

Article

Prevalence of Pelvic Floor Dysfunction in Pregnant Women During Third Trimester

Areej Ramzan¹, Muhammad Mehmood Alam¹, Zahid Mehmood Bhatti², Lyba Javaid¹, Rimsha Touqeer¹, Ayesha Nawal¹, Fatima Zafar¹, Ishrat Fatima¹

¹ Akhtar Saeed College of Rehabilitation Sciences, Lahore, Pakistan
² Bakhtawar Amin Medical and Dental College, Multan, Pakistan

Correspondence:

areejramzan266@gmail.com

Cite this Article

Received	2025-02-03
Revised	2025-03-16
Accepted	2025-03-23
Published	2025-03-26
Authors' Contributions	All authors contributed equally to the conduct of this study.
Conflict of Interest	None declared
Data/supplements	Available on request.
Funding	None
Ethical Approval	Respective Ethical Review Board
Informed Consent	Obtained from all participants
Study Registration	
Acknowledgments	N/A

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ABSTRACT

Background: Pelvic floor dysfunction (PFD) is a prevalent yet underdiagnosed condition in pregnant women, particularly during the third trimester, when physiological stress on the pelvic musculature is at its peak. Despite its clinical significance, limited research has focused exclusively on this late gestational period using comprehensive, validated assessment tools. **Objective:** This study aimed to determine the prevalence and severity of PFD among pregnant women during their third trimester, using the Pelvic Floor Disability Index-20 (PFDI-20), and to highlight the burden of urinary, prolapse, and colorectal symptoms. **Methods:** A cross-sectional observational study was conducted from August 2023 to January 2024 at two tertiary care hospitals in Lahore. A total of 150 pregnant women in their third trimester (≥ 28 weeks) were enrolled through non-probability sampling. Inclusion criteria comprised women aged 18–45 years with singleton pregnancies, while those with pre-existing pelvic surgeries or neurological disorders were excluded. Data was collected using the PFDI-20 questionnaire and analyzed using SPSS v27 for descriptive statistics and frequency distributions. Ethical approval was obtained from the Institutional Review Board of Akhtar Saeed Medical and Dental College. **Results:** Among 150 participants, 92.7% reported PFD symptoms: 27.3% had non-bothersome symptoms, 30.0% were mildly bothered, 28.7% moderately, and 6.7% severely. Only 7.3% were symptom-free. The high prevalence underscores significant clinical burden in this population. **Conclusion:** PFD is highly prevalent in the third trimester, necessitating routine screening during antenatal care. Early detection can enable targeted pelvic floor interventions to mitigate postpartum complications and enhance maternal well-being.

Keywords: Pelvic Floor Disorders; Pregnancy Trimester, third; Urinary Incontinence; Pelvic Organ Prolapse; PFDI-20; Antenatal Screening; Maternal Health.

INTRODUCTION

Pelvic floor dysfunction (PFD) is a prevalent yet underrecognized condition affecting a substantial proportion of women worldwide, with increased risk observed during pregnancy, particularly in the third trimester. The pelvic floor comprises a complex network of muscles and connective tissues that provide essential support to pelvic organs, including the bladder, uterus, and rectum. During pregnancy, physiological and anatomical changes such as increased intra-abdominal pressure, hormonal fluctuations, and fetal growth impose additional strain on these structures, often resulting in functional impairment. PFD manifests in various forms, including urinary incontinence, fecal incontinence, and pelvic organ prolapse, which collectively contribute to a decline in quality of life and psychological well-being (1, 2).

Despite the apparent relevance of this condition during pregnancy, especially in the late stages, existing research remains fragmented, with substantial variability in prevalence estimates due to differences in study design, population characteristics, and assessment tools (3, 4). While some studies report PFD prevalence ranging between 30% and 50%, others show even broader ranges, emphasizing the need for more focused investigations that consider the unique physiological stressors of pregnancy (5). Risk factors such as maternal age, mode of delivery, obesity, and number of pregnancies have been consistently linked with the likelihood of developing PFD (6, 7). However, fewer studies have specifically isolated the third trimester, a period marked by the highest mechanical burden on

pelvic structures, to evaluate the degree of dysfunction and symptom severity.

This study aims to address this critical gap by investigating the prevalence and severity of PFD among pregnant women in their third trimester using the Pelvic Floor Disability Index-20 (PFDI-20), a validated instrument for assessing pelvic floor symptoms across different subdomains. Prior studies have emphasized the importance of early detection and intervention to prevent chronic complications postpartum, but current screening practices remain inconsistent (8, 9). By focusing exclusively on third-trimester pregnancies, this research intends to provide clearer insights into the magnitude and clinical relevance of PFD during this crucial stage, offering evidence to inform preventive strategies and antenatal care practices. Therefore, this study seeks to answer the following research question: What is the prevalence of pelvic floor dysfunction among pregnant women during their third trimester, and how severe are the associated symptoms?

MATERIAL AND METHODS

This study employed a cross-sectional observational design to investigate the prevalence and severity of pelvic floor dysfunction (PFD) among pregnant women in their third trimester. A total of 150 participants were recruited through non-probability convenience sampling from two tertiary care centers in Lahore: Lady Willingdon Hospital and Akhtar Saeed Trust Hospital. The study was conducted over a six-month period from August 2023 to January 2024. Pregnant women aged 18 to 45 years in their third trimester (≥ 28 weeks of gestation) were eligible for inclusion. Exclusion criteria included women with known neurological or musculoskeletal disorders, a history of pelvic floor surgery, current or previous pelvic malignancy, or complications such as preterm labor, placenta previa, or intrauterine growth restriction. Participants were approached during routine antenatal visits, and those meeting the criteria were invited to participate after undergoing a thorough explanation of the study's purpose, procedures, and confidentiality measures. Written informed consent was obtained from all participants before data collection. The study was approved by the Institutional Review Board of Akhtar Saeed Medical and Dental College, Lahore. Data collection focused on assessing the primary outcome: the prevalence of pelvic floor dysfunction during the third trimester of pregnancy. Symptom severity and functional impairment were considered secondary outcomes. To evaluate these parameters, the Pelvic Floor

Disability Index-20 (PFDI-20), a validated and widely used questionnaire for the assessment of pelvic floor symptoms across three domains—urinary distress, pelvic organ prolapses, and colorectal-anal distress—was administered. Participants completed the questionnaire anonymously to reduce response bias and encourage honest reporting. Demographic and obstetric variables such as age, gravidity, parity, gestational age, and body mass index were also recorded to aid in contextual interpretation of the findings. No follow-up was required as the study captured a single-point evaluation within the third trimester.

The study adhered to the ethical principles outlined in the Declaration of Helsinki. Ethical clearance was obtained from the Institutional Review Board and confidentiality was ensured by assigning unique codes to each participant instead of using identifiable personal information. Only authorized researchers had access to the anonymized data. Participation was entirely voluntary, with the right to withdraw at any stage without any impact on medical care.

Data was analyzed using IBM SPSS Statistics version 27. Descriptive statistics were used to summarize demographic and clinical characteristics, including means and standard deviations for continuous variables and frequencies with percentages for categorical variables. Prevalence rates were calculated as proportions of symptomatic individuals within the sample. Cross-tabulations were used to examine the relationship between demographic factors and PFD severity levels. Visual representations of data, including bar charts and pie charts, were generated to enhance interpretability. No imputation methods were necessary for missing data as all questionnaires were fully completed. Confounding variables were acknowledged but not adjusted due to the observational nature of the study. Sensitivity analyses were not performed, given the primary aim was descriptive rather than inferential.

RESULTS

The present study assessed the prevalence and severity of pelvic floor dysfunction (PFD) symptoms among pregnant women in their third trimester. Out of the total sample of 150 participants, a striking majority—139 women, accounting for 92.7%—reported experiencing at least one symptom associated with pelvic floor dysfunction. In contrast, only 11 women (7.3%) reported no symptoms, highlighting a notably high burden of pelvic floor issues in this late stage of pregnancy (Table 1).

Table 1 Prevalence of Pelvic Floor Dysfunction Symptoms in the Third Trimester (n = 150)

Symptom Status	Frequency (n)	Percentage (%)
No symptoms	11	7.3%
Symptoms present	139	92.7%

Further examination of symptom severity across all participants revealed a wide distribution in the degree to which symptoms were bothersome (Table 2). Although 11 participants (7.3%) did not report any symptoms, a significant proportion of women experienced varying levels of discomfort. Specifically, 41 women (27.3%) indicated that while they experienced symptoms, these

did not bother them. Meanwhile, 45 participants (30.0%) reported being mildly bothered, and 43 women (28.7%) experienced a moderate level of bother due to their symptoms. Notably, 10 participants (6.7%) were severely affected by PFD symptoms. This stratification of severity suggests that while PFD is nearly universal in this population, its clinical impact

Table 2 Distribution of Symptom Severity Among Pregnant Women in the Third Trimester (n = 150)

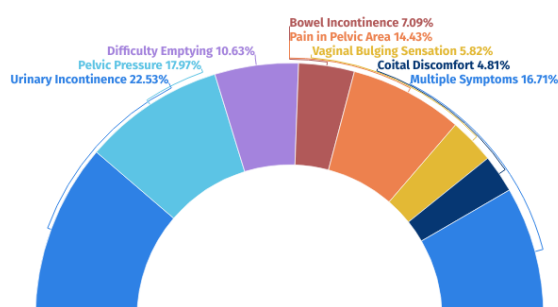
Symptom Severity Category	Frequency (n)	Percentage (%)
No Symptoms	11	7.3%
Symptoms Do Not Bother	41	27.3%
Symptoms Bother Mildly	45	30.0%
Symptoms Bother Moderately	43	28.7%
Symptoms Bother Severely	10	6.7%
Total	150	100.0%

differs considerably among individuals, with more than one-third of participants experiencing moderate to severe discomfort that may warrant clinical attention or intervention. To better understand the distribution of severity among only the symptomatic women (n = 139), a subset analysis was performed (Table 3). Among these 139 women, 41 (29.5%) experienced symptoms that did not bother them, while 45 (32.4%) were mildly bothered. Another 43 women (30.9%) reported moderate bother, and 10 (7.2%) were severely affected. This focused breakdown reinforces the finding that although PFD symptoms are highly prevalent in the third trimester, their perceived impact varies, with approximately 38.1% of symptomatic women experiencing moderate to severe levels of discomfort.

Table 3 Frequency of Symptom Severity Among Women with Pelvic Floor Dysfunction

Severity Level	Frequency
Not Bothered	41
Mildly Bothered	45
Moderately Bothered	43
Severely Bothered	10

These results underscore the importance of individualized assessment and management approaches during prenatal care to better address the varying degrees of pelvic floor dysfunction and its implications on maternal well-being.

**Figure 1 Type of Pelvic Floor Dysfunction Symptoms**

Discussion

The findings of this study reveal a strikingly high prevalence of pelvic floor dysfunction (PFD) among pregnant women in their third trimester, with 92.7% of participants reporting at least one symptom. This rate is considerably higher than those reported in prior studies, which have documented PFD prevalence ranging from approximately 30% to 65% during pregnancy, depending on population demographics and assessment tools used (1, 3, 6). The significantly elevated prevalence in the present study may be attributed to the exclusive focus on the third trimester—a period characterized by maximal fetal weight, increased intra-

abdominal pressure, and peak hormonal changes that collectively contribute to weakened pelvic floor musculature and symptom manifestation. Furthermore, the use of the PFDI-20, a validated, comprehensive tool capturing urinary, colorectal, and prolapse symptoms, may have enhanced the sensitivity of symptom detection compared to narrower instruments used in earlier research (5).

Comparison with previous literature supports the clinical plausibility of these results. For instance, a study by Baruch et al. reported a PFD prevalence of 60.8% across all trimesters, suggesting that symptom burden increases with advancing gestation (3). Similarly, Yohay et al. found progressive worsening of pelvic floor symptoms during late pregnancy using the same questionnaire, reinforcing the physiological trajectory of these disorders (2). In contrast, studies like that of Al Badr et al., which reported a much lower prevalence of 36.3% in a broader population sample, underscore how trimester-specific investigations can provide more accurate insight into symptom burden during peak risk periods (1). These differences also highlight variability in sample characteristics, cultural perceptions of pelvic floor symptoms, and methodological approaches such as the inclusion of non-pregnant or early trimester participants, which may underestimate true prevalence.

The pathophysiological mechanisms underlying this heightened symptom burden are multifactorial. Hormonal modulation—particularly elevated relaxin and progesterone—results in connective tissue laxity, which, when combined with increased abdominal load, compromises the structural integrity of pelvic support. The descent of the fetal head in late pregnancy imposes direct mechanical stress on the levator ani muscle complex, a critical component in pelvic floor stability. This pressure contributes to dysfunction across multiple domains, including urinary continence, bowel control, and organ support, as evidenced by the broad symptom spectrum captured in this study. Moreover, repeated pregnancies and advancing maternal age, both of which were observed among participants, are established risk factors that further exacerbate pelvic floor strain (6, 10).

The clinical relevance of these findings is substantial. Undiagnosed and untreated PFD can persist into the postpartum period, impairing maternal quality of life and increasing the risk of chronic morbidity. Early detection during pregnancy provides a window for conservative intervention through pelvic floor muscle training and patient education, which have been shown to reduce symptom severity and improve postpartum outcomes (5, 11). This study underscores the importance of routine

screening for pelvic floor symptoms in antenatal care, especially during the third trimester when intervention may still offer preventive benefit.

Despite the strengths of this study, including its use of a validated questionnaire and focus on a physiologically relevant gestational period, certain limitations must be acknowledged. The sample size, though adequate for preliminary prevalence estimation, limits broader generalizability, particularly beyond the urban healthcare settings in Lahore. The non-probability sampling technique may introduce selection bias, potentially overrepresenting women more attuned to their symptoms or with greater healthcare access. Additionally, while the PFDI-20 is effective for symptom reporting, it does not provide objective clinical assessment, such as pelvic floor muscle strength or imaging findings, which could offer deeper mechanistic insight. Furthermore, the cross-sectional design restricts the ability to evaluate symptom progression over time or postpartum resolution, warranting longitudinal follow-up studies.

Future research should aim to expand sample sizes across diverse geographic and socioeconomic populations to enhance generalizability. Incorporating objective measures alongside self-reported outcomes could improve diagnostic accuracy and identify subclinical dysfunction. Investigating the effectiveness of antenatal pelvic floor interventions in high-risk women identified through routine screening would be a logical next step. Additionally, examining the persistence of PFD into the postpartum period would help clarify long-term implications and inform targeted rehabilitative strategies.

CONCLUSION

This study highlights a notably high prevalence (92.7%) of pelvic floor dysfunction (PFD) among pregnant women during the third trimester, aligning with the objective to assess symptom burden in this critical period. The findings emphasize that late gestational physiological changes significantly compromise pelvic floor integrity, resulting in varying degrees of urinary, bowel, and prolapse-related symptoms.

Clinically, these results underscore the urgent need for routine screening and early intervention strategies—such as pelvic floor muscle training—within antenatal care to prevent long-term morbidity. From a research perspective, the study provides a foundation for longitudinal investigations to track postpartum outcomes and evaluate the effectiveness of preventive therapies. Overall, these findings support integrating PFD assessment into standard obstetric practice to enhance maternal health and quality of life.

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