

ORIGINAL ARTICLE

Frequency of Urinary Incontinence and its Risk Factors among Pregnant Women

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ABSTRACT

Aim: The frequency of urinary incontinence and its risk factors among pregnant women in second and third trimester of Jinnah Hospital and Lady Willingdon Hospital using ICIQ-UI-SF.

Study design: This is a cross-sectional observational study.

Place and duration: 350 subjects were included in study by Non-probability/purposive sampling technique from Jinnah Hospital, Lahore and Lady Willingdon Hospital, Lahore and completed in 6 months.

Methodology: International Consultation on Incontinence questionnaire- Urinary Incontinence- Short Form (ICIQ-UI-SF) was used to evaluate subjects to UI severity. Data was analyzed using SPSS version 21.

Results: According to ICIQ-UI-SF questionnaire, out of 350 respondents, 11(3.1%) respondents showed slight symptom severity, 44(12.6%) respondents showed moderate symptom severity, 32(9.1%) respondents showed severe symptom severity and 263(75.1%) showed no symptoms at all. On a scale of 10, urinary incontinence affected the quality of life of pregnant females by 6. There was a statistical significance between ICIQ-UI-SF score and parity and number of previous vaginal deliveries ($p=.011$ and $p=.000$ respectively).

Conclusion: In this study it is concluded that considerable number of respondents had symptoms of Urinary Incontinence irrespective of their trimester of pregnancy. There was no association found between disease severity and age of the respondents. Trimester of pregnancy did not have any statistical significance with the symptom's severity, but it was found to have a statistical significance with parity and the number of previous vaginal deliveries.

Key words: ICIQ-UI-SF, Pregnancy, Urinary Incontinence

INTRODUCTION

Urinary Incontinence can be defined as any uncontrolled urination in response to stress or urge to urinate. It surges mostly in advanced age¹. The rate of incidence in women ranges from 40% to 60% , whereas in men it is from 10% to 20%². UI is considered as one of the commonest health related issues observed in females and old age individuals³. Regarding female population UI is prevalent during the period of their adult life, however severity linearly upsurges with increasing age³. But this problem becomes much worse during pregnancy, due to baby weight and pressure on the urinary bladder and as after delivery this weight is diminished and UI decreases after the birth of the child⁴. The most commonly reported lower urinary tract symptoms, regardless of pregnancy trimester, are increased frequency of urination and nocturia, urgency, incomplete emptying of bladder, straining during urination and difficulty in bladder voiding⁵.

It has been suggested that this high prevalence could be the consequence of local tissue changes. Gravity and childbirth are identified risk factors of urinary incontinence (UI) Several possibly adaptable routine aspects are linked with urinary incontinence for instance increased weight, substantial smoking and consumption of tea⁶ in addition to above mentioned risk factors PVD or previous vaginal births have also been known to be a important risk factor⁷. Regarding vaginal or normal mode of delivery noteworthy aspect is that it is a risk factor of stress incontinence and it carries twice risk as compared to C-section⁸.

The danger of acquiring every type of urinary incontinence is more in females with increased weight, hysterectomy, UTI and

perineal injuries and traumas⁹. However such causes were not associated with risk of an overactive bladder¹⁰.

However, during the whole process of pregnancy and childbirth pelvic floor muscles bear a lot of undue pressure and forces which reduces its strength. There are some reversible changes during the gestational time period on pelvic floor muscles, such as hormonal and mechanical changes¹¹. The elevated levels of estrogen and progesterone are known to make the bladder more squamous. There are some hormones which are contributors of developing incontinence of urine in expecting females, relaxin is one such hormone¹². Increased pressure on pelvic floor muscles due to developing foetus as well as hormonal changes due to pregnancy may contribute in weakness of (PFM) and ultimately effect normal function of sphincter¹³.

Stress urinary incontinence is the more prevalent type of UI in pregnant females and it gets worse with increased weight of the baby as the pregnancy advances and also hampers and decreases the quality of life of the affected female¹⁴. Whereas other types including mixed and urgency urinary incontinence scores low on QoL as compared to stress incontinence, but prevalence of all types increases linearly as pregnancy advances^{15,16}.

There is narrow range of evidence available from other than western countries and cultures to explore UI incidence and prevalence so this research from our target population would enhance valuable information to existing literature as it will have suggestions on management specifically for the population assessed¹⁷. There are scarce population-based studies that have examined prevalence of urinary incontinence specifically during pregnancy along with types and severity of this condition. Also, data are scarce on risk factors for incontinence in pregnancy. The predisposing components of UI may be childbearing, advancing

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age, menopause and obesity. Among which the importance of childbearing during third trimester has not been studied yet.

METHODS

It is a cross-sectional study. After the approval of synopsis from ethical review board, Jinnah Hospital, Lahore. Data gathered from Jinnah Hospital, Lahore and Lady Willingdon Hospital, Lahore and collected from 350 pregnant females, sample size was calculated with epitool software (https://epitools.ausvet.com.au/oneproportion). All the participants who met the criteria of inclusion i.e. age range from 18years-40years and pregnant women in second and third trimester were included in the study whereas females who were less than 18 years and above 40 years and pregnant females in first trimester were excluded. A standardized tool, International Consultation on Incontinence Questionnaire Urinary Incontinence Short Form (ICIQ-UI-SF) was used to collect the data. The ICIQ-UI Short is short form that offers a score ranging from 0-21 (18). Whereas a higher score will indicate more severity of symptoms. The "self-diagnostic" portion of the questionnaire is not given a score. Score ranges were 1 – 5 (slight), 6 – 12 (moderate), 13 – 18 (severe) and 19 – 21 (very severe).

The pregnant women were selected during their antenatal follow up after consideration to inclusion and exclusion criteria. The researcher introduced themselves to the women and explained the purpose of the study. After taking consent, general characteristics of the studied women and their knowledge regarding Urinary Incontinence were assessed.

Analysis of the data was done by using SPSS version: 22. Mean and standard deviation was calculated for numerical variables like age, BMI, Parity, ICIQ-UI score. Frequency and percentage were calculated for nominal variables like, presence insentence and risk factors of data from 2nd and 3rd trimesters who stated symptoms of UI and from those pregnant females who were asymptomatic, was compared using the Chi-square test for categorical variables and t-test for quantitative variables e.g., ICIQ-UI score. Whereas the level of statistical significance for all the tests was set at a bilateral p-value of less than 0.05.

RESULTS

Total 350 subjects participated in the study among which 331(94.6%) were of less than 35 years of age and 19(5.4%) were of greater than 35 years of age, Mean age was 26 ± 4.99 (Table 1). Among 350 pregnant females, 99 were from second trimester and 251 were from third trimester (Figure 1). Regarding parity of the subjects 51 women were pregnant for the first time and were called primigravida. 256 women had 1-3 pregnancies before and 43 women had 4-7 pregnancies before (Table 2). 263 scored 0 and had no incontinence, 87 women were suffering from urinary incontinence. 11 women had score between 1 and 5 and were labelled having slight incontinence. 44 women had moderate incontinence and had score between 6 and 12. 32 women had 13-18 score and were suffering from severe urinary incontinence on ICIQ-UI-SF (Table 3).

Pearson Chi-Square test was applied to find the relation between parity, vaginal deliveries, trimester and urinary incontinence with confidence interval less than 0.05(p-value). Results suggested that according to p-value (0.011) urinary incontinence was statistically significant for the parity of pregnant females, similarly there is a significant relation between urinary incontinence and PVD (p=.000). Pearson Chi-Square test shows that there was no statistical significance between ICIQ-UI-SF score with trimesters of pregnancy (p=.784) and age (p=.225) of the participants (Table 4).

Table 1: Age distribution of the pregnant females in the study

Age	Frequency	Percent
< 35 years	331	94.6
> 35 years	19	5.4
Total	350	100.0

Figure 1: Distribution of trimesters of the pregnant females.

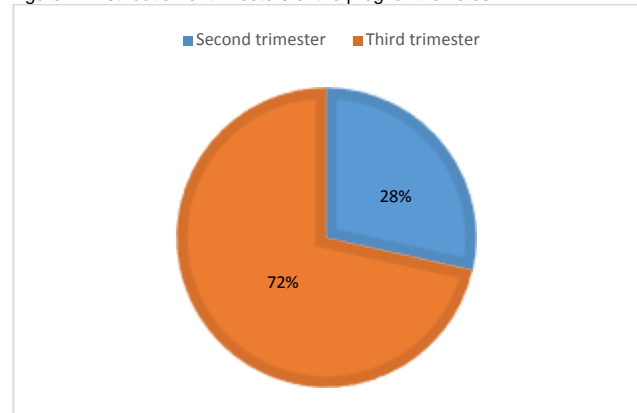


Table 2 : Parity of 350 pregnant females.

Parity of subjects	Frequency	Percent
primigravida	51	14.6
1 - 3	256	73.1
4 - 7	43	12.3
Total	350	100.0

Table 3: ICIQ-UI-SF score in 350 pregnant females.

ICIQ-UI-SF SCORE	Frequency	Percent
No incontinence (Score 0)	263	75.1
Slight (Score 1 – 5)	11	3.1
Moderate (Score 6 - 12)	44	12.6
Severe (Score 13 – 18)	32	19.1
Total	350	100.0

Table 4 : Comparison of ICIU-UI-SF with parity, previous vaginal deliveries, trimester and age of the participants.

Comparison	Pearson Square	Chi-Square	p-value (significance)
ICIU-UI-SF Score and parity	16.538 ^a		.011
ICIQ-UI-SF Score and previous vaginal deliveries	86.328 ^a		.000
ICIQ-UI-SF Score and trimesters	1.073 ^a		.784
ICIQ-UI-SF Score and age of subjects	4.365 ^a		.225

DISCUSSION

In this research severity of Urinary Incontinence was assessed in pregnant females of both second and third trimesters using the Jinnah Hospital, Lahore and Lady Willingdon Hospital, Lahore by using Urinary Incontinence Short Form (ICIQ-UI-SF) questionnaire. According to this research out of 350 females, 87(24.9%) were having Urinary Incontinence, and among these 11(3.1%) were having slight incontinence, 44(12.6%) were having moderate symptoms and 32(9.1%) were having severe urinary incontinence. Out of these 87 incontinent women, 81(93.1%) reported stress urinary incontinence and 54(62.06%) reported symptoms of urge incontinence. Those women, who reported both type of symptom, were categorized as having mixed incontinence. According to this research, there is a statistically significant correlation of parity and previous vaginal deliveries with urinary incontinence (p=.011 and p=.000 respectively). There was no statistically significant correlation found of age and trimester with urinary incontinence severity.

In a study done in 2018, a study was done on prevalence and risk factors of urinary incontinence in pregnant women and concluded that there was a high prevalence of urinary incontinence in pregnant women⁵ and in our study the frequency of urinary incontinence was 24.8% and previous vaginal deliveries and parity was associated risk factors with it.

A study done in 2018 by Dariah Mohd Yusoff and colleagues on urinary incontinence among pregnant females and their results suggested that there was high prevalence of 84% of incontinence

of urine in expecting mothers¹⁹. In our study our target population was pregnant females as they are more at risk of acquiring urinary incontinence.

The study done on frequency of UI and its related factors in expecting females, in 2019 concluded that one third of the targeted population was suffering from UI (20) similarly our study shows that there is a marked presence of UI and causing factors came to be previous vaginal deliveries and parity of the pregnant females.

In 2021 a study was done on risk factors of urinary incontinence during pregnancy by Shiow-Ru Chang and colleagues and found out that with increasing gestational age there is increased risk of developing UI and also related with previous pregnancies and vaginal deliveries²¹, similarly in this study the associated risk factor with urinary incontinence was PVD.

Ching and colleagues done a study in 2019 relating body mass index, pregnancy with UI and concluded that pregnancy and increased weight is associated with UI¹¹. Similarly our study suggested that there is a significant association between pregnancy and UI.

CONCLUSION

In this study it is concluded that considerable number of respondents had symptoms of Urinary Incontinence irrespective of their trimester of pregnancy. There was no association found between disease severity and age of the respondents. Trimester of pregnancy did not have any statistical significance with the symptom's severity, but it was found to have a statistical significance with parity and the number of previous vaginal deliveries.

Author's contribution: Javeria Khan developed the study design. Maida Mushtaq participated in data collection, analyzation and literature search. Shazia rafiq drafted the manuscript. Sobia Zia provided the final approval of article. Saddiqa Qamar, Myra Saeed, sajjid Iqbal and sadia sukhera provided feedback and revised the manuscript. All the authors read and agreed with the information provided in the final version of the manuscript for publication

Conflicts of interest: The authors declare that they have no competing interest.

Recommendation: there is prevalence of urinary incontinence in pregnant females and significantly related with multiple pregnancies so, it is recommended that further explore this area and find the effect of exercises that may decrease urinary incontinence before and after the pregnancy.

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Ethical Approval: approval was taken from ethical review board, Jinnah Hospital, Lahore.

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