



Prevalence Ratio of Urinary Incontinence and its Association with Parity and Gravidity

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Abstract

The purpose of the current study was to find out the frequency of married females with urinary incontinence, including stress, urge, and mixed incontinence, in Mansehra city and how it is affecting the daily lives of females as compared to women without urinary incontinence. Data was collected from District Headquarter Hospital, Mansehra; Helping Hand Institute of Rehabilitation Sciences, Mansehra; and Taj Health Complex, Mansehra. For the current study, married women aged 18 to 65 years were selected, while females with tumours, sexually transmitted diseases, or females on any sedative were excluded from the study. The non-probability purposive technique was used for the sampling technique, and "Questions for Urinary Incontinence Diagnosis" was used as an outcome measuring tool. For the current study, 385 participants were selected. The prevalence ratio was found to be 72.5% with either type of urinary incontinence, while 27.5% of participants were found without any type of urinary incontinence. The mean gravidity of females with urinary incontinence was $3.46(\pm 2.093)$ for (n=279) while the mean gravidity of females without urinary incontinence was $2.78(\pm 1.957)$ for (n = 106). Urinary incontinence is the most prevalent condition among females, and it was found that every seventh female suffers from either type of urinary incontinence. It can occur at any age and in any person, but it mostly occurs in females due to issues related to pregnancy, delivery, and menopause.

Keywords Gravidity, Parity, Prevalence, Urinary Incontinence

1. Introduction

Involuntary leakage of urine at an inappropriate time and place is known as urinary incontinence (UI) (1). Urinary incontinence can be subdivided into three major classes: Stress Incontinence, Urge Incontinence and Mixed Incontinence (2). Due to vaginal prolapse and pelvic floor muscles loosening in pregnancy and childbirth, this usually leads to stress incontinence (3), and this may also happen due to nerve damage during labour and delivery. The most prominent risk factors for UI are delivery, more

baby weight, and high parity, and these were related to a high ratio of UI (4). UI occurs due to impairment in the sphincter mechanism or bladder problems (5).

It is a common medical issue in society but is under-reported due to factors of shame and embarrassment and has substantial effects on their daily life activities (6). In females, the urinary incontinence ratio fluctuates by country, delivery mode, gravida, and known history of incontinence (7). The purpose of the current study was to

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determine the prevalence of UI among married females and the association of parity and gravidity with UI.

There is diverse information available in the literature on the causes and risk factors of urinary incontinence during pregnancy and on the epidemiology of UI (8). Research studies on the comparison of the prevalence of urinary incontinence in all three trimesters of pregnancy remain scarce (9).

A number of risk factors, such as increased age, lifestyle, personal health, body mass index, and number of pregnancies, including parity and gravidity, are linked with the prevalence of urinary incontinence in women. On the other hand, very few studies have established the association between urinary incontinence during pregnancy and the number of deliveries and parity. Also, the findings of these studies mostly contradict each other's opinions (10).

The most plausible mechanism responsible for the development of urinary incontinence in pregnant women due to parity, number of childbirths, or deliveries is pelvic floor and perineal muscle weakness, along with nerve compressions. The use of forceps during delivery, leading to nerve injury of pelvic floor muscles, especially in women who undergo a lengthy second stage of vaginal delivery, is another important pathophysiological mechanism correlated with the occurrence of urinary incontinence in females (11).

Both multiparity and multigravidity aggravate the stress on pelvic floor muscles and the nerve supply of these muscles. This is additionally associated with repetitive strain during anal excretion, further exacerbating the stretching of the nerves of the pelvic floor and weakening of their muscles, ultimately culminating in urinary incontinence (12).

Old gynaecological and obstetric surgical techniques such as perineal stitching also give an etiological explanation for urinary incontinence during pregnancy in parous females, increasing the risk of UI with each subsequent delivery or childbirth (13). Heterogeneous ideas have been suggested as the etiological mechanism of urinary incontinence in females. Overstretched or strained bladder, incompetent bladder, increased number

of deliveries or childbirths, normal or vaginal delivery, and soft tissue injury during delivery are attributed as possible pathophysiological mechanisms of urinary incontinence in females during pregnancy, although a definite mechanism or cause is yet to be investigated (14).

Urinary incontinence is a progressively prevailing disabling disorder that affects and compromises the quality of life of many females. Various pre-existing pathological factors are responsible for the development of stress UI, which is most prevalent and frequently reported in women during their pregnancy. Multiple childbirths expressed as multiparity and multigravidity have a strong correlation with the incidence of all types of urinary incontinence in pregnant females (15).

2. Methodology

A cross-sectional comparative survey was conducted at the Helping Hand Institute of Rehabilitation Sciences, Mansehra. For the calculation of sample size, Raosoft Software was used, and the sample size was calculated as 385 with a chance of 5% error and a 95% confidence interval. Adult married females aged 18 to 65 were included in the study, while females with sexually transmitted diseases, malignancies, or who were on sedatives were excluded from the study. A non-probability-purposive technique was used for sampling. A "Questions for Urinary Incontinence Diagnosis" questionnaire was used, and the study was completed in 6 months. The analysis of the data was done using the SPSS-21 version.

3. Results

A total of 385 participants were included in the study, and the prevalence ratio was found to be 72.5% among females. From the data of 385 females, 279 (72.5%) were found incontinent, while 106 (27.5%) were found without incontinence (Figure 1). The median age of females with urinary incontinence was found to be 30, with an interquartile range of 14.

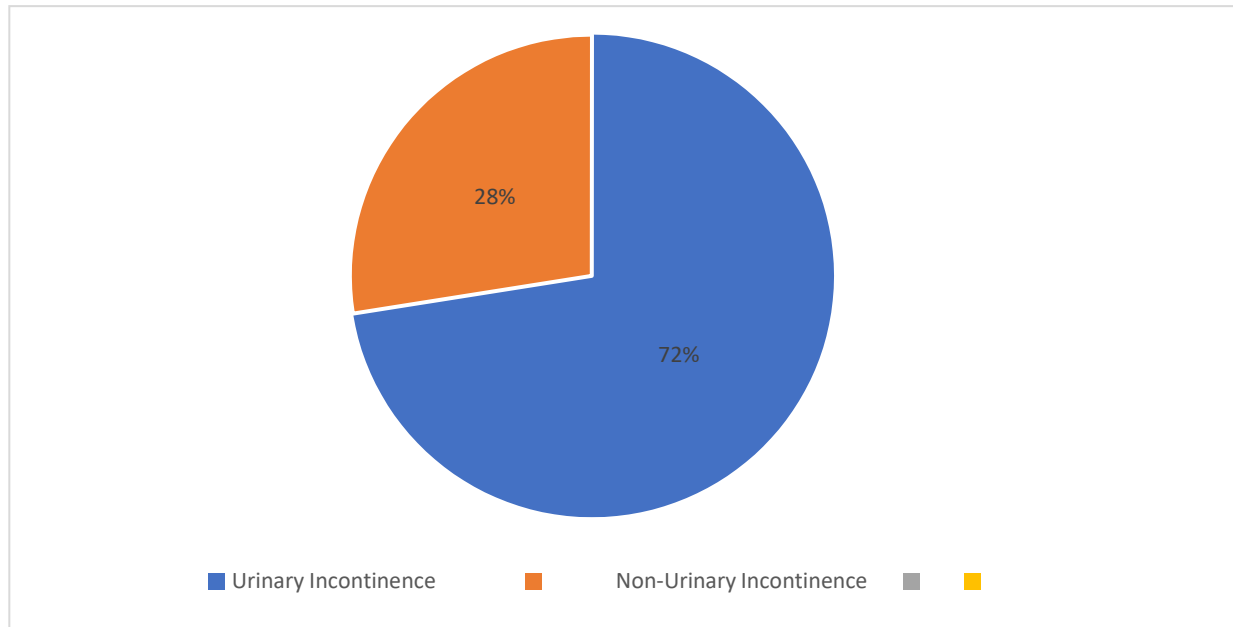


Figure 1: Prevalence ratio of urinary incontinence among females.

The mean gravidity of urinary incontinent females was 3.46 ± 2.093 for ($n = 279$) participants, and the mean gravidity of non-incontinence females was 2.78 ± 1.957 for ($n = 106$) participants, respectively. A nonsignificant

positive relation was found between gravidity and urinary incontinence (p value = 0). While a significant positive correlation was found between parity and urinary incontinence (p value = 0.003) (Table 1).

Table 1: Correlation between gravidity and urinary incontinence, Correlation between parity and urinary incontinence.

Urinary incontinence		N	Mean \pm S.D	p value
Yes	Gravidity	279	$3.46(\pm 2.093)$	0
	Parity	279	$4.03(\pm 2.363)$	
No	Gravidity	106	$2.78(\pm 1.957)$	0.003
	Parity	106	$3.08(\pm 2.034)$	

4. Discussion

The purpose of the current study was to find out the prevalence ratio of urinary incontinence and the association of parity and gravidity with the severity of urinary incontinence. The results of the current study showed that with an increase in the number of deliveries, the chances of stress incontinence also increase. As the mean gravidity of 3.46 ($p = 0$) in incontinent females was greater when compared with non-incontinence females, who had a mean gravidity of 2.78 ($p = 0.003$). Similarly, urinary incontinent females mean parity of 4.03 also showed a positive correlation with non-incontinent females' mean parity of 3.08.

Similar results were also shown by a study conducted by Rahime Bedir Findik *et al.*, who stated that stress and urge UI chances increase with each delivery. With the first vaginal delivery, chances of stress incontinence were only 7.7%, which increased to 25% after the second vaginal delivery and 31.3% after the third vaginal delivery. Moreover, chances of urge incontinence also increase after delivery, as after the first delivery, the ratio of urge UI was 8.7%, 27.2 percent after the second delivery, and 27.6% after the third delivery (4).

Yarnell *et al.* performed a study on 1000 females and reported that the mean parity of urinary incontinent females was 2.4 ± 1.7 participants and the mean parity of

non-incontinent females was 1.7, respectively (16). Urinary incontinence was found to be 48% for nullipara females as compared to 67% in parous females in a study conducted by Wesnes SL *et al.* in 2007. The same study concluded that prevalence of urinary incontinence was significantly associated with parity during pregnancy (ORs 2.0 (1.9–2.1) for primary para and 2.1 (2.0–2.2) for multipara females) (17).

Another study done by Lasserre A. *et al.* (2009) suggested a 26.8% (n = 584) prevalence of urinary incontinence in pregnant females, which increased with the number of childbirths or gravidity (p < 0.0001) (13). Rortveit G. *et al.* in 2001 reported urinary incontinence in 25% of participants (32% nulliparous). Urinary incontinence was found to be associated with parity, with a relative risk of 2.2 for primary para females and 3.3 for multipara pregnant females (18).

5. Conclusion

Urinary incontinence is a major health issue in females after delivery, and stress incontinence is mostly associated with parity, as most of the females showed urinary leakage after their deliveries. The study revealed that the prevalence of urinary incontinence is significant with parity but is not significant with gravidity in pregnant females.

Conflict of Interest The author declared they have no conflict of interest.

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