

Prevalence and Functional Consequences of Symphysis Pubis Dysfunction in Pregnant Women Receiving Antenatal Care

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Abstract

Background: Symphysis Pubis Dysfunction (SPD), a common manifestation of pregnancy-related pelvic girdle pain, significantly affects physical functioning and quality of life among pregnant women. Despite its substantial impact on maternal well-being, limited data are available regarding its prevalence and associated functional consequences in Pakistan.

Objective: To determine the prevalence of Symphysis Pubis Dysfunction among pregnant women attending antenatal clinics and to evaluate its association with quality of life and functional mobility.

Methodology: A descriptive cross-sectional study was conducted at the antenatal clinics of a tertiary care teaching hospital in Lahore, Pakistan, from December 2025 to April 2026. A total of 250 pregnant women aged 18–40 years with singleton pregnancies were recruited through consecutive sampling. Data were collected using a structured questionnaire, the Pelvic Girdle Questionnaire (PGQ), the Short Form-12 Health Survey (SF-12), and the Timed Up and Go (TUG) test. Statistical analysis was performed using SPSS version 26. Associations between SPD, quality of life, and functional mobility were assessed using Chi-square tests, independent t-tests, and Pearson correlation analysis.

Results: Among 250 participants, 88 women were diagnosed with SPD, yielding a prevalence of 35.2%. The mean age of participants was 28.9 ± 4.8 years. SPD was significantly more common among multiparous women ($p=0.012$), obese women ($p=0.008$), and those in the third trimester ($p=0.001$). Women with SPD demonstrated significantly lower SF-12 quality-of-life scores (48.3 ± 8.2 vs. 71.5 ± 7.6 ; $p<0.001$) and prolonged TUG test times (13.7 ± 2.8 seconds vs. 9.8 ± 1.9 seconds; $p<0.001$). PGQ scores showed a strong negative correlation with quality-of-life scores ($r=-0.69$, $p<0.001$) and a positive correlation with mobility impairment ($r=0.61$, $p<0.001$).

Conclusion: Symphysis Pubis Dysfunction is highly prevalent among pregnant women in Pakistan and is significantly associated with reduced quality of life and impaired functional mobility. Early screening and appropriate management strategies should be integrated into routine antenatal care to improve maternal health outcomes.

Keywords: Symphysis Pubis Dysfunction, Pregnancy, Pelvic Girdle Pain, Quality of Life, Functional Mobility, Pakistan

Introduction:

Pregnancy is accompanied by numerous physiological, hormonal, and biomechanical changes that facilitate fetal growth and prepare the maternal body for childbirth. Although such adaptations are important to have a successful pregnancy, they can equally expose women to different musculoskeletal conditions, some of which include Pregnancy Pelvic Girdle Pain and Symphysis Pubis Dysfunction (SPD). Symphysis Pubis Dysfunction is characterized by pain, instability, and functional impairment originating from the pubic symphysis and surrounding pelvic joints. The condition may manifest as pain in the anterior pelvis, groin, lower back, perineum, or inner thighs and is frequently aggravated by activities such as walking, climbing stairs, standing on one leg, turning in bed, or rising from a seated position. Although SPD is not usually life-threatening, it can significantly impair daily functioning and negatively affect maternal well-being during pregnancy and the postpartum period (1).

The pubic symphysis is a fibrocartilaginous joint that connects the two pubic bones and contributes to pelvic stability. During pregnancy, elevated levels of hormones such as relaxin, progesterone, and estrogen increase ligamentous laxity and joint mobility to facilitate vaginal delivery. Excessive laxity, however, may result in instability of the pelvic girdle, leading to pain and dysfunction (2). Mechanical factors including increasing uterine size, altered posture, displacement of the center of gravity, and increased loading of the pelvic structures further contribute to the development of SPD. These physiological effects become more evident as gestation progresses, and could account for an increase

in symptoms experienced during the second and third trimester (3).

There is considerable variability in the reported prevalence of SPD amongst different populations and clinical environments. Prevalence rates for SPD have been estimated in international literature as ranging from 20% to 45%, while certain studies have found even higher values, contingent on the specific criteria utilized (4,5). In one large cohort study in Norway, pelvic girdle pain was reported to occur in about a third of all pregnant women, and was found to be one of the largest causes of disability in pregnancy (6). Likewise, Australian, Swedish, and United Kingdom studies have shown pelvic girdle pain to be one of the biggest sources of musculoskeletal pathology in pregnant women (7,8). In spite of the high prevalence rate, this condition remains highly under-diagnosed, especially in low and middle-income nations.

A number of risk factors have been reported to be associated with SPD. Earlier researches have found multiparity, high body mass index, past history of low back pain, history of pelvic injury, physically demanding jobs, and prior occurrence of pelvic girdle pain to be major predictors of SPD (9,10). In developing nations like Pakistan, other potential contributing factors for the disease could include malnutrition, lack of prenatal exercise, delayed seeking of healthcare services, and high fertility rates. But unfortunately, local evidence in this regard is limited.

The effects of SPD are not limited to physical pain only. The ongoing pain in pelvis can hinder the individual from performing daily tasks, work, household chores, proper sleep,

and social interactions. Women with SPD often express their dissatisfaction about the situation along with symptoms of anxiety, dependency on family members, and lower self-reliance. This implies that SPD can negatively impact both physical and psychological aspects of HRQOL (11). Quality of life has become an increasingly important outcome parameter in maternal care since it measures the complete impact of disease on an individual's physical, emotional, and social wellbeing.

Functional mobility can also be considered an important factor related to maternal wellbeing that can be affected in SPD patients. In many cases, women suffer from pelvic pain, leading to the inability to walk, long walking times, and decreased physical stamina. The TUG (Timed Up and Go) test can help assess these limitations and is a common tool that was previously used for evaluation of functional ability of pregnant women (12). Similarly, PGQ (Pelvic Girdle Questionnaire) is an appropriate tool that can measure disability and symptoms of women suffering from pelvic girdle pain (13).

Despite the growing amount of literature on SPD on the international level, there is a lack of scientific studies regarding the prevalence and effect of SPD on Pakistani women. In most cases, antenatal services in Pakistan pay much attention to obstetric issues; musculoskeletal problems have lower priority.

Understanding the prevalence of SPD and its relationship with quality of life and functional mobility is essential for developing evidence-based screening and management strategies. Therefore, this study was conducted to

determine the prevalence of Symphysis Pubis Dysfunction among pregnant women attending antenatal clinics in Lahore, Pakistan, and to evaluate its association with quality of life and functional mobility.

Methods:

This descriptive cross-sectional study was carried out at the antenatal outpatient clinics of the Lahore Teaching Hospital, Lahore, Pakistan for five months from December 2025 to April 2026. The aim of the study was to evaluate the prevalence rate of SPD among pregnant females and to establish its relation with quality of life and functional mobility. For this study, pregnant women visiting antenatal clinics for their antenatal checkup during the period of the study were considered as the target population. The sample size was determined by WHO formula for prevalence studies considering an expected prevalence rate of 30%, a confidence interval of 95% and a margin of error of 6%. The minimum sample size was calculated to be 224 but 250 pregnant women were taken into consideration for the study in order to avoid any missing data and non-response bias.

Women in the reproductive age group ranging from 18 to 40 years having singleton pregnancies and a gestational period of over 12 weeks were selected for inclusion in the study. Women having past records of pelvic fracture, congenital abnormalities of muscles and skeleton system, neurological conditions leading to physical disabilities, rheumatic disorders, and high-risk pregnancy leading to hospitalizations were excluded to avoid the possible confounding effects on pelvic pain or mobility.

Before the start of the data collection process, ethical approval was acquired from the Institutional Review Board of the University of Lahore. The informed consent of the subjects was taken in written form after briefing about the purpose of the study. Anonymity of the collected data was kept intact and subjects were briefed about their right to opt out of the study without facing any negative implications.

Data were obtained via a standardized questionnaire carried out in face-to-face interviews. Data on socio-demographic and obstetric variables such as age, Body Mass Index (BMI), educational status, occupational status, parity, gestational age, and history of musculoskeletal pain were collected. The existence and severity of Symphysis Pubis Dysfunction were determined through Pelvic Girdle Questionnaire (PGQ), an established tool that is designed particularly to measure symptoms and severity of disability associated with pelvic girdle pain in pregnant women. Pregnant women who reported pain around the pubic symphysis area and had limited physical functioning consistent with SPD were identified as SPD positive.

Quality of life was measured through Short Form-12 Health Survey (SF-12). This instrument is used to determine the status of physical and psychological dimensions of quality of life. Higher scores of SF-12 reflect good quality of life, while lower scores suggest poor health status. Functional mobility was assessed through Timed Up and Go (TUG) Test, a standard performance test where participants were asked to rise up from a chair, walked to a point 3 meters away, turned around, and sat back to the chair

again. The time taken by the participants to do the task was measured in seconds.

All data obtained from the analysis were entered into Statistical Package for Social Sciences (SPSS) version 26 for further analysis. Descriptive statistics including means and standard deviation for continuous variables such as age, SF-12 score, PGQ score, and TUG time were computed. However, categorical variables were expressed as frequency counts and percentages. The prevalence rate of SPD was obtained as the percentage of study subjects who satisfied the criteria for the disease. Association between SPD and socio-demographic or obstetric variables was done using Chi-square test. Mean quality of life and functional mobility scores of the participants with and without SPD were compared using independent sample t-test. Correlation between severity of SPD, quality of life score, and functional mobility was assessed using Pearson's correlation coefficient.

Results:

A total of 250 pregnant women participated in the study.

The mean age was 28.9 ± 4.8 years (range 18–40 years). Most participants (42.4%) belonged to the 26–30 years age group. Multiparous women constituted 60.0% of the sample, while 40.0% were primigravida.

Of the 250 participants, 88 were identified as having SPD, resulting in a prevalence of 35.2%.

Table 1: Distribution of Participants According to SPD Status

SPD Status	Frequency	Percentage
Present	88	35.2%
Absent	162	64.8%
Total	250	100%

Association with Maternal Characteristics

Table 2: SPD prevalence increased significantly with increasing BMI and parity.

Variable	SPD Present (%)	SPD Absent (%)	n	p-value
Primigravida	24 (27.3)	76 (46.9)	0.012	
Multiparous	64 (72.7)	86 (53.1)		
Normal BMI	26 (29.5)	78 (48.1)	0.008	
Overweight/Obese	62 (70.5)	84 (51.9)		
Second Trimester	28 (31.8)	82 (50.6)	0.001	
Third Trimester	60 (68.2)	80 (49.4)		

Quality of Life

Table 3: Women with SPD reported significantly lower quality-of-life scores than those without SPD.

Group	Mean SF-12 Score	SD	p-value
SPD Present	48.3	8.2	<0.001
SPD Absent	71.5	7.6	

Functional Mobility

Table 4: Participants with SPD demonstrated poorer mobility performance.

Group	Mean TUG Time (seconds)	SD	p-value
SPD Present	13.7	2.8	<0.001
SPD Absent	9.8	1.9	

Correlation Analysis

PGQ scores exhibited:

- Strong negative correlation with SF-12 scores ($r = -0.69$, $p < 0.001$).
- Moderate positive correlation with TUG times ($r = 0.61$, $p < 0.001$).

From the above results, it can be seen that there was a relationship between the increase in SPD and an increase in poor quality of life and mobility problems.

Discussion:

This study has evaluated the prevalence of Symphysis Pubis Dysfunction (SPD) and its relation to the quality of life and functional mobility of pregnant females in antenatal clinics in Lahore, Pakistan. It has been found

from the study that around one-third (35.2%) of the study population suffered from SPD. Additionally, women suffering from SPD had poor quality of life and reduced functional mobility as compared to women who did not have SPD.

Prevalence seen in this study has been supported by evidence found in international literature. Wu et al. found out that prevalence of pregnancy associated pelvic girdle pain was in the range of 20% to 45%, depending upon population and criteria used for diagnosis (4). Likewise, Robinson et al. stated that about one third of pregnant women have clinically significant pelvic girdle pain during their pregnancy period, a finding similar to what has been seen in this study (6). Similarity in the findings of this study with international studies indicates that SPD is a commonly occurring problem for mothers regardless of geographic location. However, lack of awareness amongst healthcare professionals and pregnant women in Pakistan can lead to under recognition of the problem.

The other finding of importance from the current study is the strong association between parity and SPD. Multiparous women had a greater likelihood of developing SPD compared to primigravida women. The current observation is in agreement with some of the past literature which states that repeat pregnancies can put additional stress on pelvic ligaments, and therefore, cause pelvic instability leading to pain (8,9). Hormonal changes and adaptations of body posture in pregnancy may have caused some physical changes in pelvic support structures, making future pregnancies vulnerable to dysfunction. Multiparity could be an

important factor for the development of SPD in Pakistan where family size is relatively large.

Body mass index was also found to be significantly correlated with the prevalence of SPD. Overweight and obese women had a higher prevalence rate compared to women with normal body mass index. Similar results were obtained by Bastiaanssen et al., who suggested that higher maternal body weight is an important risk factor of SPD (8). Excessive body weight increases mechanical pressure on the pelvic joints, causing additional strain on the symphysis pubis and its surrounding ligaments. In addition, obesity is often associated with lower physical activity and decreased function of musculoskeletal system. Considering the high prevalence of obesity among reproductive-aged women in Pakistan, this risk factor requires more attention in antenatal care programs.

The gestational age was another variable found to be significantly associated with SPD. Prevalence of SPD symptoms was higher in the third trimester compared with second trimester. Such results seem to be logically consistent and have been confirmed by other studies (3,5). During the course of pregnancy, growth of the fetus, expanding uterus, and maternal weight gain add additional stress to the pelvic girdle. In the meantime, the action of hormones leads to additional laxity of ligaments, causing additional instability of pelvis.

Indeed, the effect of SPD on quality of life was profound in the current study. Patients with SPD had significantly lower SF-12 scores compared to those not suffering from the

disease and thus had poor health-related quality of life. These findings agree with those of previous studies showing that pelvic girdle pain negatively influences the physical and psychological wellbeing of individuals (11). The continuous presence of pain can be detrimental to routine activities, work obligations, caring for children, and social involvement. In addition, sleep disruption is often experienced by women with SPD, which leads to tiredness and irritable mood. Therefore, the effects of SPD can exceed the physical symptoms and affect the maternal health in different ways.

There was further confirmation of the relation between pain severity and quality of life through the significant inverse correlation between PGQ scores and SF-12 scores. With the increase in the severity of symptoms, the quality-of-life indicators decreased. Similar results have been obtained in studies carried out in Europe and Australia, where patients with severe pelvic girdle pain had poor physical function, less social activities, and high psychological problems (7,11).

Functional mobility was another aspect that was greatly affected in the case of the women with SPD. Women who had been diagnosed with SPD took much more time to finish the Timed Up and Go test as compared to those women who did not have any symptoms. This can be seen in light of the fact that women having SPD were facing problems while performing basic actions such as standing, walking, turning and sitting. These results are consistent with the findings of Evensen et al., which suggest that pregnancy-associated pelvic girdle pain is linked to poor physical performance and limited mobility (12).

The correlation found in this study between high PGQ scores and long TUG test durations also further confirms the connection between severity of symptoms and disability. The women who experienced higher pain and disability showed less mobility. This is very important because their reduced mobility could make them inactive, which would lead to muscle weakness and poor fitness, and all these would cause them to suffer more, thus having a negative impact on pregnancy outcomes. Physiotherapy treatments that focus on preserving mobility and strengthening pelvic muscles would be extremely helpful for these women.

There are many clinical applications of the results of the current research. The high frequency of SPD, combined with its substantial effect on the quality of life and ability to move, should not be ignored in clinical practice, since the musculoskeletal problems are rarely evaluated during prenatal visits. Women may believe that pain in their pelvis is a normal phenomenon of pregnancy and thus avoid consultation with the physician. In addition, healthcare professionals may neglect the gravity of patients' complaints or fail to use screening tests. Thus, the use of such screening test as the Pelvic Girdle Questionnaire may become helpful.

Several management techniques have proved to be effective in decreasing the clinical signs of SPD. These include patient education, modification of activities, pelvic stabilization exercise, physiotherapy rehabilitation and wearing of pelvic supports whenever required (1,11). Multidisciplinary approach using collaboration between obstetrician, physiotherapist, nurse and

rehabilitation specialist may prove beneficial for enhancing functional outcomes and quality of life of patients. It is especially essential to create awareness about SPD amongst health care providers and pregnant women in areas that lack proper musculoskeletal services such as Pakistan.

However, there are some strengths of the current study. Firstly, it is an essential addition to the literature on Pakistan since it contributes to the understanding of the prevalence and outcomes of SPD among the population of this country. Secondly, the application of the appropriate and validated instruments used for the assessment of disability, quality of life and functional mobility increases the validity of the results. On the other hand, there are some limitations that should be discussed. Since the research design is cross-sectional, one cannot make causal associations between SPD and the mentioned above issues. Moreover, since the data was gathered from a single tertiary care hospital, one may not claim that the results obtained can be generalized for the whole population of pregnant women in Pakistan.

In conclusion, this current study clearly showed that SPD can be considered an important yet neglected maternal health problem in Pakistan. It causes problems in physical functioning, mobility, and quality of life, emphasizing the importance of its comprehensive evaluation and treatment within antenatal care services.

Conclusion:

SPD was found in more than one-third of pregnant women visiting the antenatal clinics,

suggesting that there is a considerable prevalence of SPD among the Pakistani population. Moreover, SPD was significantly associated with multiparity, increased BMI, and advanced gestational age. In addition, SPD causes poor quality of life and functional mobility, thereby causing considerable physical restrictions during pregnancy.

Antenatal screening of patients and timely physiotherapy management are crucial for reducing disability.

Authors' Contribution:

FS conceptualized and designed the research work and assisted in data collection and analysis. AJ was involved in the designing and interpretation of the findings, and critically revised the manuscript for important intellectual content. Both authors have read and approved the final manuscript.

Conflict of Interest:

Authors declare no conflict of interest.

Funding and Ethics:

This research was self-funded by the author.

The study was conducted in accordance with ethical guidelines.

References

1. Robinson HS, Vøllestad NK, Bennetter KE, Waage CW, Jenum AK, Richardsen KR. Pelvic girdle pain in pregnancy and early postpartum—prevalence and risk factors in a multi-ethnic cohort. *BMC musculoskeletal disorders*. 2024 Jan 2;25(1):21.
2. Borscheva AA, Pertseva GM, Alekseeva NA. Dysfunction of the symphysis as one of the actual problems of modern

- obstetrics. Medical Herald of the South of Russia. 2021 Sep 30;12(3):44-9.
3. Shukla N, Zaidi A, Dixit A, Kapoor A, Kumar CS. Impact of musculoskeletal discomforts and nutritional imbalance in pregnant women: A systematic review. Indian Journal of Obstetrics and Gynecology Research. 2026;13(1):1-9.
 4. Leung CJ, Tao F, Senter C, Ramirez FD, Wong SE. Pregnancy-Related Hip and Pelvis Musculoskeletal Conditions, Risk Factors, and Prevention. Current Reviews in Musculoskeletal Medicine. 2025 Dec;18(12):585-98.
 5. Puobebe C, Apenteng B, Opoku S, Anokye-Mensah S. Symphysis Pubis Diastasis: The Hidden Maternal Disability.
 6. Firdous H, Bashir K, Malik MB, Gul A, Amjad F. Prevalence of Symphysis Pubis Dysfunction in Pregnant Women: Prevalence of Symphysis Pubis Dysfunction. Pakistan Journal of Health Sciences. 2023 Sep 30:45-8.
 7. Masri HJ. Maternal Musculoskeletal Disorders: Prevalence, Management During Pregnancy and Related Obstetrical Outcomes (Master's thesis, Lithuanian University of Health Sciences (Lithuania)).
 8. Kizito S, Musaba MW, Wandabwa J, Kiondo P. Prevalence and factors associated with lumbopelvic pain among pregnant women in their third trimester: a cross-sectional study. The Pan African Medical Journal. 2023 Oct 25;46:68.
 9. Rahman Z. *Importance of Gynecological Physiotherapy during antenatal and postnatal period: Perception of gynecologists* (Doctoral dissertation, Bangladesh Health Professions Institute, Faculty of Medicine, the University of Dhaka, Bangladesh).
 10. KHATTAK HG, ARSHAD H, ANWAR K, HANIF S, KIANI N, SULTANA B. Prevalence of musculoskeletal disorders among pregnant women: Cross-sectional study. Age. 2022 May;27:4-76.
 11. Jakes A, Chadha K, Iguilada-Martinez P. Identifying and managing pregnancy-related pelvic girdle pain. bmj. 2026 May 6;393.
 12. Starzec-Proserpio M, Lipa D, Szymański J, Szymańska A, Kajdy A, Baranowska B. Association among pelvic girdle pain, diastasis recti abdominis, pubic symphysis width, and pain catastrophizing: a matched case-control study. Physical Therapy. 2022 Apr 1;102(4):pzab311.