



Original Article

Prevalence of Urinary Incontinence and its Association with Chronic Constipation, Chronic Cough, Urinary Tract Infections, and Parity during the Third Trimester of Pregnancy

Kashaf Shaikh¹, Urooj Zahra², Muhammad Abdullah³, Sana Batool², Umm e Habiba², Sara Khan⁴ and Mamoona Tasleem Afzal⁵*¹Pakistan Institute of Medical Sciences, Islamabad, Pakistan²Armed Forces Institute of Rehabilitation Medicine, Rawalpindi, Pakistan³National Institute of Rehabilitation Medicine, Islamabad, Pakistan⁴Yusra Institute of Rehabilitation Sciences, Islamabad, Pakistan⁵Institute of Rehabilitation Sciences, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan

ARTICLE INFO

Keywords:

Urinary Incontinence, Multiparous Pregnancy, Hypermobility, Chronic Cough

How to Cite:

Shaikh, K., Zahra, U., Abdullah, M., Batool, S., Habiba, U., Khan, S., & Tasleem Afzal, M. (2024). Prevalence of Urinary Incontinence and its Association with Chronic Constipation, Chronic Cough, Urinary Tract Infections, and Parity during the Third Trimester of Pregnancy: Urinary Incontinence and its Association. Pakistan Journal of Health Sciences, 5(03). <https://doi.org/10.54393/pjhs.v5i03.1328>

*Corresponding Author:

Mamoona Tasleem Afzal
Institute of Rehabilitation Sciences, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan
moona.dpt@gmail.comReceived Date: 26th February, 2024Acceptance Date: 17th March, 2024Published Date: 31st March, 2024

ABSTRACT

Urinary incontinence (UI) refers to involuntary urine leakage. It can affect anyone, although it is more common among pregnant women. Incontinence is classified into three types: Stress, urge, and mixed urinary incontinence. **Objective:** To determine the prevalence of urinary incontinence and its association with chronic constipation, chronic cough, urinary tract infection, and parity during the third trimester of pregnancy. **Methods:** A cross-sectional analytical study was carried out in the twin cities of Pakistan between April 2022 and September 2022. The data were recruited from 184 pregnant women aged between 18–45 years, who were in their third trimester. A self-structured questionnaire was used to collect demographic data as well as assessments of parity, chronic cough, chronic constipation, and urinary tract infections. QUID was used to determine the kind of urine incontinence, and the ICIQ-UI-SF was employed to record the frequency and severity of the condition. **Results:** The average age of the participants was 27.8±4.7. Out of 184 participants, 91 had urine incontinence, with 52 (27.8%) having stress urinary incontinence and 39 (21.3%) having urge urinary incontinence. Urinary incontinence symptoms were severe (N=36, 19.1%) in most subjects and moderate (N=26, 14.2%) in others. Chronic cough and parity had a significant relationship with urine incontinence ($p < 0.05$). **Conclusions:** The results imply that urinary incontinence was moderately prevalent. Urge urine incontinence was less common than stress incontinence. Multiparity and chronic cough were strongly associated with UI.

INTRODUCTION

Urinary incontinence, often known as (UI), is a medical term for uncontrolled urine flow. It may cause a wide range of severe symptoms that lower one's quality of life. Pregnancy-related anatomical and physiological changes are usually the cause of this sickness in women. Oftentimes, women are too embarrassed to mention the symptoms until they become really severe [1]. The prevalence of UI ranges between 51.1% in women and 13.9% in men [2]. Studies show that UI gets more common as the

pregnancy advances. It is roughly 15% in the first trimester and can reach up to 80% in the third trimester [3]. Stress urinary incontinence (SUI), urge urinary incontinence (UUI), and mixed urinary incontinence (MUI) are the main three kinds of urine incontinence [4]. Involuntary loss of urine due to sneezing, laughing, coughing, or an increase in intra-abdominal pressure is known as stress urinary incontinence [5]. Reviews found that the most prevalent type of urine incontinence that develops during pregnancy

is stress urinary incontinence (SUI), which is caused by hypermobility of the bladder neck and inadequacy of the sphincter mechanism [6]. During pregnancy, the fetus's increasing weight and a variety of hormonal changes might trigger SUI [7]. Urge urinary incontinence, the second type of incontinence, is characterized by an overactive bladder or a strong urge to urinate because the individual feels full most of the time [8]. Mixed urine incontinence (UI) is the third kind of UI, which is a combination of urge and stress incontinence. Compared to stress and urge incontinence, mixed urinary incontinence has been shown to have a more detrimental effect on a woman's quality of life [9]. Other, less frequent forms of incontinence include post-micturition dribble and continuous urine leakage, as well as nocturnal enuresis, which is the flow of urine as you sleep [10]. Numerous risk factors, such as diabetes, anxiety, neurological disorders, advancing age, hormonal status, pregnancy and trauma during pregnancy, recurrent UTIs, obesity, BMI, chronic constipation, coughing, chronic pelvic pain, previous UTIs, vaginal deliveries, being multiparous, and having at least one comorbidity, drinking caffeinated drinks have been linked to UI symptoms [11-14]. According to a study, females who have constipation are more likely to develop urinary urgency due to the possibility of pelvic floor dysfunction, which can manifest as faecal or urine incontinence [15]. Following childbirth and throughout the third trimester, constipation affects 20% to 70% of women [16]. The likelihood of SUI during pregnancy is significantly influenced by multiparity [17]. Multiparous pregnant women are 6.3% more likely than primigravida women to acquire UI during their pregnancy. Compared to nulliparous women, multiparous women are more likely to have SUI [18]. Women who have had miscarriages in the past are more likely to develop UI than women who have never had a miscarriage [19, 20]. An individual's general quality of life, psychological health, and physical health are all negatively impacted by this illness [21]. Pregnancy-related UI can result in a variety of mental and social health issues [22]. A few psychological consequences are anxiety, poverty, guilt, humiliation, low self-esteem, and diminished confidence [11]. A person's quality of life can be negatively impacted by it in a variety of ways, including by interfering with travel, sleep, the five daily prayers, making one feel uncomfortable during sexual engagement, humiliating oneself, and many other ways [23-25].

As far as we are aware, there aren't many studies on the prevalence of urination throughout the third trimester, especially in Pakistan, and how it relates to parity, persistent cough, chronic constipation, and urinary tract infections. Therefore, the purpose of the current study was to fill these gaps by estimating the prevalence of urine incontinence during the third trimester of pregnancy and

examining its correlation with parity, chronic cough, chronic constipation, and urinary tract infections.

METHODS

In the twin cities of Pakistan, a cross-sectional analytical study was conducted between April 2022 and September 2022 with permission from the Yusra Institute of Rehabilitation Sciences (YIRS) ethical committee, REF# YIRS/IRB/00010. The study included a total sample of 184 participants that was calculated using the Rao software. In this study, only primiparous and multiparous pregnant women in their third trimester of a singleton pregnancy, aged 18 to 45, were included in the data recruitment. The study did not include women with diabetes, kidney illness, or any other symptoms related to the lower urinary tract. Before any data were collected, participants signed an informed consent form. A self-structured questionnaire was used to collect demographic data as well as assessments of parity, chronic cough, chronic constipation, and urinary tract infections. QUID was used to determine the kind of urine incontinence, and the ICIQ-UI-SF was employed to record the frequency and severity of the condition. The 6-item Questionnaire for Urinary Incontinence Diagnosis (QUID) is a valid and reliable tool for accurately diagnosing Stress Urinary Incontinence and Urge Urinary Incontinence. For SUI, the questionnaire's sensitivity and specificity are 85% and 71%, respectively, while for UUI, they are 79% and 79% [26]. The International Consultation on Incontinence Questionnaire - Urinary Incontinence - Short Form (ICIQ-UI SF) is a brief and psychometrically valid patient-completed questionnaire that is used to evaluate the frequency and severity of urine incontinence in research and clinical settings worldwide [27]. SPSS software version 23.0 was used for statistical analysis. Mean and standard deviation was calculated for quantitative data. Frequency was calculated for categorical variables. Chi-square was our test of choice for association since, when the normality test was run on the data, it was discovered that the data were not normally distributed because the p value was less than 0.05 and the variables were categorical. The Chi-square test was used at a 5% level (p-value less than 0.05 significant) to compare categorical results.

RESULTS

Following the inclusion-exclusion criteria, a total of 184 participants were chosen. The mean and standard deviation of age was 27.8 ± 4.7 respectively. The participants were divided into 5 age groups to find the frequency of the participants falling in each age group. The highest number of participants was between 23-27 % (43.7%) while very few participants were falling in the age group of 38-42 (3.3%). Frequency of urinary incontinence

showed that only (N=91, 49.2%) of the total participants reported urinary incontinence (figure 1).

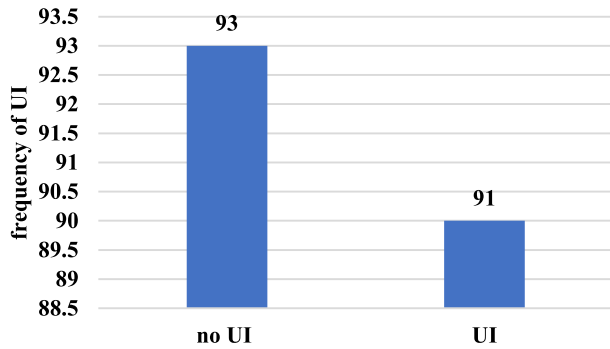


Figure 1: Frequency of Urinary Incontinence

Of these, (N= 52, 27.8%) experienced Stress urinary incontinence, while (N=39, 21.3 %) had Urge urinary incontinence (figure 2).

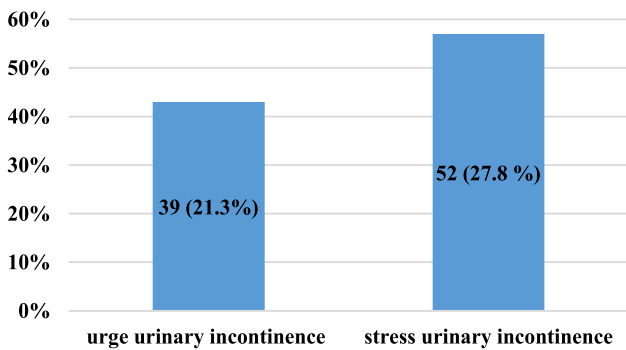


Figure 2: Type of Urinary Incontinence

The majority of pregnant women with urinary incontinence (N=36, 19.1%) experienced severe symptoms, while only a few (N=6, 3.3%) reported mild symptoms (figure 3).

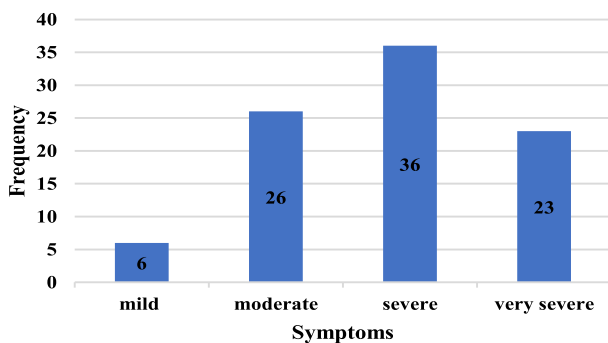


Figure 3: ICIQ-UI-SF Scoring

There was a significant association of UI with chronic cough and parity with a p-value 0.05 while constipation and UTI showed non-significant results with a p-value > 0.05 upon Chi-Square Analysis (Table 1).

Table 1: Association Between Urinary Incontinence and Chronic Cough, Chronic Constipation, Parity, And UTI

Variables	Urinary Incontinence		p-value	
	Yes (%)	No (%)		
Chronic Constipation	Yes	35	48	0.07
	No	56	45	
Chronic Cough	Yes	66	36	0.00*
	No	25	57	
Parity	Primiparous	58	41	0.00*
	Multiparous	33	52	
UTI	Yes	55	32	0.10
	No	36	61	

DISCUSSION

The goals of this investigation were to determine the prevalence of UI in pregnant women and its associations with parity, prolonged cough, chronic constipation, and UTIs throughout the third trimester of pregnancy. The following were the main conclusions of the study: In the final trimester of pregnancy, the prevalence of UI was 49.2%, and there was a strong correlation found between multiparity and cough. More people had SUI (57%) than UUI (43%). According to previous studies, around 57.7% [11], and 66.8% of pregnant women experience urinary incontinence [28]. For a variety of reasons, including the use of digital surveys on social media platforms, sizable sample sizes, and the use of a different questionnaire for assessing urine incontinence, there are variances in the prevalence rates of urinary incontinence [29]. According to data from a recent cross-sectional study by Poudel et al., the most common kind of UI during pregnancy was SUI (61%) followed by Mixed UI (23%) and UUI (15.4%) [30]. Another study by Syeda et al., found that SUI, which accounted for 52% of all UIs, was the most prevalent kind, followed by UUI [31]. These findings aligned with the findings of our study, which showed that most of the participants had stress urinary incontinence. The current research revealed a strong correlation between multiparity and urine incontinence. These findings were consistent with a study conducted by Dinc, that showed a substantial correlation between urine incontinence and parity, meaning that women who have given birth more than once are more likely to develop urinary incontinence [13]. The results of this investigation show a strong link between urine incontinence and a persistent cough. This study's findings are in line with those of Bekele et al., which demonstrated that a persistent cough was substantially linked to the development of UI [32]. Despite a considerable correlation being identified in previous research, there was no significant correlation between urine incontinence and urinary tract infections (UTI) in this investigation [13]. The explanation for potential variations in results could be related to the sample size in earlier

research as well as the use of a different questionnaire to quantify urine incontinence. Consistent with our findings, Wang et al., concluded that there was no correlation between chronic constipation and the incidence of UI during pregnancy [33]. The current study was limited by the social and cultural reticence of the majority of Pakistani women, who are unwilling to participate in surveys. As a result, we had trouble getting information from them. The sample size was also small compared to other studies that have been carried out to ascertain the frequency of UI.

CONCLUSIONS

The results implied that urinary incontinence was moderately prevalent. Urge urine incontinence was less common than stress incontinence. Multiparity and chronic cough were strongly associated with UI.

Authors Contribution

Conceptualization: MTA

Methodology: KS, MA

Formal analysis: UZ, UH, SK

Writing-review and editing: MTA, KS, MA, UZ, UH, SK

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The authors received no financial support for the research, authorship and/or publication of this article.

REFERENCES

- [1] Daly D, Clarke M, Begley C. Urinary incontinence in nulliparous women before and during pregnancy: prevalence, incidence, type, and risk factors. *International Urogynecology Journal*. 2018 Mar; 29: 353-62. doi: 10.1007/s00192-018-3554-1.
- [2] Almousa S and Van Loon AB. The prevalence of urinary incontinence in nulliparous adolescent and middle-aged women and the associated risk factors: a systematic review. *Maturitas*. 2018 Jan; 107: 78-83. doi: 10.1016/j.maturitas.2017.10.003.
- [3] Maskálová E, Urbanová E, Krchová S. Prevalence and Risk Factors for Urinary Incontinence in Pregnancy: *PROFESE Online*. 2020; 13(1): 38-45. doi: 10.5507/pol.2020.002.
- [4] Åström Y, Asklund I, Lindam A, Sjöström M. Quality of life in women with urinary incontinence seeking care using e-health. *BMC Women's Health*. 2021 Dec; 21: 1-9. doi: 10.1186/s12905-021-01477-0.
- [5] Hagovska M, Švihra J, Buková A, Dračková D, Švihrová V. Prevalence and risk of sport types to stress urinary incontinence in sportswomen: A cross-sectional study. *Neurourology and Urodynamics*. 2018 Aug; 37(6): 1957-64. doi: 10.1002/nau.23538.
- [6] Dağdeviren H, Kaya C, Cengiz H, Erdoğan VŞ, Helvacioğlu Ç, Bilecan MS. Urinary incontinence in pregnant women and its relation with quality of life. *Age*. 2018; 18(50): 28.
- [7] Gul T, Naqvi SF, Obaid S, Shahid MH. Frequency of stress urinary incontinence in pregnant females. *Journal of Islamabad Medical & Dental College*. 2021 Dec; 10(4): 216-20.
- [8] Nazzal Z, Khatib B, Al-Quqa B, Abu-Taha L, Jaradat A. The prevalence and risk factors of urinary incontinence amongst Palestinian women with type 2 diabetes mellitus: A cross-sectional study. *Arab Journal of Urology*. 2020 Jan; 18(1): 34-40. doi: 10.1080/2090598X.2019.1699340.
- [9] Lamerton TJ, Mielke GI, Brown WJ. Urinary incontinence in young women: Risk factors, management strategies, help-seeking behavior, and perceptions about bladder control. *Neurourology and Urodynamics*. 2020 Nov; 39(8): 2284-92. doi: 10.1002/nau.24483.
- [10] Jaffar A, Mohd-Sidik S, Abd Manaf R, Foo CN, Gan QF, Saad H. Quality of life among pregnant women with urinary incontinence: A cross-sectional study in a Malaysian primary care clinic. *PLoS One*. 2021 Apr; 16(4): e0250714. doi: 10.1371/journal.pone.0250714.
- [11] Citak G and Demirtürk F. Urinary incontinence during pregnancy and determination of the factors affecting it. *Journal of Basic and Clinical Health Sciences*. 2021 Sep; 5(3): 36-42. doi: 10.30621/jbachs.886289.
- [12] Islam RM, Bell RJ, Hossain MB, Davis SR. Types of urinary incontinence in Bangladeshi women at midlife: Prevalence and risk factors. *Maturitas*. 2018 Oct; 116: 18-23. doi: 10.1016/j.maturitas.2018.07.012.
- [13] Dinc A. Prevalence of urinary incontinence during pregnancy and associated risk factors. *LUTS: Lower Urinary Tract Symptoms*. 2018 Sep; 10(3): 303-7. doi: 10.1111/luts.12182.
- [14] Ibrahim ES, Abd-Elmoneim EF, Mohamady SH. Assess the Urinary Incontinence's Risk Factors among Pregnant Women: *International Journal of Novel Research in Healthcare and Nursing*. 2020 Jan-Apr; 7(1): 920-35.
- [15] Kuronen M, Hantunen S, Alanne L, Kokki H, Saukko C, Sjövall S et al. Pregnancy, puerperium and perinatal constipation—an observational hybrid survey on pregnant and postpartum women and their age-matched non-pregnant controls. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2021 May; 128(6): 1057-64. doi: 10.1111/1471-0528.16559.

- [16] Gomes CF, Sousa M, Lourenço I, Martins D, Torres J. Gastrointestinal diseases during pregnancy: what does the gastroenterologist need to know? *Annals of Gastroenterology*. 2018 Jul; 31(4): 385.
- [17] Yunita A and Priyatini T. Stress urinary incontinence in relation to pelvic floor muscle strength and associated factors in the third trimester of pregnancy: A cross-sectional study. *F1000Research*. 2019 Sep; 8: 1684. doi: 10.12688/f1000research.20220.1.
- [18] Saba N, Rasheed I, Rasheed S, Khan ZA, Fatima A, Nadeem S. Long-term impact of mode of delivery on urinary stress incontinence. *Pakistan Journal of Medical & Health Sciences*. 2022 May; 16(04): 697. doi: 10.53350/pjmhs22164697.
- [19] Berhe A, Alamer A, Negash K, Assefa B. Urinary incontinence and associated factors among pregnant women attending antenatal care in public health facilities of Mekelle city, Tigray, Ethiopia. *Women's Health*. 2020 Oct; 16: 1745506520952009. doi: 10.1177/1745506520952009.
- [20] Yusoff DM, Awang S, Kueh YC. Urinary incontinence among pregnant women attending an antenatal clinic at a tertiary teaching hospital in North-East Malaysia. *Journal of Taibah University Medical Sciences*. 2019 Feb; 14(1): 39-46. doi: 10.1016/j.jtumed.2018.11.009.
- [21] Daneshpajoo A, Naghibzadeh-Tahami A, Najafipour H, Mirzaei M. Prevalence and risk factors of urinary incontinence among Iranian women. *Neurourology and Urodynamics*. 2021 Feb; 40(2): 642-52. doi: 10.1002/nau.24597.
- [22] Santini AC, Santos ES, Vianna LS, Bernardes JM, Dias A. Prevalence and factors associated with the occurrence of urinary incontinence during pregnancy. *Revista Brasileira de Saúde Materno Infantil*. 2020 Jan; 19: 967-74. doi: 10.1590/1806-93042019000400013.
- [23] Al Kiyumi MH, Al Belushi ZI, Jaju S, Al Mahrezi AM. Urinary Incontinence Among Omani Women: Prevalence, risk factors and impact on quality of life. *Sultan Qaboos University Medical Journal*. 2020 Feb; 20(1): e45. doi: 10.18295/squmj.2020.20.01.007.
- [24] Illiano E, Mahfouz W, Giannitsas K, Kocjancic E, Vittorio B, Athanasopoulos A *et al.* Coital incontinence in women with urinary incontinence: an international study. *The Journal of Sexual Medicine*. 2018 Oct; 15(10): 1456-62. doi: 10.1016/j.jsxm.2018.08.009.
- [25] Che XY, Wu SL, Chen YK, Huang YB, Yang YA. A survey of risk factors and quality of life in female medical staff with urinary incontinence. *Beijing da xue xue bao. Yi xue ban= Journal of Peking University. Health Sciences*. 2019 Aug; 51(4): 706-10.
- [26] Bradley CS, Rovner ES, Morgan MA, Berlin M, Novi JM, Shea JA *et al.* A new questionnaire for urinary incontinence diagnosis in women: development and testing. *American Journal of Obstetrics and Gynecology*. 2005 Jan; 192(1): 66-73. doi: 10.1016/j.ajog.2004.07.037.
- [27] Avery K, Donovan J, Peters TJ, Shaw C, Gotoh M, Abrams P. ICIQ: a brief and robust measure for evaluating the symptoms and impact of urinary incontinence. *Neurourology and Urodynamics: Official Journal of the International Continence Society*. 2004; 23(4): 322-30. doi: 10.1002/nau.20041.
- [28] Moossdorff-Steinhauser HF, Berghmans BC, Spaanderman ME, Bols EM. Urinary incontinence during pregnancy: prevalence, experience of bother, beliefs, and help-seeking behavior. *International Urogynecology Journal*. 2021 Mar; 32: 695-701. doi: 10.1007/s00192-020-04566-0.
- [29] Ying Y, Xu L, Huang R, Chen T, Wang X, Li K *et al.* Relationship between blood glucose level and prevalence and frequency of stress urinary incontinence in women. *Urogynecology*. 2022 May; 28(5): 304-10. doi: 10.1097/SPV.0000000000001112.
- [30] Poudel A, Dangal G, Shrestha M. Urinary incontinence among pregnant women in third trimester of pregnancy in a tertiary care center: A descriptive cross-sectional study. *JNMA: Journal of the Nepal Medical Association*. 2021; 59(240): 752. doi: 10.31729/jnma.6914.
- [31] Syeda FF, Aldobashi A, Kapadia S, Bondili A. Prevalence of urinary incontinence among pregnant women: a cross-sectional study in the Outpatient Department of Al-Ain Hospital. *Scholars International Journal of Obstetrics and Gynecology*. 2022; 5(6): 288-93. doi: 10.36348/sijog.2022.v05i06.002.
- [32] Bekele A, Adefris M, Demeke S. Urinary incontinence among pregnant women, following antenatal care at University of Gondar Hospital, North West Ethiopia. *BMC Pregnancy and Childbirth*. 2016 Dec; 16: 1-6. doi: 10.1186/s12884-016-1126-2.
- [33] Wang X, Jin Y, Xu P, Feng S. Urinary incontinence in pregnant women and its impact on health-related quality of life. *Health and Quality of Life Outcomes*. 2022 Jan; 20(1): 13. doi: 10.1186/s12955-022-01920-2.