



HEALTH PROMOTION

An epidemiological profile of women suffering from urinary incontinence residing at one of the cities of western India: A mixed method approach study

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Keywords

Urinary Incontinence • ICIQ • Quality of Life • Treatment-seeking behavior

Summary

Introduction. Urinary incontinence (UI), a discomforting condition is predominantly seen in women. Affected women are forced to modify their lifestyles to alleviate symptoms and associated complications.

Objectives. To find the prevalence, determinants and association of UI with Socio-demographic, obstetrical, gynecological and personal history and its impact on quality of life.

Methods. Research was conducted with a mixed method approach (quantitative and qualitative assessment) among women residing in urban slum of Ahmedabad city, India. Sample size calculated was 457. The study was conducted in urban slums served by one of the Urban Health Centre (UHC) of Ahmedabad city. A modified pre-evaluated standard questionnaire developed by International Consultation on Incontinence Questionnaire (ICIQ) was used for quantitative part. Qualitative part consisted of Focused Group Discussions (FGD) which was carried out amongst the women in batches of 5-7 per discussion at the nearest anganwadi center.

Results. Prevalence of UI was found to be 30% among study-participants. A statistical significant relation was seen between the presence of UI and age, marital status, parity, past history

of abortion, and occurrence of urinary tract infection (UTI) in last year ($P < 0.05$). Comparison of severity of UI by calculating ICIQ score showed statistical significant relation of same with age, occupation, literacy, socioeconomic status, and parity ($P < 0.05$). More than 50% of women suffering from UI were having chronic constipation, reduced daily sleep, and diabetes. Only 7% of the total women suffering from UI had consulted doctor for their problem.

Conclusion. Prevalence of UI was found to be 30% in study participants. Sociodemographic factors like age, marital status and socio-economic class were found to have statistical significant effect on existing UI at the time of interview. ICIQ categories of UI were found to be influenced statistically with age, occupation, literacy, socio-economic class, parity and obstetric factors like place of delivery and facilitator of delivery. Majority of participants (93%) had never consulted doctor for various reasons/myths like perception that it shall resolve on its' own, Belief that it is an age-related normal phenomenon, shyness to discuss issue with male doctors/members of family and financial reasons.

Introduction

India is going through a transition phase in the pattern of health and disease profile of the population. The spectrum of health/disease status, in general, is getting widened with inclusion of non-communicable diseases and health-conditions other than communicable diseases. Urinary incontinence (UI) among post-menopausal females is one such health-related issue that is a part of submerged portion of iceberg in epidemiological profile of India. UI is one of priority health issues recognized by World Health Organisation. It is defined by international continence society as “a complaint of involuntary loss of urine [1]. It is a common and perilous medical condition severely affecting daily life activities of affected women. The UI may be divided into three broad categories: urge, stress incontinence, and mixed variety. The most common etiology for UI includes increasing age, increasing parity, vaginal deliveries, obesity, pelvic surgery, diabetes mellitus, depression, constipation, chronic respiratory problems as well as caffeine and alcohol [2, 3].

Urge incontinence is a condition characterized by frequent urination during day or night and a sudden urge to urinate, with urinary leakage. A person may sometimes not be able to make it to the bathroom in-time with associated leakage. This condition is caused by spontaneous bladder spasms which can result from dietary factors (bladder stimulants-caffeine or alcohol), increased fluid intake, drug side effects, urinary tract infection/cancer, and/or nerve dysfunction (associated with nerve trauma, diabetes, multiple sclerosis, or spinal cord injury). Primary treatments for overactive bladder include behavioral interventions and medications [4]. Stress incontinence is characterized by urinary leakage during physical activities which increases intra-abdominal pressure including coughing, sneezing, exercising, lifting, and laughing. It can result from a variety of conditions including vaginal childbirth, aging, and injury to the pelvic floor muscle levator ani which in turn can lead to urethral hypermobility that manifests as urinary incontinence. As this is an anatomic condition, primary treatment may involve pelvic floor exercises

and/or minimally invasive surgery. [5]the involuntary loss of urine, is a common health condition that may decrease quality of life. Ten to twenty percent of women and up to 77% of women residing in nursing homes have urinary incontinence, yet only 25% seek or receive treatment.

OBSERVATIONS

Mixed incontinence is a condition in which the patient experiences symptoms of both stress and urge incontinence.

Women suffering from UI reframe their lifestyles to avoid social and sexual activities. Urge incontinence was associated with more mental distress, practical inconveniences, and social restrictions than stress incontinence [6].

The prevalence of UI and treatment-seeking behavior is comparatively a very less explored field of research in India. With numerous confining factors such as the non-availability of female doctors in the periphery, shyness, fear of surgery, lack of money, dependency on husbands and belief that it is a natural consequence of aging [7], women tend to avoid reporting this problem. Prevalence of UI ranges from 8-45% in different studies in India [8, 9].

So, with this background, research with mixed method approach (both quantitative and qualitative) to assess determinants, impact on quality of life, and treatment-seeking behavior for UI among females residing in urban slums, Ahmedabad was planned. The objectives of the study were: a) to determine prevalence of urinary incontinence and its determinants. b) To assess severity of UI in women and its association with various risk factors. c) To study Treatment seeking behavior and impact on quality of life of UI in focal group discussions (FGDs) by Qualitative approach.

Methodology

After necessary approval by institutional ethical committee, study was carried out from October 2020 to March 2021. For quantitative research part of study, following methodology was followed:

Based on previous study carried out by, Biswas et al. [3] in West Bengal province of India, the prevalence of UI was found to be 28% (27.7%). According to this data, estimated sample size calculated by $4pq/l^2$ with 15% allowable error gave an approximate sample size of 457. Multi-stage sampling technique was applied for selection of study area and study participants.

In current study, inclusion of women who were 45 years of age or above was done. This age limit was kept considering previous research carried out by Quiroz et al. [10] and Khan et al. [11] who concluded respectively that there is an association between age and numerous pelvic floor disorders in post-menopausal women and an association between years spent in menopause and presence of urinary incontinence.

The study unit was considered as one of the selected

areas of Ahmedabad city, India. The smallest health-administrative unit at city level is Urban Health Center (UHC) which is managed by Municipal Corporation. One of the UHC catering to the population of 71,480 was selected randomly from list of total UHCs serving Ahmedabad city. The area served by selected UHC was divided into 7 regions comprising the various numbers of *Chawls* (a cluster of the urban slums)/society/areas in each region for further sampling. To represent all regions of UHC, four *chawls*/societies/areas were selected from each region using simple randomization, comprising a total number of 28 ($7 \times 4 = 28$) *chawls*/societies/areas. Within *chawls*/society/areas, house numbers provided by Municipal Corporation were used. A specific house number was selected randomly by currency note method. Starting from that house, participants were included from consecutive households. A total of 17 women above 45 years were taken as subjects. If ≥ 1 woman above 45 years were residing in same house-hold, all were included in study. Thus, total 476 (17×28) subjects were selected for study (larger than calculated sample size).

Informed oral consent of participants was taken before interviewing them. They were interviewed face to face using a standard questionnaire. The modified pre-evaluated standard questionnaire developed by International Consultation on Incontinence Questionnaire - Urinary Incontinence short form (ICIQ-UI SF) [12] was used in current study. It was modified according to regional requirements and by adding relevant questions about socio-demographic profiles. It was validated by a pilot study (results of which were excluded from final data collection/analysis). The questionnaire included following information: socio-demographic data, socioeconomic status, gynaecological and obstetric history, personal relevant medical history, questions regarding UI (with Impact on quality of life and Treatment seeking behavior), and another co-existing medical history if any. The socioeconomic status of the family was obtained according to the Modified Prasad's Classification [13] which is based on monthly per capita income calculated by using the CPI-IW (Consumer Price Index - Industrial worker) provided by the Labour Bureau of India for the month of October 2020 [14]. The score of ICIQ was assessed on a scale of 0-21. Score ranges were 1-5 (slight), 6-12 (moderate), 13-18 (severe) and 19-21 (very severe). Question items were Frequency of urinary incontinence, Amount of leakage, Overall impact of urinary incontinence, and Self-diagnostic items [10, 12].

Height was measured by regular measuring tape and weight was noted by using manual weighing machine and analyzed to calculate BMI (Body Mass Index). The responses during personal interview were recorded by investigator directly in Google forms, data were exported to excel sheet and analyzed by chi-square test and correlation tests for significance with IBM SPSS (Statistical Package for the Social Sciences) version 26 for Windows.

Exclusion criteria considered in quantitative part were: Closed house at the time of visit, No women above 45

years of age were available, Consent not given, and Patients with leakage of urine from sites other than urethra. For Qualitative research part of study, women having urinary incontinence were individually contacted later on for FGD after completion of the quantitative part. Exclusion criteria for qualitative research part were: participants who did not give oral consent, who could not be contacted due to currently not living at the same place and who were unable to travel to place of FGD due to various reasons like old age/ co-morbidities/ Job timings and participants who died due to various reasons (co-morbidities/ COVID-19) in period between quantitative and qualitative research part.

FGD was carried out amongst the women in batches of 5-7 women per discussion at nearest possible place where privacy was maintained. Besides investigators, two female social workers remained present in each FGD. The timings and schedule of FGD were kept flexible by keeping into consideration working hours and feasibility of attending each session for participants. FGD was carried out in a separate and quiet room for better audio recording and taking notes. Participants were made to sit in a circle for ease of discussion and communication. All possible due care was taken to create an environment where open and healthy discussion could be done. Before starting discussion, participants were oriented to whole process of FGD and most influential person in the group was assigned as a leader for that FGD. Role of the leader was to encourage her peers (other participants) to share their experiences. Various aspects regarding UI were discussed in FGD such as risk factors, symptoms, impact on quality of life, lifestyle modifications, and treatment-seeking behavior. All sessions were audio-recorded and subsequently analyzed. After the end of each FGD, participants were also counseled to consult doctors.

Result

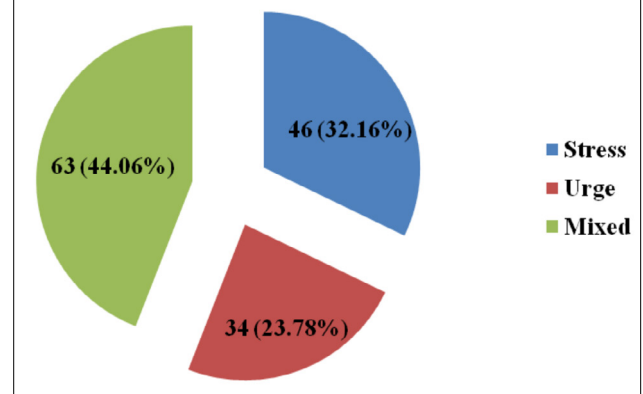
THE QUANTITATIVE PART OF THE STUDY

Of total 476 study participants, 143 (30.04%) women were suffering from UI. Mixed incontinence was the most common type of UI (63, 44.06%) found in study participants (Fig. 1).

Of total participants affected with UI, majority were in the 61-65 years of age-group. Of total working participants, nearly one-third (19, 32.20%) had UI. On assessing role of various socio-demographic characteristics in participants with UI, it was revealed that age, marital status, and socio-economic class were statistically significantly associated with existing UI (Tab. I).

Participants were divided as per suggested categories of ICIQ as described in methodology. Among women with UI (143), 38, 72 and 33 had respectively very severe, severe and moderate UI as per ICIQ classification of same. The categorical distribution as per ICIQ was found to have a significant statistical association (for all p -value < 0.05) with age, literacy, occupation, and socio-economic status (Tab. II).

Fig. 1. Distribution of prevalence of different types of urinary incontinence reported among study participants.



The obstetric profile is considered to be one of the prime factors responsible for occurrence of UI among females; the same was assessed among study participants which revealed that parity of ≥ 3 , history of abortion, and Number of UTI episodes in past 1 year had a statistically significant association with existing UI. Other obstetric factors like age at time of first delivery, place of delivery, type and facilitator for delivery, history of prolonged labor (> 20 hours for primigravida and > 14 hours for multigravida) [13], and history of previous pelvic surgeries did not reveal any statistically significant association with UI (Tab. III).

On comparing the impact of parity on ICIQ categorization of UI, a total of 44 women had parity < 3 (16, 20, and 8 had moderate, severe, and very severe UI respectively) while among women with ≥ 3 parity ($n = 99$), 17, 52 and 30 women had moderate, severe and very severe UI respectively. The difference was found statistically significant with a χ^2 test statistic of 6.849 and P value = 0.032 (Tab. IV).

On assessing the relationship between ICIQ score and BMI (Body Mass Index) of women suffering from UI, a positive correlation was observed. The slope of the line is 0.524 ($r =$ Karl Pearson's correlation coefficient = 0.524, p -value = 0.000, $+0.5 \leq r < +1$) indicating a moderate correlation between ICIQ score and BMI (Fig. 2).

On assessing comorbidities among women suffering from UI, it was found that constipation (105, 73.42%), decreased/disturbed sleep (83, 58.04%), diabetes (78, 54.54%), hypertension (45, 31.46%), and chronic cough (25, 17.48%) were co-existed (multiple responses allowed). In context to tobacco exposure, tobacco chewing (36, 25.17%), Active smoking (7, 4.89%), Passive smoking (44, 30.76%), and snuffing (28, 19.58%) were reported among participants with UI (Multiple responses allowed).

Asking about treatment-seeking behavior revealed that out of total women with UI ($n = 143$), 10 (7%) had consulted doctor for single or multiple times while the remaining 93% had never consulted doctor for various reasons/myths like perception that it shall resolve on its' own (90, 62.93%), belief that it is an age-related

Tab. I. Association between various socio-demographic variables with Urinary Incontinence (n = 476).

Variables		UI Present (%)	UI Absent (%)	Total	χ^2 test statistic	p-value
Age (in completed years)	45-50	42 (25.45)	123 (74.55)	165	17.50	0.003
	51-55	38 (40)	57 (60)	95		
	56-60	30 (27.27)	80 (72.73)	110		
	61-65	25 (43.10)	33 (56.90)	58		
	66-70	2 (7.69)	24 (92.31)	26		
	> 70	6 (27.27)	16 (72.73)	22		
Occupation	Working	19 (32.20)	40 (67.80)	59	0.15	0.699
	Non-working	124 (29.74)	293 (70.26)	417		
Marital Status	Married	73 (25.44)	214 (74.56)	287	13.46	0.003
	Unmarried	0 (0)	5 (100)	5		
	Divorced	0 (0)	4 (100)	4		
	Widowed	70 (38.89)	110 (61.11)	180		
Type of Family	Nuclear	39 (28.06)	100 (71.94)	139	1.708	0.425
	Three Generation	53 (33.97)	103 (66.03)	156		
	Joint	51 (28.18)	130 (71.82)	181		
Literacy	Literate	58 (26.98)	157 (73.02)	215	1.753	0.186
	Illiterate	85 (32.57)	176 (67.43)	261		
Socioeconomic Status	Class 2	16 (38.10)	26 (61.90)	42	76.50	< 0.0001
	Class 3	48 (23.65)	155 (76.35)	203		
	Class 4	142 (65.44)	75 (34.56)	217		
	Class 5	4 (28.57)	10 (71.43)	14		

Tab. II. Association between various categories of ICIQ and socio-demographic variables (n = 143).

Variable		ICIQ Categories (score: 0-21)			Total	χ^2 test statistic	p-value
		Moderate (6-12) (%)	Severe (13-18) (%)	Very Severe (19-21) (%)			
Age (in completed years)	45-50	14 (33.33)	21 (50)	7 (16.67)	42	23.09	0.01
	51-55	8 (21.05)	22 (57.89)	8 (21.05)	38		
	56-60	4 (13.33)	20 (66.67)	6 (20)	30		
	61-65	4 (16)	7 (28)	14 (56)	25		
	66-70	0 (0)	1 (50)	1 (50)	2		
	> 70	3 (50)	1 (16.67)	2 (33.33)	6		
Occupation	Working	2 (10.53)	16 (84.21)	1 (5.26)	19	10.231	0.006
	Non-working	31 (25)	56 (45.16)	37 (29.84)	124		
Literacy	Literate	21 (36.21)	28 (48.28)	9 (15.52)	58	11.861	0.002
	Illiterate	12 (14.12)	44 (51.76)	29 (34.12)	85		
Socio-economic Status	Class 2	5 (31.25)	9 (56.25)	2 (12.50)	16	16.177	0.012
	Class 3	19 (39.58)	19 (39.58)	10 (20.83)	48		
	Class 4	9 (12)	42 (56)	24 (32)	75		
	Class 5	0 (0)	2 (50)	2 (50)	4		

normal phenomenon (74, 51.74%), shyness to discuss issue with male doctors/members of family (56, 39.16%) and financial reasons (5, 3.49%), (Multiple responses allowed).

QUALITATIVE PART RESULT

Each FGD consisted of 5-7 participants. A total number of 10 such FGDs were conducted. For sake of maintaining anonymity of each participant, they were given numbers to describe various qualitative variables. All recordings of FGDs were saved and coded separately which yielded following.

In-depth discussion classified based on selected themes relevant to UI.

KNOWLEDGE OF RISK FACTORS CONTRIBUTING TO SYMPTOMS

While some Women were aware of medically proven risk factors of UI, some were unsure of symptoms. For instance, when asked, "What do you think caused this condition?" FGD1 (Sr. No. 2) answered: "I think it is caused by chronic tobacco use".

FGD3 (Sr. No. 14) answered: "I think it was caused by frequent infections in my genital tract".

Tab. III. Association of Urinary Incontinence with obstetric and other relevant details of study participants (n = 476).

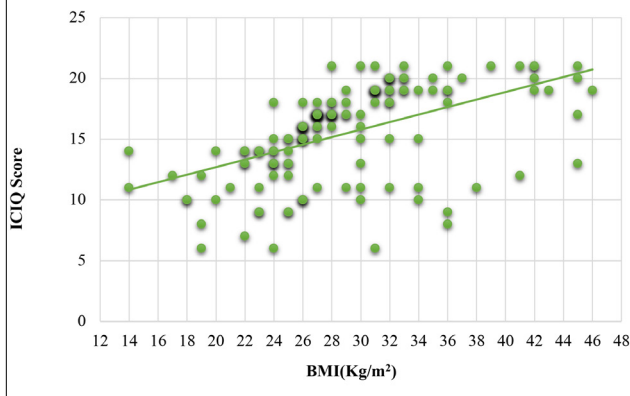
Variables		UI Present (%)	UI Absent (%)	Total	χ^2 test statistic	p-value
Parity	< 3	44 (23.66)	142 (76.34)	186	5.924	0.014
	≥ 3	99 (34.14)	191 (65.86)	290		
Age at First Delivery	≤ 18	33 (29.73)	78 (70.27)	111	1.754	0.416
	19-30	110 (30.47)	251 (69.53)	361		
	> 30	0 (0)	4 (100)	4		
Place of last Delivery	Home	84 (31.46)	183 (68.54)	267	1.348	0.509
	Hospital	59 (28.50)	148 (71.50)	207		
	Others*	0 (0)	2 (100)	2		
Who performed the last delivery	Doctor	50 (29.41)	120 (70.59)	170	0.601	0.740
	Nurse	11 (25.28)	32 (74.42)	43		
	Others**	82 (31.18)	181 (68.82)	263		
Type of last Delivery	Vaginal	135 (31.03)	300 (68.97)	435	2.367	0.124
	Caesarean	8 (19.51)	33 (80.49)	41		
History of Prolonged Labour	Yes	39 (36.45)	68 (63.55)	107	2.696	0.1
	No	104 (28.18)	265 (71.82)	369		
History of abortion	Yes	61 (35.67)	110 (64.33)	171	4.026	0.044
	No	82 (26.89)	223 (73.11)	305		
History of Pelvic operation	Yes	71 (29.96)	166 (70.04)	237	0.002	0.964
	No	72 (30.13)	167 (69.87)	239		
Number of episodes of UTI in past 1 year	0	69 (21.04)	259 (78.96)	328	71.866	< 0.0001
	1	19 (27.54)	50 (72.46)	69		
	1-2	49 (69.01)	22 (30.99)	71		
	3-5	6 (75)	2 (25)	8		

*Places other than Home or Hospital or during transit in vehicle. ** Dai or other local ladies or spontaneous.

Tab. IV. Association between various categories of ICIQ and Gynaecological/ obstetrical variables (n = 143).

Gynecological/obstetrical history		ICIQ Score			Total	χ^2 test statistic	p-value
		Moderate (%)	Severe (%)	Very Severe (%)			
Parity	< 3	16 (36.36)	20 (45.45)	8 (18.19)	44	6.849	0.033
	≥ 3	17 (17.17)	52 (52.53)	30 (30.30)	99		
Age at First Delivery	≤ 18	10 (30.30)	13 (39.40)	10 (30.30)	33	2.218	0.329
	19-30	23 (20.91)	59 (53.64)	28 (25.45)	110		
Place of last Delivery	Home	14 (16.67)	43 (51.19)	27 (32.14)	84	6.03	0.049
	Hospital	19 (32.21)	29 (49.15)	11 (18.64)	59		
Who performed the delivery	Doctor	15 (30)	24 (48)	11 (22)	50	9.947	0.041
	Nurse	5 (45.45)	6 (54.55)	0 (0)	11		
	Others	13 (15.85)	42 (51.22)	27 (32.93)	82		
Type of last Delivery	Vaginal	30 (22.22)	68 (50.37)	37 (27.41)	135	1.396	0.497
	Caesarean	3 (37.50)	4 (50)	1 (12.50)	8		
History of Prolonged Labour	Yes	8 (20.52)	18 (46.15)	13 (33.33)	39	1.262	0.532
	No	25 (24.04)	54 (51.93)	25 (24.04)	104		
History of abortion	Yes	13 (21.31)	30 (49.18)	18 (29.51)	61	0.517	0.772
	No	20 (24.39)	42 (51.22)	20 (24.39)	82		
History of Pelvic operation	Yes	16 (22.54)	36 (50.70)	19 (26.76)	71	0.023	0.988
	No	17 (23.61)	36 (50)	19 (26.39)	72		
Number of episodes of UTI in past 1 year	0	19 (27.54)	35 (50.72)	15 (21.74)	69	2.638	0.852
	1	4 (21.05)	10 (52.63)	5 (26.32)	19		
	1-2	9 (18.37)	24 (48.98)	16 (32.65)	49		
	3-5	1 (16.67)	3 (50)	2 (33.33)	6		

Fig. 2. Correlation between ICIQ score and BMI of study participants (n = 143).



FGD5 (Sr. No. 29) answered: “I don’t know what caused this. It started gradually and worsened over time.” When asked about medical history, Sr. No. 29 said she was diagnosed with diabetes a few years back. She was explained that it may be cause of her symptoms and was advised regular monitoring of blood glucose and referred to hospital after FGD.

UNAVOIDABLE RISK-FACTORS

All women in FGDs were provided with knowledge of common risk-factors. Further discussion was done with some women who couldn’t avoid those risk-factors.

The most common was multiple parity. For instance, FGD 5 (Sr. No. 27) said: “I have 5 children, this led to constant injury and laxity of my genital-tract, what can I do now”? She was given knowledge about different physiotherapeutic exercises to decrease frequency of symptoms and referred to doctor.

Other commonly unavoidable things were household chores and work that required heavy lifting. FGD6 (Sr. No. 34) said “I am a fruit seller. Constant heavy lifting of baskets and pulling a fruitcart is all I do the whole day. It’s the only source of income for my family”. FGD9 (Sr. No. 54) said “I am the only woman in house. I constantly work in kitchen where I left heavy boxes from storage room, and I do all cleaning of house along with broom-stick”. Both of these women were referred to hospital. They were advised that they’ll be started on medications, and if medications show no improvement, surgery may be indicated.

VARIATION OF SYMPTOMS ACCORDING TO WEATHER/WORK ACTIVITY/UTI

Women were also asked about what things aggravate their symptoms.

FGD4 (Sr. No. 15) answered: “Drinking coffee before going to bed results in frequent waking up and going to bathroom”.

FGD10 (Sr. No. 57) said: “frequency of symptoms increases when I am in stress”. She was diagnosed with anxiety disorder a few years back. She drinks excessive water during anxiety attacks. She was advised to consult

a psychiatrist. FGD9 (Sr. No. 54) said “During winter season, symptoms of urge incontinence increase a lot”. This was also said by a majority of women during that FGD.

VARIED SYMPTOMS FOR SIMILAR RISK FACTORS

Many women had similar types of risk factors but symptoms varied in them. For instance, FGD 5 (Sr. No. 27) and FGD 4 (Sr. No. 20) both have 5 children but ICIQ score in earlier was higher. She underwent delivery of all children at home which may have led to improper management of labor while FGD4 (Sr. No. 20) underwent delivery of all her children in hospital.

NON-MEDICAL MEASURES TAKEN TO AVOID THE INCONTINENCE

Preventive measures being taken by affected women on a day-to-day basis were also discussed. FGD1 (Sr. No. 3) answered “I stop drinking water 2 to 3hours before going to sleep”.

FGD8 (Sr. No. 48) answered “I constantly wear an adult diaper when I am at home to prevent my clothes from getting spoiled”.

FGD 3 (Sr. No. 14) answered “I ask my son/husband to do all the heavy lifting for me”.

EFFORTS TAKEN TO AVOID SOCIAL EMBARRASSMENT

While majority of women avoided social gatherings and functions, some assorted to various tedious and cumbersome measures like drinking less water and wearing diapers whenever going out of the house. FGD9 (Sr. No. 52) said “I live in a very old house, our bathroom/ toilet is located outside inbackyard. Usually, I spoil my clothes by the time I reach there on time, so I have shifted my bed and all my stuff to room nearest to bathroom/toilet.” It was noticed by observers that many old women resorted to this measure.

REASONS FOR NOT CONSULTING THE DOCTOR

FGD2 (Sr. No. 10) answered “This problem started when I was pregnant and I hoped it will stop after delivery, but I continued. I considered it as side-effect of pregnancy.” It was explained to her that during pregnancy, pressure from her gravid uterus on her bladder may have caused symptoms and during labor, injury may have occurred in genital tract. She was advised to consult a specialist. FGD6 (Sr. No. 34) said “My mother hadsame problem; even my mother-in-law hadsame problem. It’s a normal phenomenon. We have to deal with it.” It was explained to her that it can be avoided by proper management and treatment.

Many old women were dependent on their sons to take them to hospital and due to unavailability of time and/or money; they had to resort to non-medical measures.

MISSING OUT ON DAILY CHORES/ACTIVITIES

It ranged from missing social gatherings to permanently leaving their job.

FGD1 (Sr. No. 6) and FGD7 (Sr. No. 44) was a school teacher and office clerk respectively, due to frequent exacerbation of symptoms, they had to resign from their jobs.

IMPACT ON MENTAL HEALTH

Majority of women faced daily anxiety to avoid embarrassment. While younger women were more prone to mental health issues, older women avoided getting out as much as possible. FGD4 (Sr. No. 20) said “Earlier I used to be very anxious while going out. I used to take extra pair of clothing with me. But for the past 1.5 years, I avoid going out as I am retired, and my son earns for daily living”.

Discussion

In India, there are lots of social barriers and misconceptions regarding reproductive and/or sexual health in general which include UI. It is a subject that is still not talked about or discussed in public and women appear not to be aware of how exactly to address issue. Present study reported prevalence of UI to be 30% with mixed incontinence to be the highest (63/143). A similar study conducted by Singh et al. [17] reported a prevalence of 21.8% while Bodhare et al. [18] in Telangana, India reported a prevalence of 10% for UI. Both of these studies may have different prevalence as they were conducted at different areas and different settings. A study conducted in China by Lan Zhu et al. [18] reported highest prevalence of Stress UI. Present study reported significant association of existing UI with age and marital status ($p < 0.05$). Also, a significant association was seen based on age, occupation, literacy, and socioeconomic status and ICIQ scores among women having UI ($P < 0.05$). A study conducted by Singh et al. [17] in India also reported association of increasing age with UI. A study conducted at Nigeria by Abiola et al. [20] showed that Increasing age has a positive correlation with ICIQ score. Present study demonstrated a significant difference between ICIQ scores among women (suffering from UI) with < 3 children and women having ≥ 3 children ($P < 0.05$). Saadia [21] conducted by Al-Badr [22] among Saudi women showed a significant association between a history of previous gynecological surgery (like abortion) and the presence of UI. A moderate correlation was seen between BMI and ICIQ scores in present study. Palms et al. [23] conducted a study in Brazil where correlation between BMI and overactive bladder was assessed which revealed that women with BMI ≥ 30 presented a significantly higher score for ICIQ than women with a lower BMI (18.5-24.9). Present study found that a high number of women suffering from UI had co-morbidities like constipation and diabetes mellitus. Maeda et al. [24] in their research found that functional constipation is related to moderate to severe overactive bladder symptoms (OAB) and to OAB with urinary incontinence. Nazaal et al. [25] in

their research conducted amongst Palestinian women found a high prevalence of UI among women suffering from diabetes (43.2%).

In context to treatment-seeking behavior, the current study observed that 7% of affected women had consulted doctor. A study conducted by Singh et al. [26] in North India showed that 20% of women had consulted a doctor for their problems. Same reasons like “consideration of UI as normal and shyness” were provided in that study.

POSSIBLE LIMITATIONS OF STUDY

Social Desirability bias

In present research, it was observed that some women may still be denying presence of UI despite presence of female social worker.

Recall Bias

Respondents may have faced problems recalling number of UTIs in past one year. Many old women did not remember their age correctly.

For many women, problem of UI aggravated significantly during winter season, so ICIQ score may change over the months. This may have created the confounding bias. Cold weather being confounding factor.

There was a time lag between quantitative and qualitative data collection due to existing COVID pandemic which in turn may have resulted some lost to follow up participants.

Current study could not separate the risk factors for different types of UI (stress UI/ Urge UI/ Mixed UI).

Conclusion

The revealed prevalence of UI among study participants was 30% and mixed incontinence was the most common reported variety. Sociodemographic factors like age, marital status and socio-economic class were found to have statistical significant effect on existing UI at the time of interview. ICIQ categories of UI were found to be influenced statistically with age, occupation, literacy, socio-economic class parity and obstetric factors like place of delivery and facilitator of delivery. Other important factors which impacted existing UI with statistical significance were parity, history of abortions and number of episodes of UTI in past 1 year. Majority of participants (93%) had never consulted doctor for various reasons/myths like perception that it shall resolve on its' own, Belief that it is an age-related normal phenomenon, shyness to discuss issue with male doctors/members of family and financial reasons.

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Authors' contributions

VRD designed the methodology of the cross-sectional study and provided intellectual support. KS and PK collected the data for the study and carried out the data analysis. KS and PK wrote the manuscript and VRD did the final editing. All authors reviewed the final manuscript.

Conflict of interest statement

The Authors declare no conflict of interest.

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