



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.3262157>
Available online at: <http://www.iajps.com>

Research Article

PREVALENCE, INCIDENCE, RISK FACTORS AND CORRELATES OF URINARY INCONTINENCE IN MIDDLE AGED WOMEN

¹Dr Humayun Safdar, ²Dr Omar Quddus Khan, ³Muhammad Imran Hanif

¹MO, Shehri Ijtmai Tarqiati Council Complex, (SHATAC), Mandi Bahauddin, Pakistan. ²Senior Registrar Urology, Fatima Memorial Hospital, Lahore. ³MO, Fatima Memorial Hospital, Lahore.

Article Received: April 2019

Accepted: May 2019

Published: June 2019

Abstract:

Objective: To find out the prevalence of UI among women and risk factors for urinary incontinence (UI) in young and middle-aged women.

Subjects and method: in 2019 the prevalence of overall, stress, urge and mixed UI was assessed in women who come in Fatima Memorial Hospital. 2800 women received a questionnaire. The usual risk factors for constitutional events, i.e. increasing age, obesity (defined as a body mass index of >25), obstetric events (pregnancy, previous Caesarean delivery, previous vaginal delivery, postpartum incontinence) and gynecological events (hysterectomy) were evaluated.

Results: Of the 1700 women (mean age 40.0 years) who returned the questionnaire, 467 (27.5%, 95% confidence interval, CI, 25.4±29.7) reported UI, comprising 210 (12.4%, 10.8±14.0) with stress UI, 28 (1.6%, 1.1±2.4) with urge UI and 229 (13.5%, 11.9±15.2) with mixed UI. Thirty-eight women (8.1%) had frequent urinary leakage, comprising one (0.5%), four (14.3%) and 33 (14.4%) with stress, urge and mixed UI. The prevalence of UI increased significantly with age ≥40 years, with relative risk (95% CI) of 2.16 (1.86±2.57), and with pregnancy (2.22, 1.71±2.87), previous vaginal delivery (2.15, 1.72±2.69), postpartum incontinence (2.57, 2.22±2.97), and hysterectomy (1.52, 1.11±2.08). Obesity (1.14, 0.99±1.32) and previous Caesarean delivery (2.15, 1.72±2.69) did not significantly increase the risk of UI. The risk factors for stress UI were age >40 years, pregnancy, previous vaginal delivery, postpartum incontinence and hysterectomy, but there was no relationship between stress UI and obesity or previous Caesarean delivery.

Conclusion: There was a high prevalence of UI middle-aged women. Gynecological and obstetric events (pregnancy, particularly previous vaginal delivery and hysterectomy) were the most prominent risk factors, especially for stress UI.

Keyword: urinary incontinence, women, risk factors, prevalence, pregnancy, hysterectomy

Corresponding author:

Dr Humayun Safdar,

MO, Shehri Ijtmai Tarqiati Council Complex, (SHATAC),
Mandi Bahauddin, Pakistan.

QR code



Please cite this article in press Humayun Safdar et al., *Prevalence, Incidence, Risk Factors and Correlates of Urinary Incontinence in Middle Aged Women.*, Indo Am. J. P. Sci, 2019; 06(06).

INTRODUCTION:

The former definition of UI by the International Continence Society (ICS) as ‘a condition where involuntary loss of urine is a social or hygienic problem and is objectively demonstrable’¹ was not ideal for epidemiological studies^{2, 3}. However, the new ICS definition of UI as ‘the complaint of any involuntary leakage of urine’⁴ (fig 1) makes it easier for epidemiological studies to comply with the most accepted scientific definitions in use. This new definition has not been used in previous studies across countries. Although not experienced exclusively by women, UI is substantially more common amongst women than men.⁵ UI not only affects a woman’s physical wellbeing, but also has a significant impact on the psychological and socio-economic aspects of a woman’s life. Apart from women leading restricted lives because of their bladder dysfunction, UI is associated with urinary tract infections, falls and fall-related injuries, occurring as a result of rushing to the toilet, as well as

admissions to nursing homes and prolonged hospital stays. Thus, in its severe form, UI results in a high financial burden to the individual and their family, as well as to the health care system.

Different studies have shown a wide variability among prevalence rates, mainly due to differences in the definitions used for UI, the design of the questionnaires, the study population and selection criteria⁶. The prevalence of UI increases with age, with a typical rate in young adults of 20–30%, a peak around middle age (prevalence 30–40%) and a steady increase in old age (prevalence 30–50%)^{7,8}. Crude prevalence studies of UI are abundant, and the 2nd International Consultation on Incontinence recommended that further studies should be conducted only with recommended and validated questionnaires, to allow the combination of data from prevalence studies with those of cofactors and predictors.

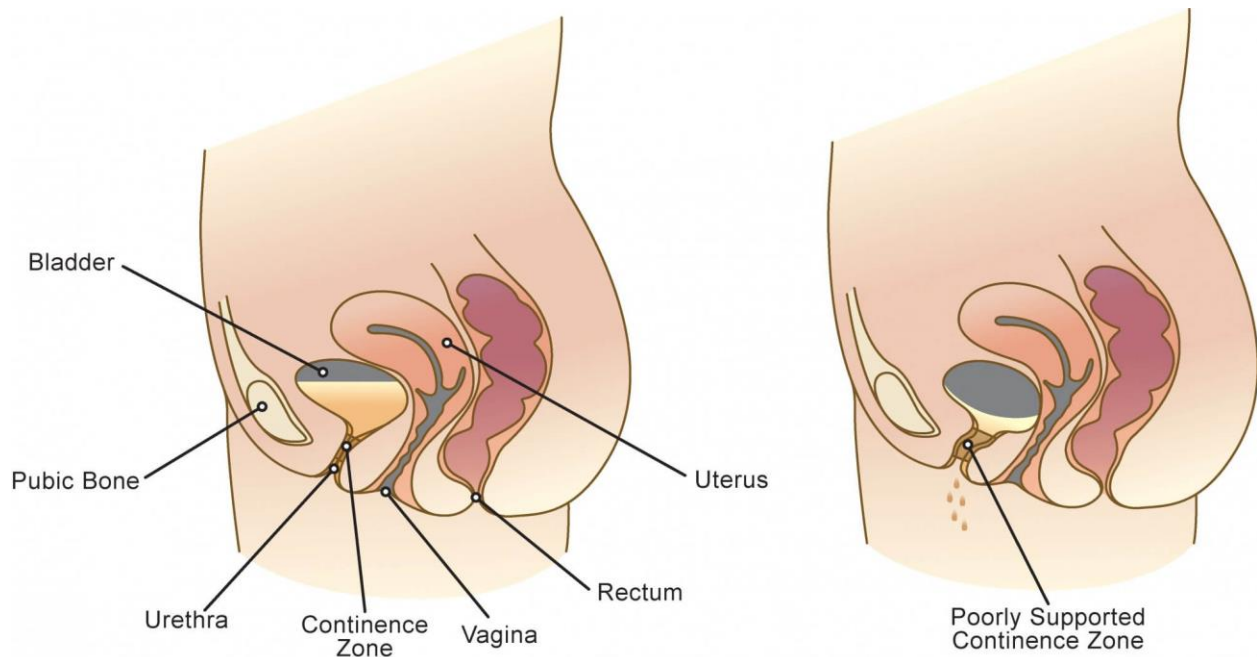


Fig :1

METHOD:

In 2019, women aged 20±62 year's women were assessed at Fatima Memorial Hospital during their visit to doctors. , 2800 women were examined. The women were assessed in different age groups < 25 years, 25±39, 40±55,> 50. Each woman received a questionnaire, enquiring about UI, with her current complain in her visit. The women received an inform consent with the questionnaire to explain the aims of the study. The questionnaire was returned to the staff, if the questionnaire was not completed, offered to help with answering the questionnaire.

There was no clinical examination and no uro-dynamically validated investigations. A woman was considered as having UI if she replied positively to the question 'Do you currently have some involuntary leakage of urine?' The prevalence was determined in three subgroups of UI, i.e. stress UI defined as an involuntary urethral loss of urine associated with coughing, laughing, sneezing or physical exercise, urge UI, defined as an involuntary urethral loss of urine preceded by a sensation of urgency or by rapid and uncontrollable voiding with little or no warning, and mixed UI)defined as the association of stress and urge UI. The questionnaire also determined if the different types of UI were occasional or frequent with frequent defined as more than two episodes of urethral loss every day.

The population was classified into those aged <40 and ≥40 years, this threshold being the mean and median age of the study population. The prevalence of UI was also analysed for each age group as defined previously. Obesity was defined by a body mass index(BMI) of ≥ 25⁹ and Similarly, the women were divided into other groups, i.e. a past history of one or more pregnancy and no previous pregnancy,with and with no previous Caesarean delivery, with one or more vaginal delivery or no vaginal delivery (with the possibility of previous Caesarean section), one or several vaginal deliveries (with the possibility of previous Caesarean section) and only Caesarean delivery, with subgroups of women who had 1±6 pregnancies with previous vaginal delivery and with previous Caesarean delivery, and finally hysterectomy and postpartum incontinence.

Statistics analysis:

The prevalence of UI, stress, urge and mixed UI was calculated with 95% CI ,as was the prevalence of several potential risk factors(age, obesity, pregnancy, postpartum incontinence and hysterectomy). For age the prevalence was calculated from 1578 women (122 did not state their age); for obesity from 1507 women) 193 did not state their weight); for postpartum incontinence only in women who had one

or several pregnancies (1318 women); for the remaining women the prevalence was calculated from the whole population (1700 women). The relationship between each potential risk factor, UI and stress UI was estimated using the chi-squared test, considered significant at $P < 0.05$, and the relative risk (RR) and 95% CI estimated as a measure of the strength of the association between the potential risk factor and the adverse event. The relation between increasing age and UI was also estimated with trend analysis and the estimate repeated for the prevalence of UI in the different age groups. The number of pregnancies between the group with only previous Caesarean delivery and those with previous vaginal delivery was compared using the Mann Whitney U-test.

RESULTS:

The questionnaire was returned by 1700 women (60.7% of women seen by the staff physician); 122 women did not state their age. The mean (median, SD) age was 39.72 (40.0, 7.95) years. Table 1. The reported prevalence are shown in Table 2 for the age groups and different types of UI; 45%, 6% and 49% of women self-reporting UI were classified as having stress, urge and mixed UI, respectively. Most of the women had occasional leakage (Table 2). The reported prevalence of UI increased from 6.2% in women aged < 25 to 47% in those aged >55 years, and from 3% to 23.5% for stress UI; the trend analysis (Table 2) showed that the prevalence of UI and stress UI was significantly different between the age groups and increased with age, as those aged > 40 years were more at risk of both UI and stress UI.

The prevalence of UI and stress UI increased with obesity (Table 3) but the difference was not significant and thus obesity was not a risk factor for UI. Both types of increased in women with previous pregnancies and thus pregnancy was a significant risk factor for UI and stress UI. There was no significant difference in UI or stress UI between the group with Caesarean delivery and the group with no children, previous Caesarean delivery was not a risk factor. Both types of UI increased in women with previous vaginal delivery and it was a significant risk factor for both. Compared with Caesarean delivery, both types of UI increased in women with previous vaginal deliveries and this was a significant risk factor for both types of UI. There was no significant difference in the number of pregnancies between the group with vaginal delivery and those with Caesarean delivery (Table 4, Mann±WhitneyU-test). The prevalence of both types of UI was greater in women with postpartum incontinence than in women without postpartum incontinence was a significant risk factor for both types of UI. Compared

with women with no past history of hysterectomy, the prevalence of both types of UI was high in women

with previous hysterectomy and it was a significant risk factor or both types of UI.

Table 1: Age of the whole population and of those who returned the questionnaire;

Group	Whole population N (%)	Questionnaire N (%)
Age years <25	56 (2.0)	32 (2)
25-39	1428 (51.0)	813 (51.5)
40-55	1260 (45.0)	699 (44.3)
>55	56 (2.0)	34 (2.2)

Table 2 the prevalence of UI in women who returned the questionnaire

Group	N	UI N (%)	Stress UI N (%)	Urge UI N (%)	Mixed UI N (%)
Age years <25	32 (2)	2 (6)	1 (3)	0	1 (3)
25-39	813 (51.5)	150 (18.2)	68 (8.3)	12 (1.5)	70 (8.5)
40-55	699 (44.3)	266 (38.0)	121 (17.3)	12 (1.7)	133 (19.0)
>55	34 (2.2)	16 (47)	8 (24)	0	8 (24)
Trend analysis					
KHI		85.2	34.0		
P		<0.001	<0.001		

Table 3 Potential risk factors for UI and stress UI

Factors	N	UI	Stress UI
Constitutional			
≥40	733	282 (38.5)	129 (17.6)
< 40	845	152 (17.8)	69 (8.1)
RR (95% CI)		2.16 (1.86±2.57) [@]	2.18 (1.66±2.87) [@]
BMI			
< 25	992	321 (32.4)	117 (11.8) 76 (14.8)
BMI	515	190 (36.9)	1.25 (0.96±1.64)
RR (95% CI)		1.14 (0.99±1.32)	
Obstetric			
Pregnancy	1318	413 (31.3)	187 (14.2)
No pregnancy	382	54 (14.1)	23 (6.0)
RR (95% CI)		2.22 (1.71±2.87) ²	.36 (1.55±3.58) ²
Caesarean	114	21 (18.4)	7 (6.1)
Nulliparous	382	54 (14.1)	23 (6.0)
RR (95% CI)		1.30 (0.82±2.06)	1.02 (0.45±2.32)
Vaginal delivery	1204	392 (32.6)	180 (15.0)
No vaginal delivery	496	75 (15.1)	30 (6.0)
RR (95% CI)		2.15 (1.72±2.69) ²	2.47 (1.70±3.59) ²
Postpartum UI	252	156 (61.9)	73 (29.0)
No postpartum UI	1066	257 (24.1)	111 (10.4)
RR (95% CI)		2.57 (2.22±2.97) ²	2.78 (2.14±3.61) ²
Gynecological			
Hysterectomy	61	25 (41.0)	20 (32.8)
No hysterectomy	1639	442 (27.0)	190 (11.6)
RR)95% CI		1.52 (1.11±2.08) [*]	2.83)1.93±4.15) ²

*P <0.05; ² P< 0.001.

Table 4 A comparison of the number of pregnancies between women with previous Caesarean and those with previous vaginal delivery. The differences were not significant Mann±WhitneyU-test P=0.9

No. of pregnancies	Cesarean	Vaginal
1	38	451
2	58	518
3	17	201
4	1	25
5	0	7
6	0	2
Total number of pregnancies	114	1204

DISCUSSION:

The overall prevalence of UI in the present subjects was 27.5%, increasing to 38.5% in those aged >40 years, but decreasing to only 18.2% in women aged 25±39 years and 6.2% in those aged <25 years. Most prevalence studies of UI have been conducted in elderly or institutionalized women; the reported prevalence varies markedly. In women aged 30±40 years it was 14±58.4% (mean 24.5%). Elvinget al.¹⁰, in a study of 3100 women aged 30±59 years, reported a prevalence of 26%, but very few studies have assessed younger women (<25 years old). In a student population (17±25 years) there was a very high rate of UI of 51%. In the present study the prevalence was only 6.4% in this age group; indeed in the previous study, only 16% of the women had regular leakage, while the others admitted a single experience of leakage in their lifetime. In most of the previous epidemiological studies, as in the present, a questionnaire was used with no clinical examination or laboratory investigations. In the two studies using a questionnaire and a clinical examination^{11, 12}, the prevalence of UI was 14±44% but the mean remained at <25.0% in studies with or without examination. Therefore it is not possible to state that the prevalence varies according to the presence or absence of a clinical examination. In the present study UI was defined as an uncontrolled urine loss; the subjects were also asked about whether the leakage was occasional or frequent. In some studies defining UI as an uncontrolled urine loss with no regard to severity or frequency, the reported prevalence was 12±51%, and in others using a definition of UI including the number of

incontinent episodes, the reported prevalence was 10±58.4%. Thomaset al. defined UI as leakage at least twice a month, and reported a prevalence of 10%; with a similar definition, some reported a prevalence of 58%. Thus the prevalence of UI is very variable according to its definition, and in some studies using the ICS definition of UI ('a condition where involuntary leakage is a social or hygienic problem'), with no regard to the frequency or the quantity of urine lost, the reported prevalence was 12±44%. In contrast to the wide range of definitions of UI, there is less disagreement about the different types of UI. Most studies, as in the present, classified UI as stress, urge and mixed, using the same definitions.

CONCLUSION:

There was a high prevalence of UI among middle aged women as compared to young adult women. Gynecological and obstetric events (pregnancy, particularly previous vaginal delivery and hysterectomy) were the most prominent risk factors, especially for stress UI.

REFERENCES:

1. Andersen JT, Blaivas JG, Cardozo L, Thuroff J. ICS 7th Report on the standardisation of terminology of lower urinary tract function – lower urinary tract rehabilitation techniques. *Neurourol Urodyn* 1992; 11: 593–603
2. Hunskaar S, Arnold EP, Burgio K, Diokno AC, Herzog AR, Mallet VT. Epidemiology and natural history of urinary incontinence (UI). In Abrams P, Khoury S, Wein A eds. *Incontinence*.

- 1st International Consultation on Incontinence. Plymouth: Health Publication Ltd, 1999: 197–226
3. Foldspang A, Mommsen S. The International Continence Society (ICS) incontinence definition. is the social and hygienic aspect appropriate for etiologic research? *J Clin Epidemiol* 1997; 50: 1055–60
 4. Abrams P, Cardozo L, Fall M et al. The standardisation of terminology of lower urinary tract function: report from the standardisation sub-committee of the International Continence Society. *Neurourol Urodyn* 2002; 21: 167–78
 5. Brocklehurst JC. Urinary incontinence in the community-analysis of a MORI poll. *BMJ* 1993; 306: 832–4.
 6. Thom D. Variation in estimates of urinary incontinence prevalence in the community: Effects of differences in definition, population characteristics, and study type. *J Am Geriatr Soc* 1998; 46: 473–80
 7. Hunskaar S, Burgio K, Diokno AC, Herzog AR, Hjälmsås K, Lapitan MC. Epidemiology and natural history of urinary incontinence in women. *Urology* 2003; 62 (Suppl 4A): 16–23
 8. Hannestad YS, Rortveit G, Sandvik H, Hunskaar S. A community-based epidemiological survey of female urinary incontinence: The Norwegian EPINCONT Study. *J Clin Epidemiol* 2000; 53: 1150–7
 9. Belanger R. *Indice de Masse Corporelle (IMC) ou Indice de Masse Corporelle (IMC) (Body Mass Index (BMI)).* *Endocrinologie et Métabolisme*. Montréal: Doin Éditeurs Paris, les Presses de l'Université de Montréal, 1993
 10. Foldspang A, Lam GW, Mommsen S. Descriptive epidemiology of urinary incontinence in 3100 women age 30–59. *Scand J Urol Nephrol* 1989; 125: 37–43
 11. Hørding U, Pedersen KH, Sidenius K, Hedegaard L. Urinary incontinence in 45-year-old women. *Scand J Urol Nephrol* 1986; 20: 183–634
 12. Largo-Janssen T, Smits A, Van Weel C. Urinary incontinence in women and the effects on their lives. *Scand J Prim Health Care* 1992; 10: 211–6.