before, 26.0% had a caesarean delivery during the previous pregnancy. Among the study participants, 42.0% had a history of dysmenorrhea.

Most of the participants, 84.0%, had no history of LBP, 36.0% had LBP during their previous pregnancy, 49.0% had no prolonged postural habits, 63.0% did not exercise before the current pregnancy and 81.0% did not exercise during the current pregnancy. The mean body mass index was 29.1 kg/m$^2$ with 39.0% of the participants being obese. Among the participants, said their mattress was firm.

The prevalence of LBP among our participants was 54.0%. The prevalence of LP was 35.0% and that of PGP was 26.0%. Of the 100 participants, 8 had combined PGP and LP. The mean gestational age (SD) at onset of pain was 17.9 (8.32) weeks for LP and 18.31 (9.13) weeks for PGP. The mean (SD) pain severity on the visual analogue scale (VAS) was 4.79 (1.62) for LP and 4.83 (1.51) for PGP, while the pain severity mode and median were both 5. The pain was most often of gradual onset for both LP (83.0%) and PGP (94.0%). It was described as cramps or spasms by most of the participants (22.0% for LP vs. 34.0% for PGP). In 22.0% of cases for LP and 27.0% for PGP the pain radiated to the lower limbs. LP and PGP occurred most often for 1–2 days per week (37.0% vs. 40.0%), hindered daily activities (44.0% vs. 43.0%) and sleep (30.0% vs. 33.0%). Only 18.0% of participants with LP and 15.0% with PGP resorted to the use of medications.

Participants with prolonged postural habits ($p = 0.035$) and those who were obese ($p < 0.000$) were more likely to experience pregnancy-related LBP. Gynecologic nor obstetrical variables were statistically significantly associated with the occurrence of pregnancy-related LBP. Women who reported having a soft mattress ($p < 0.0001$), history of LBP ($p < 0.001$) and a history of LBP in the previous pregnancy ($p < 0.0001$) were more likely to have pregnancy-related LBP. Engaging in exercise before pregnancy ($p < 0.001$) and doing exercise during pregnancy ($p < 0.001$) decreased the likelihood of having pregnancy related LBP.

**Table 2. Factors associated with low back pain in pregnancy**

| Variables | Crude OR (95% CI) [p-value] | Adjusted OR (95% CI) [p-value] |
|---|---|---|
| **Prolonged postural habit** (Present) | 1.52 (1.03–2.25) [0.035] | 1.48 (0.86–2.53) [0.157] |
| **Body mass index** (Obese) | 2.88 (1.90–4.38) [<0.0001] | 3.44 (1.97–5.99) [<0.001] |
| **Low back pain in previous pregnancy** (Yes) | 3.00 (1.79–5.05) [<0.0001] | 2.91 (1.63–5.19) [<0.001] |
| **History of LBP before pregnancy** (Yes) | 2.66 (1.47–4.82) [0.001] | 2.00 (0.96–4.17) [0.065] |
| **Exercise before pregnancy** (Yes) | 0.51 (0.34–0.77) [0.001] | 0.88 (0.47–1.63) [0.678] |
| **Exercise during pregnancy** (Yes) | 0.40 (0.24–0.67) [0.001] | 0.21 (0.09–0.47) [<0.001] |
| **Nature of mattress** (Soft) | 2.80 (1.77–4.43) [<0.0001] | 2.42 (1.28–4.58) [0.006] |

## DISCUSSION

Low back pain affects more than half of pregnant women globally. In low and middle-income countries, this figure could be higher due to underreporting, because women are faced with more pressing health issues. Understanding the prevalence and risk factors of LBP and its impact on daily activities is critical to informing a comprehensive antenatal care and improving the quality of care offered to pregnant women. Lumbar pain was the most common type of LBP in this study, which is consistent with the findings of Ca et al.,

Sencan et al. [20]., and Uemura et al. in Japan[14], but differs from the findings of Katonis et al. in Greece. In this study, the prevalence of LP was 35.0%, which is lower than 71.0% reported in Spain by Kovac et al.[1], and 72.1% by Ansari et al.[13]. Weight gain and changes in posture throughout pregnancy contribute to an increased load on the lumbar area, making it more likely for pregnant women to experience lumbar pain.

In contrast, the prevalence of PGP in this study was 26.0%, which was like that reported in Canada[15]. This is lower than that reported in Spain[1], but higher than that reported in Ibadan, Nigeria[12]. These differences in prevalence could be attributed to varying diagnostic criteria and reporting practices. In this study, 7.0% of the participants had combined pain. This combined pain leads to a broader spectrum of discomfort and functional limitation, highlighting the importance of recognizing it during pregnancy, as it can negatively impact the prognosis and recovery process for affected women[14]. The mean gestational age at the onset of pain was 17.9 weeks for LP and 18.3weeks for PGP, which is similar to the findings of Bergström et al. in Sweden, who had the onset of pain at about the 18th week of pregnancy[18]. This indicates that pregnancy-related LBP often begins early

in the second trimester. In this study, pain onset was gradual, accompanied by cramps, which is consistent with the findings of Sencan et al.[20]. This may suggest that this gradual onset may be a common feature of pregnancy-related LBP across different populations. The mean pain score in this study was 5, which is like the findings of Kovacs et al. in Spain[1] and Al-Sayegh et al. in Kuwait[13,] but higher than the mean score of 2.6 found by Uemura et al.[19]. These differences could be attributed to cultural differences in pain perception as well as participant reporting. Most women in this study reported having pain for 1–2 days a week, which is like the findings of Uemura et al.[20]. This suggests that the pain might be intermittent pain rather than constant pain. Less than a third reported radiation of pain to the leg, which is lower than 72.5% found by Sencan et al.[18]. The above findings could reflect regional differences in how pregnancy-related LBP manifests, as well as potential differences in diagnostic criteria or participant reporting. This study also found that sleeping on a soft mattress was associated with having LBP in pregnancy, which is like the findings of Kovac et al.[1]. Sleeping on a soft surface may cause excessive sinking, especially in the areas of the lower back and pelvis. This can lead to misalignment of the spine and pelvis, putting additional strain on the muscles and ligaments that support the back causing or exacerbating the already existent pain. Exercise during pregnancy was associated with a lower risk of LBP in pregnancy in this study, which is like the findings of Shiri et al.[12] and Mogren et al[3]. In general, exercise programs that facilitate weight loss, trunk strengthening, and the stretching of musculotendinous structures appear to be helpful. Exercise such as relaxation and stretching exercises eliminate muscle tension, creating a "natural" corset by abdominal and low back muscle training are useful in treating LBP [20].

## CONCLUSION

Pregnancy-related back pain affects more than half of pregnant women consulting at the OPD of Shaheed Ziaur Rahman Medical College Hospital. Factors associated with this pain include LBP in previous pregnancy, lack of physical exercise during pregnancy, using a soft mattress, and being obese. Pregnancy-related back pain should be actively evaluated during ANC and managed accordingly.

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