

Prevalence and Risk Factors of Urinary Incontinence in Females of Tribal Area in Rajasthan, India

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Abstract

Background: Urinary incontinence (UI) has considerable social and economic implication. It is a common and distressing medical condition severely affecting quality of life. Thus, it is very importance to define prevalence and possible etiological factors with a view to subsequent prevention.

Objectives: To know the prevalence and risk factors of urinary incontinence in females of tribal area in Rajasthan, India

Materials & Methods: This hospital based cross sectional study was conducted over a period of one year (April 2019 to March 2020) included women attending urology and gynecology OPD during which 2920 women of various age group were asked complains about incontinence and questionnaire was given to them which assessed their demographic features and risk factors for incontinence.

Results: Prevalence of incontinence was 19.93% (582/2920). Among all the women having incontinence highest numbers found to have urge incontinence 46.7% (272/582) followed by mixed urinary incontinence 42.9% (250/582) and isolated stress was least prevalent accounting for 10.3% (60/582). There was significant association between incontinence and risk factors like age, body mass index (BMI), parity, mode of delivery, post hysterectomy, associated medical conditions like chronic cough, diabetes, constipation and depression.

Conclusion: This study concluded that simple measures like controlling BMI, pelvic floor exercise, reducing intake of caffeine and tobacco, treating chronic cough, constipation and diabetes mellitus and restricting hysterectomy to only those patients who have absolute indications; can reduce incontinence problems and its intensity.

Keywords: Urinary Incontinence, Tribal Area, Body Mass Index, Parity

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Introduction

Urinary incontinence is a common and often embarrassing problem in which the loss of bladder control leads to involuntary urine leakage. Urinary incontinence (UI) has considerable social and economic implication. It is a common and distressing medical condition severely affecting quality of life [1,2]. UI may affect women at all ages and has wide range of severity and nature of symptoms. This may influence the physical, psychological and social well-being, with the prevalence varying from 15-40% in different studies [3,4]. This huge range could be attributed to a number of causes, including shame-driven underreporting and the notion that it is a natural consequence of ageing [5]. Increased parity, vaginal deliveries, obesity, pelvic surgery, diabetes mellitus, depression, constipation, and chronic respiratory problems are also potential risk factors for UI. Women in India have also been reported to have high tolerance threshold for seeking treatment because of shyness, fear of surgery, lack of money, dependency on husband and non-availability of female doctors in the periphery [6]. Thus, it is very importance to know the prevalence in particular area and possible etiological factors with a view to subsequent prevention. Various studies have been conducted from different part of countries but very few studies were found on literature search in women from tribal areas. This study was planned to know the prevalence and risk factors of urinary incontinence in females of tribal area of Rajasthan in India.

Material and Methods

This hospital based cross sectional study was conducted only after approval from the institutional ethics committee over a period of one year (April 2019 to March 2020) included women attending urology and gynecology out-patient department. A

questionnaire was formed to get the data related to demographic features and risk factors for incontinence that was validated before getting the data. Women of various age groups were asked complains about incontinence. Consent was taken from all the women. Questions were explained in local language of the area. Privacy and confidentiality were maintained during the data collection procedure. Study population was further divided in two groups, case who have complaints of incontinence and control were women who lack these symptoms. Incontinence was classified as urge, stress and mixed according to symptoms.

Statistical Analysis

The data was presented as number (percentage). Data analysis was done by using IBM SPSS version 21. Univariate Z test was used for multiple proportions and multiple correlations for multivariate analysis and p value was calculated to establish significance. P value less than 0.05 was considered significance.

Results

Out of total 2920 women screened with the help of incontinence questionnaire, prevalence of incontinence was found 19.93% (582/2920). (Table 1) Among all the women having incontinence highest numbers found to have urge incontinence 46.7% (272/582) followed by mixed UI 42.9% (250/582) and isolated stress was least prevalent accounting for 10.3% (60/582). (Table 1) There was significant association between incontinence and risk factors like age, body mass index (BMI), parity, mode of delivery, post hysterectomy, associated medical conditions like chronic cough, diabetes, constipation and depression and this association was also significantly differed with many factors for types of incontinence. (Table 2-5)

Table 1: Prevalence of different types of incontinence (N=2920)

Types	Prevalence
Urge incontinence	272 (9.31 %)
Mixed incontinence	250 (8.56 %)
Stress incontinence	60 (2.05 %)
Total	582 (19.93%)

Table 2: Correlation of various risk factors with Incontinence

Factors		N=2338 Control (%)	N=582 Cases (%)	P value
Age Group	31-40	520 (22.2%)	64 (10.9%)	<0.001*
	41-50	624 (26.7%)	136 (17.8%)	
	51-60	690 (29.5%)	186 (21.2%)	
	>60	504 (21.5%)	196 (28.0%)	
Body mass index (BMI)	<18	198 (8.5%)	56 (9.6%)	<0.001*
	18-25	1629 (69.7%)	161 (27.6%)	
	>25	511 (21.9%)	365 (62.7%)	
Parity	Nulliparous	318 (13.6%)	32 (5.5%)	<0.001*
	1	698 (29.9%)	122 (20.9%)	
	2 or more	1322 (56.5%)	428 (73.5%)	
Mode of delivery	Normal vaginal delivery	1235 (52.8%)	460 (79.0%)	<0.001*
	Lower segment caesarean section (LSCS)	1103 (47.1%)	122 (21.0%)	
Post hysterectomy		518 (60.2%)	342 (39.8%)	<0.001*
Tobacco and Smoking		175 (7.49%)	89 (15.29%)	<0.001*
Caffeinated drinks		1860 (79.56%)	524 (90.03%)	<0.001*
Associated medical illness	Chronic Cough	306 (13.09%)	132 (22.68%)	<0.001*
	Diabetes Mellitus	204 (8.73%)	147 (25.26%)	<0.001*
	Constipation	348 (14.88%)	178 (30.58%)	<0.001*
	Depression	27 (1.15%)	18 (3.09%)	<0.001*

*Significant

Table 3: Correlation between different type of incontinence and risk factors

Factors		Types of incontinence (N=582)			P value
		Urge (%)	Mixed (%)	Stress (%)	
Number of subjects		272 (46.7%)	250 (42.9%)	60 (10.3%)	0.013*
Age	31-40	37 (57.81%)	3 (4.69%)	24 (37.5%)	>0.05
	41-50	66 (48.53%)	14 (10.29%)	56 (41.18%)	
	51-60	78 (41.94%)	22 (11.83%)	86 (46.24%)	
	>60	91 (46.43%)	21 (10.71%)	84 (42.86%)	
Body mass index (BMI)	<18	33 (58.93%)	5 (8.93%)	18 (32.14%)	0.002*
	18-25	87 (54.04%)	9 (5.59%)	65 (40.37%)	
	>25	152(41.64%)	56 (15.34%)	167(45.75%)	
Parity	Nulliparous	26 (81.25%)	0	6 (18.75%)	<0.001*
	1	81 (66.9%)	12(9.84%)	29 (23.77%)	

	2 or more	165 (38.55%)	48 (11.21%)	215(50.23%)	
Mode of Delivery	Normal vaginal delivery	194 (42.17%)	58 (12.61%)	208(45.22%)	<0.001*
	Lower segment caesarean section (LSCS)	78 (63.95%)	2 (1.64%)	42 (34.43%)	
Post hysterectomy		100 (29.0%)	76 (22.0%)	168 (49.0%)	0.042*
Caffeinated drinks		260 (49.62%)	54 (10.31%)	210(40.08%)	0.012*
Tobacco and smoking		54 (60.67%)	6 (6.74%)	29 (53.70%)	0.002*
Associated medical illness	Chronic Cough	36 (27.27%)	52 (39.39%)	44 (33.33%)	>0.05
	Diabetes Mellitus	74 (50.34%)	23 (15.65%)	50 (34.01%)	>0.05
	Depression	8 (44.44%)	4 (22.22%)	6 (33.33%)	>0.05
Constipation		67(37.64%)	69(38.76%)	62(34.83%)	>0.05

*Significant

Table 4: Correlation of various risk factors with different types of incontinence on univariate analysis

Variables	N	Types of incontinence			P value
		Urge (%)	Mixed (%)	Stress (%)	
Age>40 years	518	235 (45.37)	57 (11.00)	226 (43.63)	<0.05*
Multiparous	428	165 (38.55)	48 (11.22)	215 (50.23)	<0.05*
Vaginal delivery	460	194 (42.17)	58 (12.61)	208 (45.22)	<0.05*
Post hysterectomy	342	98 (28.65)	76 (22.22)	168 (49.12)	<0.05*
BMI>25	365	152 (41.64)	56 (15.34)	167 (45.75)	<0.05*
Diabetes Mellitus	147	74 (50.34)	23 (15.65)	50 (34.01)	<0.05*
Chronic cough	132	36 (27.28)	52 (39.39)	44 (33.33)	<0.05*
Depression	18	8 (44.44)	4 (22.23)	6 (33.33)	<0.05*
Tobacco and smoking	89	54 (60.67)	6 (6.75)	29 (32.58)	<0.05*
Caffeinated drinks	524	260 (49.62)	54 (10.31)	210 (40.08)	<0.05*

*Significant

Table 5: Correlation of various risk factors with incontinence on multivariate analysis

Variables	Overall	Types of incontinence		
		Urge	Mixed	Stress
Age	0.01	0.061	0.06	0.01
Parity	0.005	0.002	0.05	0.09
Type of delivery	0.006	0.003	0.004	0.005
Post hysterectomy	0.05	0.01	0.09	0.004
BMI	0.014	0.02	0.05	0.002
Diabetes Mellitus	0.002	0.005	0.002	0.01
Chronic Cough	0.01	0.06	0.001	0.004
Caffeinated drinks	0.003	0.001	0.006	0.09

Discussion

Urinary incontinence is a distressing problem affecting the physical, psychological and social well-being. Necessary steps in its prevention and treatment can be taken by knowing the disease burden and severity. Under-diagnosed incontinence due to shyness and unawareness in women can be solved by awareness campaigns. Incontinence can be controlled by creating proper awareness and modification of lifestyle which will lead to improve quality of life. In this cross sectional study, prevalence of female urinary incontinence in this region was assessed with the help of questionnaire which was based on local language as this is tribal belt of Rajasthan.

In present study population the total prevalence of urinary incontinence was 19.9% and prevalence of urge, mixed and stress type was 9.29%, 8.53%, and 2.05% respectively. In various other studies worldwide it ranges from 15-45% [5]. Similar prevalence of incontinence that is 18.4% reported by Guin *et al*, 21.8% by Singh *et al*, 12% in Abha *et al* [7-9]. Singh *et al* study has reported the prevalence of stress, mixed and urge as 16.13%, 3.67% and 2.07% respectively [8].

These results were similar to most of the other studies done by Hagglund *et al*, Sommer *et al*, Kinchen *et al* studies in which also stress incontinence was highly prevalent [10-12]. Brown *et al* study reported 13% prevalence of stress incontinence [13]. But in present study urge incontinence was more prevalent.

Age has got significant association with incontinence affecting more in age group more than 40 years. In present study 22.2 % of women with age more than 40 were incontinent. ($p < 0.05$) Similar high prevalence (38.4%) in women above 40 year was found by Singh *et al* [8]. Singh *et al* also reported that prevalence was low in

females up to 30 year of age, the prevalence ranged from 27.8% to 42.8% with maximum prevalence in the age group of 61 to 70 years of age [9]. It was similar to most of the other studies (36%-43%) done by Chiarelli *et al* and Danforth *et al* [14-15]. Nitti *et al* has reported low prevalence of 10.9% in age group 31-40 years but 28% of age group more than 60 years, has a peak around the time of menopause and then rises steadily [16].

Raised BMI was found to be significant associated with incontinence. In present study women with BMI more than 25 had 41.67% prevalence of incontinence ($p < 0.05$) while in Singh *et al* study the prevalence of urinary incontinence was 20.77% and 26.25% respectively in women with BMI less than 25 and more than 25, showing a significant difference between the two [8]. ($P < 0.01$)

Parity and mode of delivery (normal vaginal delivery) were found to be significantly associated with incontinence. In present study overall women with vaginal delivery have 27.14% prevalence of incontinence, on further analyzing the data women with parity 2 or more and 1 or less had incontinence 73.5% and 26.5% respectively. ($p < 0.001$)

This could be due to repeated trauma of pelvic floor muscles during normal delivery as only 21% of LSCS delivery had incontinence while 79% of normal vaginal delivery was incontinent. Similar results were seen by Singh *et al* study in which urinary incontinence was significantly associated with normal delivery and more with high number of parity [8].

In present study there was significant association between incontinence and hysterectomy. Post hysterectomy UI was significantly high that was 39.77% among study group. ($p < 0.05$) Similar association of

incontinence with hysterectomy was seen by Singh *et al* study which showed 41.8% incontinence after hysterectomy [8].

In present study personal habits like tobacco & smoking and consumption of caffeinated drink was significantly associated with incontinence among women, calculated prevalence was 33.7% and 21.9% respectively. Urge incontinence was significantly more could be because of high intake of caffeine which causes detrusor instability. Similar findings were seen by Singh *et al* study as prevalence in both groups was 34.3% and 21.7% respectively [8].

Other associations which were found to be highly significant in present study were associated illness like chronic cough, diabetes mellitus, constipation and depression. Women with diabetes and depression have more urge incontinence while with chronic cough have more percentage mixed incontinence while Singh *et al* study found no significant association with diabetes [8].

Conclusion

This study concluded that simple measures like controlling BMI, pelvic floor exercise, reducing intake of caffeine and tobacco, treating chronic cough, constipation and diabetes mellitus and restricting hysterectomy to only those patients who have absolute indications; can reduce incontinence problems and its intensity.

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