

Frequency of urinary incontinence among pregnant women: A cross-sectional survey

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ABSTRACT

Background: Pregnancy is a well-known risk factor for urinary incontinence (UI), which occurs because of pregnancy-induced physiological and anatomical changes that can result in weak pelvic floor muscles.

Objective: To determine the frequency of urinary incontinence among pregnant women.

Methods: Hospital based cross-sectional study was conducted among 300 pregnant women, aged between 18 to 45 years, following antenatal care at the Federal Government Polyclinic Hospital Islamabad between July 2021 and October 2021. Revised Urinary Incontinence Scale (RUIS) was used as outcome measure. Data were analyzed using SPSS.

Results: Out of 300 the pregnant women, 64.7% had urinary incontinence and only 35.3% did not have urinary incontinence. The frequency of urinary incontinence in first, second and third trimester was 4%, 20% and 76%, respectively. In primigravida and multigravida, the frequency of urinary incontinence was 38% and 62%, respectively.

Conclusion: Urinary incontinence is more common in third trimester, especially multigravida women aged between 25-31 years.

Keywords: Disease severity, Parity, Pregnancy, Urinary incontinence.

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Introduction:

Certain factors contribute to the weakness of the pelvic muscles. The weakness of these muscles, coupled with other factors, give rise to a very serious and common health problem. The studies of specific health problems undertaken by analyzing different patterns to find the root causes that induce these health issues are known as epidemiological studies. (1) Urinary incontinence (UI) is a hygienic issue that is not very helpful for the patient's social life and thus, is both physiological and psychological in nature. This disorder affects the urinary functions in two different ways namely: 1) Stress Urinary Incontinence (STI) that is a condition in which involuntary and uncontrolled urinary loss is induced during everyday activities because of the pressure on the pelvic muscles; and 2) Urge Urinary Incontinence (UUI) that causes an unconscious loss of urine because of the bladder being

filled up. There is an uncontrollable and desperate urge to urinate, but the system starts leaking urine prior to excreting the fluid by being allowed by the consciousness. Both conditions also co-exist and are termed as Mixed Incontinence. (2)

Due to hormonal effect, various physiological and structural changes are induced in a female's body during pregnancy. The bladder is irritated as a response to the ascended weight of the uterine. This added weight causes it to swell, and the additional size squeezes the bladder by resting upon it. Furthermore, the pelvic support function also undergoes a structural conversion. Therefore the urinary tract starts functioning abnormally. (3) As mentioned earlier, weakened muscles of the pelvis system induce Urinary Incontinence. The fetus expands in size and becomes heavier, causing the pelvic floor to stretch. Pelvic floor muscles are weakened because of this stretch. These muscles are a combination of connective tissues and fibers such as pubococcygeus, iliococcygeus, coccygeus and puborectalis. The same connecting tissue wraps the vagina and the rectum. This group of muscles also provides foundational support to the intestines and the pelvic organs such as the bladder, uterus, and the rectum. Strengthening of these muscles is vital for the control of UI. (4) An injury to the tissue

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around the vagina and the rectum is termed as perineal damage. Perineal damage is another factor that leads to Urinary Incontinence in pregnant women.(5) Vaginal deliveries encourage perineal damage that makes them more vulnerable to UI. A cesarian section prevents perineal damage and studies exhibit that the probability in women undergoing this sort of a process are less likely to have these issues.(6) Other contributing factors include the age, BMI, smoking habits and multiple pregnancies.(7) Arnold Kegel, a gynecologist renowned by Kegel exercises also known as Kegel perineometer. The latter is a non-surgical treatment for UI. Such exercises used to strengthen the Pelvic muscles are known as PFME (pelvic floor muscle exercises). Due to the sensitivity of the surgeries, PFME is usually the first line of intervention irrespective of the stage of the pregnancy or postpartum period.(8)

Several studies have reported higher prevalence of UI among pregnant females. For example, Hsu Yuan Ting et al (2020) performed a cross sectional survey to find out urinary incontinence in pregnant ladies in Southern Brazil. They stated that frequency of urinary continence was high in third trimester as compared to first and second.(9) Abey Bekele et al in North West Ethiopia (2016) performed cross sectional survey to determine urinary incontinence among pregnant women following antenatal care at university of Gondar Hospital. They took sample size of 422 pregnant women. They concluded that there was strong relation of urinary incontinence with previous history of episiotomy, constipation, maternal BMI and respiratory problems.(10) Umaira Yaqoob et al in 2019 determine the frequency of urinary incontinence and its associated risk factors in pregnant population through cross sectional survey .They took sample size of 399 pregnant women of third trimester. They found out that one third of study group was affected by urinary incontinence.(11) Sadiya Sharif et al (2017) in Pakistan , performed a cross sectional survey to determine the frequency of Urinary Incontinence in Pregnant Multigravida from Second Trimester up to the Delivery. He took 706 sample size. According to the study, there was 51.1% of urinary incontinence in multigravida and there was no urinary incontinence in 48.8% multigravida and more urinary incontinence was found in second trimester.(12) DE Oliveira et al. (2013) conducted a cross sectional survey in Brazil, to determine the urinary incontinence in pregnant women and its relation with socio-demographic variables and quality of life. They took 495 pregnant women as

sample size. Out of 495 women, 352(71%) of pregnant women were having urinary incontinence during the last four weeks of pregnancy and negatively affecting quality of life.(13) B. Sangsawang et al. in 2013 conducted a study where total of 534 articles were identified and 28 of them met eligibility criteria and are reported on here. The mean prevalence of SUI during pregnancy was 41 % (18.6-60 %) and increased with gestational age.(14) Heidi F. A. et al. in 2020 Conducted study on Four hundred seven women who were eligible for data analysis. The prevalence of UI rises from 55.1% in the first to 70.1% in the third trimester, with an overall prevalence of 66.8%.(15)

As shown by numerous studies and research, UI is an utterly serious but at the same time, a frequent disorder. Lack of literature from low-income countries such as Pakistan acts a major hurdle in creating awareness to cope up with the disease burden. It does not only has psychological impact on an individual but also hinders the patient from discussing it with a relative or consulting a physician. The purpose of this research study was to determine the frequency of urinary incontinence in pregnant women. This will ultimately assist future researchers in formulating and evaluating strategies to lessen the treatment cost.

Methods:

A cross-sectional observational study was conducted in Polyclinic Hospital Islamabad from July 2021 to October 2021. A convenient sample of 300 pregnant women, with age range of 18 to 45 years, was taken using non-probability convenient sampling. Females who refused to participate, not meeting the age range, female diagnosed with urogenital disease, diabetes and other co-morbidities were excluded from the study.

The frequency of urinary incontinence among pregnant females was assessed using Revised Urinary Incontinence (RUIS) that has a Cronbach alpha value of 0.91. The questionnaire consists of 5 questions with Likert scoring. The score ranged from 0- 16, where less than 4 indicated no UI, 4- 8 is considered mild UI, 9-12 for moderate UI and 13 or above showed severe UI.[24] Data was taken from the pregnant women after informed consent from them. Ethical permission (No. FGPC.1/12/2021/ethical committee) was taken from the ethical research committee of Bashir Paramedical Institute Islamabad and Federal Government polyclinic Hospital Islamabad.

Data were analyzed through Statistical Analysis

Software (SPSS version25). Descriptive data was summarized using frequencies and percentages. Cross-tabulation was done to compare frequency between trimesters, age, and parity. Chi-square test was used to report the significant results.

Results:

Out of 300 pregnant females, 26 (8.7%) pregnant women were in first trimester, 68 (22.7%) in second trimester and 206 (68.7%) in third trimester. 140 (46.7%) women were primigravida and 160 (53.3%) were multigravida. Out of total participants, 92 (30.7%) pregnant women had moderate urinary incontinence. Overall scoring of RUIS by the participants is shown in table 1.

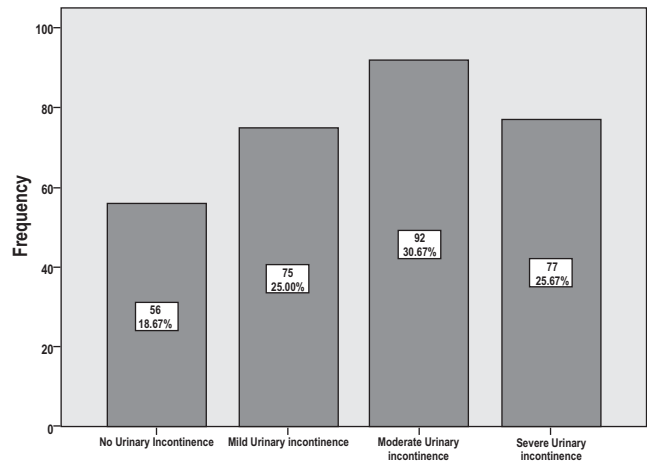


Figure 1: Frequency of urinary incontinence during pregnancy

Table 1: Revised urinary incontinence scale

Revised Urinary Incontinence Scale	Scale	N	%
How often do you experience urinary leakage?	Never I do not leak urine	52	17.3
	Less than once a month	57	19
	A few times a month	69	23
	A few times a week	78	26
	Everyday	44	14.7
How much urine leakage you lose each time?	No, I do not leak urine	50	16.7
	Drops	50	16.7
	Small splashes	52	17.3
	More	148	49.3
How much are you bothered by urine leakage related to feeling of urgency?	Not at all	74	24.7
	Slightly	24	8
	Moderately	44	14.7
	Greatly	158	52.7
How much are you bothered by urine leakage related to physical activity?	Not at all	100	33.3
	Slightly	66	22
	Moderately	54	18
	Greatly	80	26.7
How much are you bothered by small amount of urine leakage (drops)?	Not at all	68	22.7
	Slightly	79	26.3
	Moderately	75	25
	Greatly	78	26

There were 158 pregnant women in age group of 25-31, out of which 26(16.5%) had no UI and 132(83.5%) had UI. Chi-square test analysis showed that frequency of urinary incontinence was significantly associated with trimester of pregnancy (p-value

<0.001). In first trimester, 26 (8.66%) out of 300 women were experiencing UI that increased to 68(22.66%) in second trimester and 206(68.66%) in third trimester. 134(83.75%) out of 160 multigravida pregnant females were experiencing UI. (Table 2).

Table : Cross-tabulation of independent variables with revised urinary incontinence scale

Variable		Revised Urinary Incontinence Scale N (%)				Total	p-value
		No UI	Mild UI	Moderate UI	Severe UI		
Age of pregnant women	18-24	15(19.7%)	15(19.7%)	26(34.2%)	20(26.3%)	76	0.26
	25-31	26(16.5%)	37(23.4%)	50(31.6%)	45(28.5%)	158	
	32-45	15(22.7%)	23(34.8%)	16(24.2%)	12(18.2%)	66	
Trimester of pregnancy	1 st	14(53.8%)	5(19.2%)	5(19.2%)	2(7.7%)	26	<0.001*
	2 nd	15(22.1%)	12(17.6%)	15(22.1%)	26(38.2%)	68	
	3 rd	27(13.1%)	58(28.2%)	72(35%)	49(23.8%)	206	
Gravidity	Primigravida	30(21.4%)	33(23.6%)	43(30.7%)	34(24.3%)	140	0.69
	Multigravida	26(16.3%)	42(26.3%)	49(30.6%)	43(26/9%)	160	

UI= urinary incontinence, * <0.001= significant

Discussion:

A convenient sample of 300 pregnant women, with age range of 18 to 45 years, was assessed to find out the frequency of urinary incontinence among pregnant females. Almost half of the pregnant women had urinary incontinence during pregnancy and its frequency was higher during the third trimester, particularly in the age group ranging 25-31 years and higher parity.

Several studies have been conducted so far to determine the frequency of urinary incontinence in pregnant women.(16-19) A study conducted by Sharif et al in Pakistan concluded that urinary incontinence was frequent in pregnancy, and it was more common in second trimester and in most of the multigravida women.(12) While our study interpreted that urinary incontinence was more prevalent in 3rd trimester. The result was supported by another study done in 2020 by Ting et al. that concluded that urinary incontinence prevailing in pregnant women was higher in third trimester. This difference needs to be addressed by assessing urinary incontinence with an objective measure such as 7-day diary or the number of perineal pads used per week and a standardized pad test.(9) Our study also examined high prevalence in multigravida women and in age group of 25-31 years of pregnant women. Outcomes of another study done by Wesne et

al. in Norway were synonymous to our study which described that UI occurred more in 3rd trimester and in multigravida women. They also explained the same thing that urinary incontinence occurs in later stages and increases with number of conceptions.(20)

The study emphasizes although pregnancy is a physiological process but the frequency of urinary incontinence among pregnant females is huge. This ultimately increases the disease burden. Pelvic floor muscle assessment during routine antenatal visits can be beneficial to pregnant females for the management of urinary incontinence. However, hesitation of women to share their data about incontinence, hygiene, and lack of availability of resources to obtained equally between trimesters limit the study to generalize the results. Further studies should be carried out to overcome the limitation and identify risk factors to provide awareness about this serious issue.

Conclusions

In conclusion, almost half of the pregnant women experience urinary incontinence during pregnancy and its frequency is higher during the third trimester, particularly in the age group ranging 25-31 years and higher parity.

Disclaimer: This paper is based on the thesis titled

“Frequency of urinary incontinence among pregnant females in Islamabad”.

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Authors Contribution:

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Khan N: Critical revision of the article

Gilani SA: Analysis and interpretation of data

Javed A: Analysis and interpretation of data

Kubra M: Concept and design

Mansoor H: Collection and assembly of data

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