



## PREVALENCE OF PREGNANCY-RELATED LOW BACK PAIN AND PELVIC GIRDLE PAIN IN PREGNANT WOMEN OF THE SUBURB AREA OF PUNE

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### ABSTRACT

**Background:** During pregnancy, a woman's body undergoes a wide range of physical changes, including weight gain, postural adaptations, and increased laxity of joints and ligaments, accompanied by alterations in the musculotendinous system. These hormonal, physiological, and biomechanical modifications can place additional stress on the body, often resulting in pain, discomfort, and musculoskeletal complaints.<sup>(1)</sup> The most frequently reported pregnancy-related musculoskeletal conditions that influence women's health and daily functioning are low back pain (LBP) and pelvic girdle pain (PGP).<sup>(2)</sup> These conditions are often underestimated, both by pregnant women themselves and by healthcare professionals, since they are not typically considered serious complications. Furthermore, evidence highlights a significant burden of musculoskeletal problems during pregnancy; however, limited research has been conducted among women from lower socioeconomic backgrounds. This study was therefore designed to examine the prevalence of LBP and PGP in pregnant women across all three trimesters. **Methods:** This observational study recruited 179 pregnant women aged 21–35 years, including both working and non-working primigravidae across all trimesters. Women with pre-existing musculoskeletal disorders, recent injuries, neurological conditions, or a history of orthopaedic surgery were excluded. Data were gathered from general hospitals in suburban Pune using a non-probability convenience sampling method. A self-developed questionnaire, validated by five subject experts, was used for assessment. Participants completed the questionnaire after being briefed about the objectives and procedures of the study. **Results:** The Study shows 60% women had Low back pain and 40% of women had Pelvic Girdle Pain. **Conclusion:** This study found that there is a high prevalence of pregnancy-related back pain, i.e., 60% and moderate prevalence of Pelvic girdle pain, i.e., 40% throughout the pregnancy.

**KEYWORDS :** Pregnancy-related LBP, PGP, Prevalence

### INTRODUCTION:

During pregnancy, a woman's body undergoes a wide range of physical changes, including weight gain, postural adaptations, and increased laxity of joints and ligaments, accompanied by alterations in the musculotendinous system. These hormonal, physiological, and biomechanical modifications can place additional stress on the body, often resulting in pain, discomfort, and musculoskeletal complaints.<sup>(1)</sup> The most frequently reported pregnancy-related musculoskeletal conditions that influence women's health and daily functioning are low back pain (LBP) and pelvic girdle pain (PGP).<sup>(2)</sup>

LBP refers to pain located between the twelfth rib and the gluteal fold, whereas PGP is characterized by discomfort felt between the sacroiliac joint and the gluteal fold or around the pubic symphysis. Such pain can begin as early as the first trimester and may persist even after childbirth.<sup>(3)</sup> Although the exact cause remains unclear, both hormonal and mechanical mechanisms are considered contributory. Hormonal changes, particularly the role of relaxin, have been proposed to increase joint and ligament laxity; however, clinical findings on its direct association with LBP and PGP remain inconsistent. From a biomechanical perspective, there is moderate evidence suggesting that changes in motor control, as well as alterations in kinetic and kinematic parameters, are related to these conditions.<sup>(4)</sup>

While not life-threatening, pregnancy-related LBP and PGP can interfere with everyday activities such as walking, working, sleeping, and even emotional well-being, leading to a decline in quality of life.<sup>(2)</sup> These conditions are often underestimated, both by pregnant women themselves and by healthcare professionals, since they are not typically considered serious complications. Furthermore, evidence highlights a significant burden of musculoskeletal problems during pregnancy; however, limited research has been conducted among women from lower socioeconomic backgrounds. This study was therefore designed to examine the prevalence of LBP and PGP in pregnant women across all three trimesters.

### METHODOLOGY:

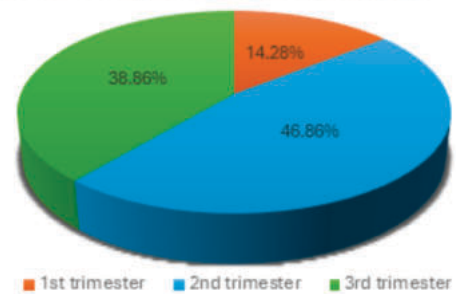
This observational study recruited 179 pregnant women aged 21–35 years, including both working and non-working primigravidae across all trimesters. Women with pre-existing musculoskeletal disorders, recent injuries, neurological conditions, or a history of orthopaedic surgery were excluded. Approval from the institutional ethics committee was obtained before data collection, and written informed consent was obtained from all participants. Data were gathered from

general hospitals in the suburb area of Pune using a non-probability convenience sampling method. A self-developed questionnaire, validated by five subject experts, was used for assessment. Participants completed the questionnaire after being briefed about the objectives and procedures of the study.

Statistical Analysis: Data entry and analysis were carried out in MS Excel. The prevalence and severity of LBP and PGP were reported using descriptive statistics, including frequencies and percentages.

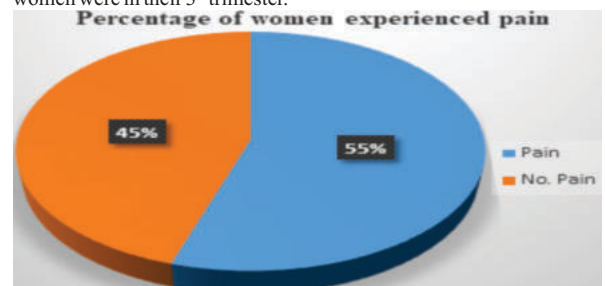
### RESULTS:

#### Trimester wise percentage of pregnant women



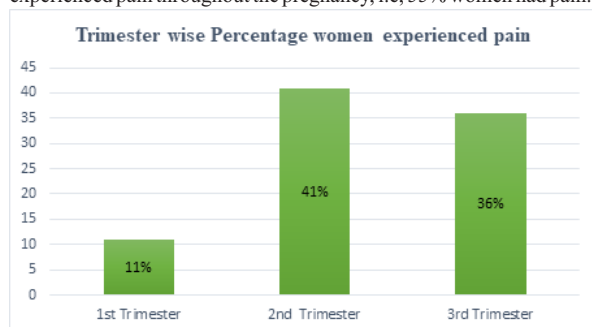
**Graph no. 1:** Trimester-wise percentage of pregnant women

**Interpretation:** The Above Graph shows that 14.28% women were in 1<sup>st</sup> trimester, 38.86% of women were in 2<sup>nd</sup> trimester and 46.86% women were in their 3<sup>rd</sup> trimester.



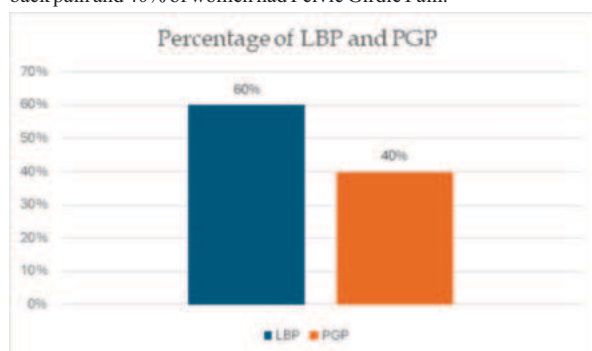
**Graph no. 2** Percentage of women who experienced pain during Pregnancy

**Interpretation:** The above graph shows the percentage of women who experienced pain throughout the pregnancy, i.e., 55% women had pain.



**Graph 3:** Percentage of Low Back Pain and Pelvic Girdle Pain

**Interpretation:** The Above Graph shows that 60% women had Low back pain and 40% of women had Pelvic Girdle Pain.



**Graph No. 4:** Percentage of women who experienced pain in all three trimesters

**Interpretation:** The Above graph shows that 11% women, 41% women, and 36% of women experienced Pain in their 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> trimesters, respectively.

## DISCUSSION:

This study is carried out with the aim of finding out the prevalence of musculoskeletal problems in pregnant women in the Suburb area of Pune. In this study, we included 179 pregnant women, among them 14.28% were from the 1st trimester, 46.86% from the 2nd trimester, and 38.86% women from the 3rd trimester which as seen in Graph 1. In this study, 99 pregnant women, i.e., 55% percent Pregnant women throughout Pregnancy experience Low Back pain and Pelvic girdle pain, which can be seen in Graph no. 3. Graph No. 3 shows that 60% women had LBP with a mean pain intensity of 7.2 ( $\pm 1.07$ ). And 40% women had PGP with a mean pain score of 7.17 ( $\pm 1.34$ ). Graph no 4 tells about the pain experienced by pregnant women, more in the 2<sup>nd</sup> trimester, followed by the 3<sup>rd</sup>, and then the 1<sup>st</sup>. This can be due to during pregnancy, because of postural changes, the spine undergoes abnormal stresses which can lead to discomfort, aches, and pain.<sup>[1]</sup> The most important factors implicated in the etiology of low back pain are the center of gravity shifting to the front due to weight gain and the growth of the uterus, and due to the increased relaxin levels, relaxation of the joints.<sup>[6]</sup> Due to elevated levels of progesterone and relaxin hormones, softening of the ligaments and lumbosacral joints due to which exacerbates the low back pain in pregnancy.<sup>[1]</sup> During pregnancy, posture is altered, causing hyperlordosis, which contributes to the mechanical strain on the back and sacroiliac joints.<sup>[6]</sup> The pelvis tilts forward due to the growing weight of the baby. This additional weight can tilt the pelvis forward, which can pull on the coccyx. The effect of the hormones (relaxin and progesterone) is also responsible for the ligament laxity and increased mobility of the joints.<sup>[6]</sup> Gülşah Balık has explained that the musculoskeletal system can be affected at any time throughout the pregnancy; system affection is most prominent in the third trimester.<sup>(7,8)</sup>

## CONCLUSION:

This study found that there is a high prevalence of pregnancy-related back pain, i.e., 60% and moderate prevalence of Pelvic girdle pain, i.e., 40% throughout the pregnancy.

## Clinical Implication:

In this study, we have seen that the prevalence of pregnancy-related low back pain and pelvic girdle pain in pregnant women can affect the female's quality of life during her pregnancy. So, this study can be useful for the benefit of the well-being of the pregnant female. We can prevent this musculoskeletal problem by giving them ergonomic advice for their proper healthy posture and by tailoring an exercise program.

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