



Incidence of urinary incontinence in antenatal population

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Abstract

Purpose: Urinary Incontinence (UI) is defined by the International Continence Society (ICS) as the “complaint of any involuntary leakage of urine”.¹ Urinary incontinence is a relatively common condition, occurring due to weakness of pelvic floor muscles (PFM). Pregnancy is a well-known risk factor for UI; this is due to the physiologic and anatomic changes, especially in the third trimester that can result in weak pelvic floor muscles. Pregnancy has significant effect on lower urinary tract function. In uncomplicated pregnancy, micturition frequency is influenced by the physiologic state of the bladder.³ Pregnancy may also be associated with reduced PFM strength, which can cause stress urinary incontinence (SUI).⁴ Physiological weight gain during pregnancy may lead to increased pressure on the PFM and bladder, which may result in greater urethral mobility. The growing uterus and fetus weigh solely on PFM, which contributes to chronic stress on PFM throughout pregnancy and results in PFM weakness. Sphincter strength and its supportive function of PFM are jeopardized.⁶

Methods: A cross-sectional study was conducted among 100 healthy pregnant women within the age group of 18-35 years who agreed to be part of the study and have given written informed consent. The Questionnaire for Urinary Incontinence Diagnosis (QUID) was given to the subjects and it was explained to them in a language comfortable to them. The data collected was analyzed accordingly.

Results: Out of 100 subjects, 89 of them reported presence of urinary incontinence : 22 had Stress incontinence (24.7%), 11 had Urge incontinence (12.3%) and remaining 56 had Mixed incontinence (62.9%) ; and only 11 females reported absence of urinary incontinence. **Conclusion:** It was found that the incidence of urinary incontinence among antenatal females was 89%. Commonest type of urinary incontinence was found out to be mixed incontinence (62.9%), followed by stress (24.7%) and then urge (12.3%) incontinence. Among primiparous and multiparous women, multiparous females had greater stress and urge scores.

Keywords: Multiparous, pelvic floor muscles, pregnancy, urinary incontinence.



Introduction:

The Urinary bladder is a urine storage reservoir. The urethra is a passage through which urine is emptied. Supportive structures, pelvic floor muscles (PFM) and pre urethral muscles are responsible for preventing leakage. Urinary Incontinence (UI) is defined by the International Continence Society (ICS) as the “complaint of any involuntary leakage of urine”.¹

Urinary incontinence affects women of all ages and results in embarrassment and anxiety. It is also associated with individual's independence and ability to function effectively in daily life. It negatively affects social participation, intimate relationships and self esteem of the individual.

UI is classified as urgency urinary incontinence (UUI), stress urinary incontinence (SUI) and mixed urinary incontinence (MUI). UUI is involuntary urinary leakage accompanied with or preceded by a sudden compelling desire to pass urine, which is tough to defer. SUI is defined as an involuntary leakage of urine during exertion, or during episodes of coughing or sneezing. MUI is a combination of SUI and UUI. Overall, SUI is the most prevalent type of UI, followed by MUI and UUI.²

Pregnancy is a well-known risk factor for UI; this is due to the physiologic and anatomic changes, especially in the third trimester that can result in weak pelvic floor muscles. Pregnancy has significant effect on lower urinary tract function. In uncomplicated pregnancy, micturition frequency is influenced by the physiologic state of the bladder.³ Pregnancy may also be associated with reduced PFM strength, which can cause SUI.⁴

PFM weakness causes bladder-neck and urethral mobility, leading to urethral sphincter incompetence. When the pregnant woman coughs, sneezes, laughs, or moves, intra-abdominal pressure increases, and this pressure is transmitted to the bladder. When pressure inside the bladder is greater than urethral closure pressure, incorporated with weakness of the urethral sphincter, SUI is the result.⁵

Physiological weight gain during pregnancy may lead to increased pressure on the PFM and bladder, which may result in greater urethral mobility. The growing uterus and fetus weigh solely on PFM, which contributes to chronic stress on PFM throughout pregnancy and results in PFM weakness. Sphincter strength and its supportive function of PFM are jeopardized.⁶

Collagen changes included both tensile properties and number. Changes in tensile properties contribute to reduced functional support of PFM, and reduced total collagen content may result in joint laxity and stretching of pelvic ligaments.⁷

Changes in relaxin and progesterone levels during pregnancy may have a significant role in the development of UI.⁸ Two major factors—expansion of the uterus and increment increase in fetal weight with gestational age, especially at the third trimester—influence the incontinence mechanism. They put direct pressure on the bladder, which may lead to changing the bladder-neck position and reducing bladder capacity, contributing to bladder pressure that exceeds urethral pressure. This results in urine leakage.⁹



Methods:

A cross-sectional study was conducted among 100 healthy pregnant women within the age group of 18-35 years who agreed to be part of the study and have given written informed consent. Females with neurological disorder, high risk pregnancy, end stage renal disease, psychiatric disease and on anti-histaminic were not included in the study. The Questionnaire for Urinary Incontinence Diagnosis (QUID) was given to the subjects and it was explained to them in a language comfortable to them. The subjects were asked to fill the questionnaire carefully and mark the option that applied to them best. The data collected was analyzed.

Data Analysis:

The entire data was laid out in tabular form in MS-Excel. Master chart was prepared including demographic data, parity and responses to questions. Data was represented in a graphical manner.

Results:

Out of 100 subjects, 89 of them reported presence of urinary incontinence : 22 had Stress incontinence (24.7%), 11 had Urge incontinence (12.3%) and remaining 56 had Mixed incontinence (62.9%) ; and only 11 females reported absence of urinary incontinence.

Discussion:

Pregnancy is characterized by several anatomical and physiological changes that lead to various lower urinary tract symptoms among which urinary incontinence (UI) in particular is of greater concern. The reason for increased risk of UI in pregnancy is the increasing pressure of the growing uterus and fetal weight on pelvic floor muscles (PFM) throughout pregnancy, together with pregnancy-related hormonal changes, may lead to reduced strength of the supportive and sphincteric function of PFM. PFM weakness causes bladder-neck and urethral mobility, this leading to urethral sphincter incompetence. Hence, when intra-abdominal pressure increases, pressure inside the bladder becomes greater than the urethral closure pressure, and the urethral sphincter is not strong enough to close the urethra, resulting in urine leakage.

In this study, it is found that among both primi and multi parous women the incidence of Mixed UI is highest followed by Stress UI and Urge UI.

The International Continence Society defines mixed urinary incontinence (MUI) as the complaint of involuntary leakage of urine associated with urgency and also with exertion, effort, sneezing, or coughing. But the symptoms of one type of incontinence may be more severe than the other.

According to previous studies, the majority of women fell into the category of MUI when using subjective measures to define the condition. Prevalence rates ranged from 50% to 93% depending on the questions used and severity selected; however, when using objective measures only 8% were diagnosed as having MUI on urodynamics. These data illustrate how such wide variations in prevalence rates for MUI can occur. To date, the appropriate MUI definition has not been agreed



upon for either research or clinical care. As per the study conducted the stress score is much higher than urge score because of the same reason of increased pressure over the bladder leading to failure of sphincter to retain urine.¹⁰

As per current study, the severity of Stress UI and Urge UI is more among primiparous whereas severity of Mixed UI is more among multiparous females. The risk of UI among multiparous females is more because pregnancy and child birth are regarded as key environmental determinants of urinary incontinence.

As parity increases there are greater chance of muscular or neuromuscular pelvic lesions. It is also associated with laxity of PFM. There is significant correlation between incontinence and several risk factors such as the number of pregnancies, miscarriages, number of births.^{12, 13}

In conclusion, PFME is an effective treatment for UI during pregnancy and has no significant adverse effects. Continence can be improved when incontinent pregnant women adequately perform PFME. Having strong pelvic floor muscles will assist female to reduce urgency and hold the urine in the bladder until favorable conditions to pass urine are available.¹¹

The findings will help increase the awareness of health care workers involved in the care of pregnant women about urinary incontinence and aid the design of more intensive education programs directed towards the prevention of urinary incontinence during pregnancy. Pelvic floor muscle exercises should be routinely performed by all pregnant women.¹¹

Conclusion:

It was found that the incidence of urinary incontinence among antenatal females was 89%. Commonest type of urinary incontinence was found out to be mixed incontinence (62.9%), followed by stress (24.7%) and then urge (12.3%) incontinence. Among primiparous and multiparous women, multiparous females had greater stress and urge scores.

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Tables:

Table no 1: Representation of total no. of subjects among age groups- 18 to 25 years and 26 to 35 years:

Age group	No. of Subjects
18- 25 years	65
26- 35 years	35

Table no 2: Incidence of urinary incontinence among antenatal females -

Total	Urinary Incontinence Present	Urinary Incontinence Absent
100	89	11

Table no 3: Type of urinary incontinence -

Type of incontinence	No. of Subjects
No Urinary Incontinence	11
Stress Urinary Incontinence	22
Urge Urinary Incontinence	11
Mixed Urinary Incontinence	56



Table no 4: Comparison between various types of urinary incontinence among primiparous females -

	SUI	UUI	MUI	NO UI
Primigravida	13	7	19	11

Table no 5: Comparison between various types of urinary incontinence among multiparous females -

	SUI	UUI	MUI
Multigravida	9	4	37

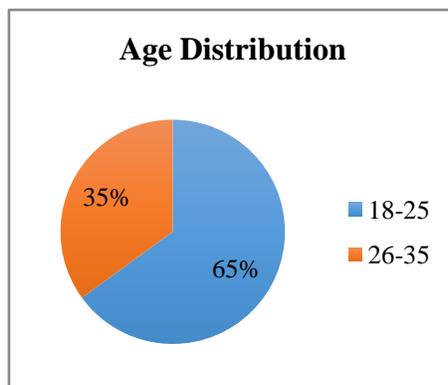
Table no 6: Incidence of various types of incontinence among primi and multiparous women -

	SUI	UUI	MMI	NO UI
Primigravida	13	7	19	11
Multigravida	9	4	37	0

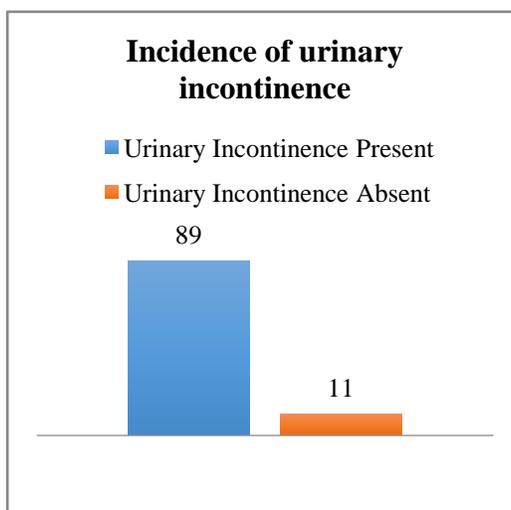


GRAPHS:

Graph no 1:

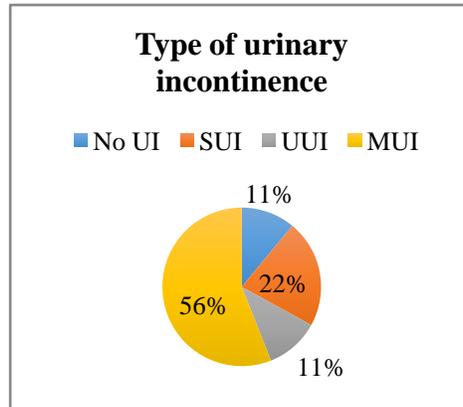


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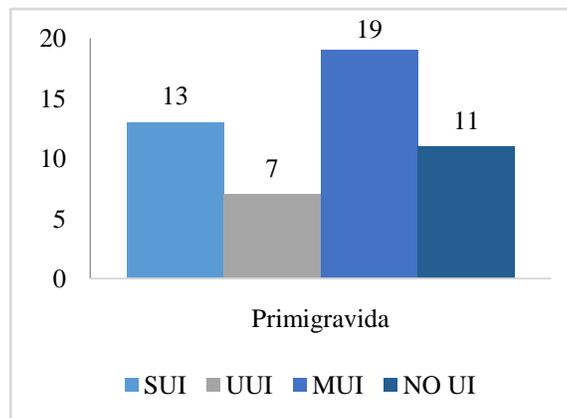




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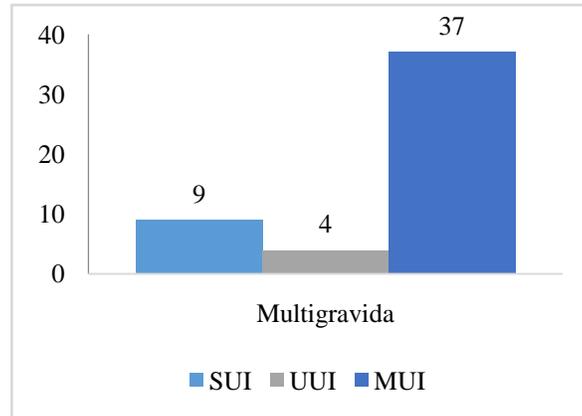


Graph no 4:

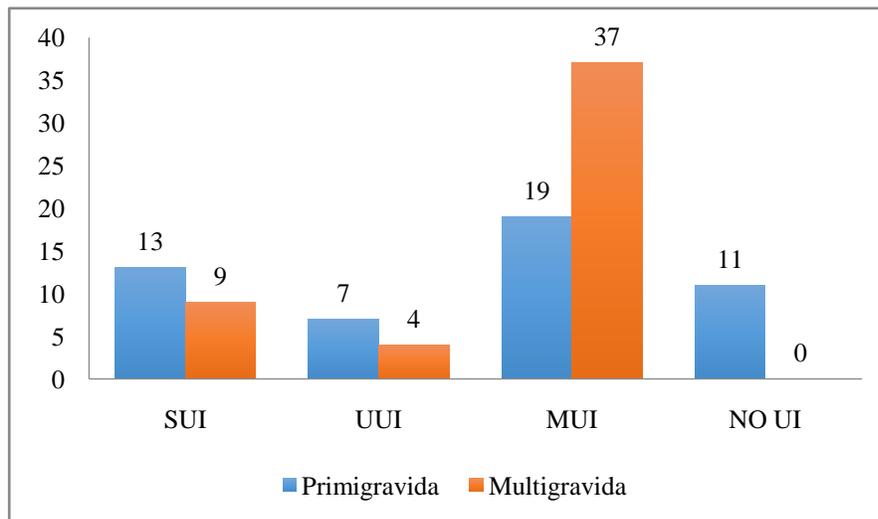




Graph no 5:



Graph no 6:



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