



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

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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).

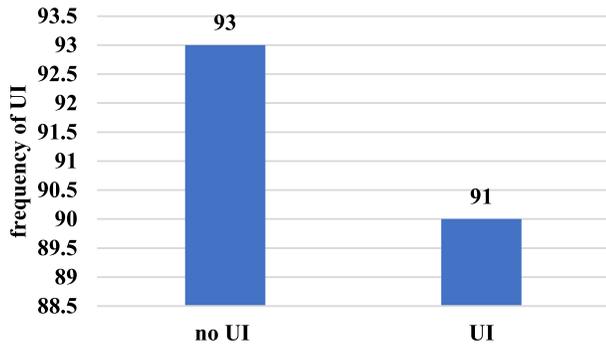


Figure 1: Frequency of Urinary Incontinence

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

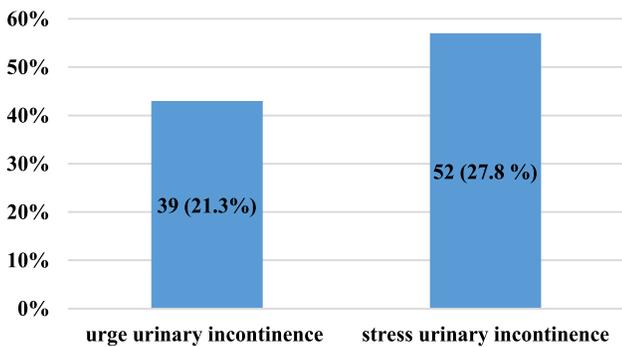


Figure 2: Type of Urinary Incontinence

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).

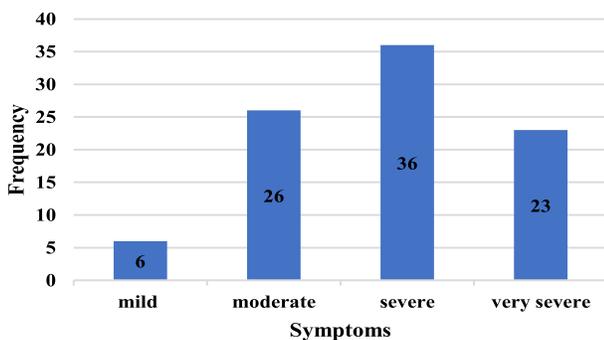


Figure 3: ICIQ-UI-SF Scoring

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.

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