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Prevalence and Risk Factors of Urinary Incontinence among Adult Saudi Women in Riyadh, Saudi Arabia

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Abstract
Introduction: Urinary incontinence (UI) remains a highly prevalent cross-cultural condition in the growing public health problems in terms of its medical, social and cost to both the incontinent person and his family, and to the health care systems. This study aimed To determine the prevalence and types of UIand associated risk factors among Saudi adult women in Riyadh, Saudi Arabia.
Methods: A descriptive cross-sectional study was conducted on women aged 18 years and older attending Ministry of Health Primary health care centers (PHCCs) in Riyadh, Saudi Arabia. Participants were evaluated through face to face interview by the researcher with a validated questionnaire that estimated the prevalence of UI and evaluated factors associated with UI. The bother of UI symptoms was assessed using the Arabic version of the short form the International Consultation Incontinence Questionnaire (ICIQ-SF).
Results: The overall prevalence of UI in our study was 42.6%. The prevalence of UI according to its type was 31.2% urgency urinary incontinence, 29.4% mixed urinary incontinence 28%, and 11.2 % stress urinary incontinence. Risk factors for UI included increased age, parity greater than 5, menopause, obesity and Hypertension. 18.6 % women in this study reported mild effect of UI on their quality of life where only 2.8% reported severe effect was. In our study population medical advice was not sought by 93.5% of women with urinary incontinence.
Conclusion: Female UI is prevalent in Saudi Arabia. Age, multiparty obesity and hypertension are significant risk factors influencing the occurrence of UI. the majority of women with this condition did not seek medical advice. We consider our study as an important step to start the plans for early detection, and treating UI in Saudi Arabia. A well-designed national health program for women in general and for those with UI, and for physicians and nurses in primary health centers, is highly recommended.

Keywords: cross sectional, urinary incontinence, prevalence, risk factors, women, Saudi Arabia

Introduction

The rapid aging of the world's population is one of the major global demographic trends, driven by a reduction in fertility and mortality [1]. The International Consultation of Urinary Incontinence and the World Health Organization (WHO) recognized that urinary incontinence (UI) is a problem on a global scale which affects different cultures and races [2]. Worldwide UI is called a silent epidemic, approximately 250 million adults suffer from this problem [3, 4]. Urinary incontinence seems to be under diagnosed and underreported because of many patients do not report the condition to their physician for 2 reasons, the first is attributable to their belief that UI is a normal consequence of aging that cannot be treated the second is their fear of embarrassment [5].

The International Incontinence Society (ICS) has standardized the definition of UI as "the complaint of any involuntary leakage of urine". However, the present definition is too broad and potentially could include any patient with even one episode of UI in a lifetime. Despite this discrepancy, the recent ICS report states that UI should be further described by specifying frequency, severity, risk factors, social and hygienic impact, effect on quality of life, and whether or not the individual seeks help [6]. Depending on its pathophysiologic process, UI falls under one of the following types of incontinence: stress urinary incontinence (SUI), urge urinary incontinence (UUI) and mixed urinary incontinence (MUI) [2].

Urinary incontinence is a prevalent, burdensome and costly condition, affecting primarily women. It can mistakenly be considered as a normal part of aging that needs no medical intervention and can even be ignored when in fact it's not. It is observed in women at any age group from different cultures and races, contrary to general opinion which is more common in elderly population, thus constituting a worldwide problem [7]. Accurate data are difficult to retrieve from the epidemiologic UI literature, since there are striking differences among the studies in terms of methodologies, UI definitions and populations considered, which hinder the determination of more accurate estimates [8, 9]. In a systematic literature review involving studies from 12 countries, reported that UI have a wide prevalence interval ranging from 16.2% to 81.9% [7]. The prevalence of UI in community dwelling adult women is estimated to be in the range of 10-60%, depending on the countries and populations studied [10-23]. with the peak to be in the childbearing age group (up to 40%) [25]. The conservative culture and limited public education among Gulf countries might play a role in women reluctance to seek medical assistance, for that reason the prevalence of UI in the Gulf countries could be higher than the rates reported from Western European countries and the USA. To date, the prevalence and type of UI among women in the general Population of the Gulf region have not been well-investigated. Indeed, the few reports available mainly studied UI among women attending healthcare centers and

hospitals reporting the overall UI prevalence between 20-41% [12, 14, 15, 26]. While SUI predominates in younger populations, UI and MUI become more prevalent with ageing [27, 28]. Several studies evaluating UI types found that SUI to be the most frequent type of UI recorded [29].

There are several risk factors that could explain why certain groups of women are at higher risk of developing UI. In addition to advancing age, previous studies have identified a range of factors to be associated with UI development, including obesity (body mass index (BMI) over 25 kg/m), smoking, a chronic disease history (diabetes, heart disease, etc.), constipation and obstetric and gynecological factors (multigravida, multiparty, mode of delivery, menopause or gynecological surgery), and use of certain medications (alpha blocker diuretics etc.) [11, 30-34]. Epidemiologic and clinical cohort studies have demonstrated mixed results regarding the relationship of caffeine and fluid intake on UI in women. Two large epidemiologic studies found conflicting conclusions on whether caffeine impacts incontinence [35].

Urinary incontinence is regarded as a disgraceful situation, with a negative effect on quality of life (QOL) and is usually kept disguised; it is an important disease leading to physical, social, psychological, sexual and economical problems among women of all age groups [10]. and may result in increased dependence on caregivers as incontinence worsens [41, 42, 43].

A particular problem for Muslim women with UI is the inability to perform daily prayers (8alat). 8alat is a spiritual activity that requires cleanliness of body, clothing, and place. Furthermore, performing 8alat involves mental concentration, verbal communication, and physical movements (such as kneeling down) [11, 14, 26]. The prevalence of UI can be significantly underestimated because physicians don't tend to ask patients about this problem, and most patients rarely initiate discussions about UI with their physicians [22, 45]. Undoubtedly, the symptom of UI is a common problem, health professionals seek to learn more about the factors affecting the prevalence of UI to improve their awareness about the management and treatment of those affected. Awareness is considered an important factor, which may cause considerable and positive changes in affected women's health behaviors [24]. Therefore, the purpose of this study is to estimate the prevalence of UI, identify the shared or unique factors and potentially modifiable conditions associated with each incontinence type, study the perceptions and health seeking behavior among women visiting primary health care center (PHCCs) in Riyadh, Saudi Arabia. This study aimed to estimate prevalence of urinary incontinence among Saudi Women in Riyadh City, KSA. And To explore the Risk factors associated with urinary incontinence. Also to determine types and catachrestic of UI in adult women.

Methods

This is a descriptive cross-sectional multi-center study that assess the prevalence and risk factors of urinary Incontinence among adult women visiting primary health care centers in Riyadh, Saudi Arabia.

Study setting and Duration

This descriptive cross-sectional multi-center study conducted in the primary health care centers (PHCCs) affiliated to the Ministry of Health (MOH) in Riyadh, Saudi Arabia. Riyadh is the capital and largest city of Saudi Arabia, with a population of close to 7.3 million. According to the National Statistical Service of Saudi Arabia. PHCCs are located in most neighborhoods of the city, can be accessed free of charge without referrals, and provide all primary medical services for the majority of the residents. A representative sample from 20 PHCCs included in the present study were selected using multistage random sampling; 4 centers were selected from each sector (North, South, Middle, East, and West) by simple random sampling.

Sampling technique

All adult Saudi women aged 18 years and above who had attended the selected PHCCs between October 1 through June 30, 2017, for any reasons except urinary incontinence were invited to enroll in the study. The participants recruited were informed about the study objectives and individual verbal informed consent was obtained prior to filling the questionnaire by female investigators through a face-to face interview. The participants were allowed to withdraw from the study at any time, and confidentiality was maintained throughout the study.

Inclusion criteria

All Saudi women aged 18 years and above who agreed to participate in the study,

Exclusion criteria

Pregnant women, delivery in the last 3 months, gynecological or lower urinary tract surgery during the previous 3 months and those who refused to participate in the study were excluded.

Sample size

The required sample size was calculated using Epi Info TM statistical software Version 7 (Centers for Disease Control and Prevention, Atlanta, GA, USA), Assuming that the prevalence of UI is 34%, similar to a Saudi representative survey [26], 340 women were at least needed, with a 5% desired precision and a 95% confidence interval.

Ethical considerations

Before conducting the survey, Research board approval was obtained from the directorate of PHCCs, ministry of health, Riyadh, Saudi Arabia. In addition to the approval from the ethical committee of the military service department at ministry of defense and research ethics committee of research center in prince sultan military medical city, Riyadh. An Informed verbal consent was obtained from each participant.

Data collection

All patients who agreed to participate in the study were evaluated by face- to-face interview with a validated questionnaire and the Arabic version of the short form the International Consultation Incontinence Questionnaire (ICIQ- SF). The data were collected by researcher.

Design of the survey

Definitions and categories

Definition of urinary incontinence: The 4th international consultation on incontinence defined incontinence (UI) as 'the complaint of any involuntary leakage of urine' [2]. For the purpose of this study this definition was restricted to an

incidence during the last year.

Definitions used for the types of UI, whether SUI, UUI or MUI, were based on the standard definitions of the International Continence Society. [2].

- Stress urinary incontinence (SUI): The complaint of involuntary
- loss of urine on effort or physical exertion (e.g., sporting activities), or on sneezing or coughing.
- Urgency urinary incontinence (UUI): Complaint of involuntary loss
- of urine associated with urgency.
- Mixed urinary incontinence (MUI): Complaint of involuntary loss of
- urine associated with urgency and also with effort or physical exertion or on sneezing or coughing.

In accordance to the Centers for Disease Control and Prevention

body mass index (BMI) was calculated as kg/m2 and categorized as:

- BMI of 18.5-24.99 kg/m2 was considered to be of typical stature.
- BMI of 25-29.99 kg/m2 was considered overweight.
- BMIs of 30 kg/m2 or more were considered obese.

The Questionnaire

Existing surveys on the UI in published literature provided the basis for this study [14, 10-12, 26, 27]. Permission was obtained from the authors to adopt the validated questionnaire, after applying some modifications that serves the aim of this study, the final questionnaire was developed. Then the final questionnaire was translated into Arabic language for the use of Arabic speaking participants, and reverse translated by an independent agent to ensure correct translation, and to estimate the time needed for the questionnaire completion, a preliminary questionnaire was distributed among 25 randomly selected women, who has been found to meet the inclusion criteria, who were visited the primary health care center PHCCs affiliated to Prince Sultan Military Medical City (PSMMC), Riyadh, Saudi Arabia. Some modifications were made to the text and questions on the basis of the results of the pilot study resulting in an improved, final version. The questionnaire took around 15-20 minutes for completion.

The final questionnaire contained sections on the socio-demographic characteristics, risk factors for incontinence, daily habits, gynecological information, experience of UI, severity of UI, behavior regarding medical advice, and impact on daily activities.

Socio-demographic measures included (age, marital status, educational status, income, occupation and body mass index), gynecological information included (parity, abortions, history of assisted or cesarean deliveries, menopausal status, use of hormone replacement therapy, history of vaginal or abdominal gynecologic surgery, and history of surgery for UI), we considered a range of comorbidities and risk factors that might affect the association of UI including Chronic diseases (such as hypertension, diabetes mellitus, bronchial asthma, history of stroke, chronic cough, chronic constipation, and thyroid diseases) and a women daily habit including (smoking, regular exercise, caffeine intake). Participants were asked their opinion about the UI whether it's normal with advance age?, their knowledge regarding the treatment options available and lastly who should be seen for the UI problem?. The second section of the questionnaire started with an entry question whether the participant experienced involuntary loss of urine or not. If the answer was yes, she was asked to answer more specific questions related to the symptoms to determine the type of UI. Other recorded symptoms included frequency (urinating more than 8 times per day or more often than every 2 hours); waking up more than once at night to urinate; use of protective garments or pads; and the frequency of using such protection (1-2, 3-4, or more than 4 in 24 hours)

Severity of UI Symptoms based on ICIQ·UI Short form

The International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) is a brief, specific questionnaire developed under the auspices of the International Continence Society (ICS). A validated Arabic version of the ICIQ- SF was used in the present study to investigates the type, rate and severity of UI [37]. The form consists of three items: (1) frequency of UI (never, once a week, two or three times a week, once a day, a few times a day, always); (2) volume (none, small amount, moderate amount, large amount); and (3) how much urine leakage affects your daily life (0: "not at all"; 1-3: "mildly"; 4-6: "moderately"; 7-9: "severely"; 10: "to a great extent"). The responses on the frequency, amount of urine leakage and the impact of UI on quality of life were summed. The sum-scores for the ICIQ-UI SF (total score 0- 21) with a larger overall score indicating increased severity. The self-diagnostic item was not scored.

UI interference with daily activities

This part of the questionnaire was designed to describe the kind of activities that were affected by urinary leakage such as, daily activities and social interactions (eg, performing 8alat, shopping, excursions outside home, climbing up or down stairs, interruption of work, visiting friends), sexual life, and the need to wear a pad or protective clothing (eg, never, once a day, once a week, once a month, rarely).

Attitudes towards seeking help for UI

Women with UI were asked whether they had spoken to a friend or relative, and whether they sought medical advice for the UI, and if not, their reasons for not doing so. Those who answered no were considered to be non-seekers and those who answered yes were considered treatment seekers.

Data analysis and statistical methods

All Categorical variables marital status, age group, and parity etc. were presented as numbers and percentages. Whereas continuous variables age, weight, height, BMI and ICIQ scores etc. were expressed as Mean ± S.D. Chi-square I Fisher's exact test was used according to whether the cell expected frequency is smaller than 5 and evaluate the significant relationship between continent and non-continent women. A backward elimination stepwise Binary logistic regression I multiple logistic regression was used to find out most important significant predictor I risk factors among continent women. P - Value less than 0.05 was considered as statistically significant. All data was entered and analyzed through statistical package SPSS version 22.

Results

A total of 340 women were interviewed. Females experiencing UI during the last year was reported by 145 (42.6%; 95% GI 37.1-47.9) women. Accordingly, the distribution of the types of incontinence was as follows: Stress UI was reported by 38 women (11.2 %; 95% GI, 7.9-14.4), urgency UI by 106 women (31.2%; 95% GI, 26.2-36.2), and mixed UI by 100 women (29.4 %; 95% GI, 24.7-34.1).

Table 1 represents the socio-demographic and potential risk factors for UI of the study subjects. The Mean age was 36 years (range 18-72 years; standard deviation 12.46 years). Median parity was 4 (range 0-15) and the median number of normal vaginal deliveries was 3 (range 0-13). the median BMI was 27.5 (mean 28.74; standard deviation 6.53). of the 135 135 (39.7%) of women in the study reported complaining of chronic diseases e.g. diabetes, hypertension, thyroid disease and bronchial asthma. The incontinent and continent women were of comparable age, parity, menopause and the history of chronic disease. The relationship of different risk factors in the continent and incontinent women is presented in Table 2. As can be seen, there was a significant difference between groups (continent and incontinent) with regard to age, BMI, parity, menopause, history of gynecological surgery, and hypertension. UI was more prevalent among younger women (P <0.001); among women who had delivered 5 or more births (P <0.001); among women with a history of vaginal gynecologic surgery (p < 0.033), hypertension (p < 0.015), BMI >30 (P < 0.013). Abdominal surgery other than LSCS, bronchial asthma and regular consumption of coffee did not seem to increase the prevalence of urinary incontinence significantly (Table 2). A majority of women that participated in the study (340) when asked about their opinion of UI, 41.8% viewed UI as normal with advancing age, and 52.6% did not know that there are available treatments for UI. When asked about the appropriate specialty to consult regarding UI 83.8% were most likely to appeal to a urologist, followed by a gynecologist (7.4%), then family medicine or internal medicine (3%) and lastly surgery (1.5%). Over the past year, 21.2 % of the women experienced frequency of urine (>8 times/day), while 22.4% had a frequency of urine every 2 hours/day and 27.6 % woken up more than once each night to urinate. Of the 145 women who reported UI. Among women who replied to the questions in the ICIQ-SF regarding how different types of UI could interfere with the daily activities shown in table 3, UI had a mild impact in 18.6% and a severe impact only in 2.8 % of the women. However, in a majority of patients' UI had either no interference or greatly affected of their social activity. As it is shown in table 4, 34 (10%) had a limitation of their social activities, and 29 (8.6%) reported that the disorder affected their sexual life, and interestingly only 21 (6.2%) women reported that UI interfered with their prayer (salat). The majority of women (86.5 %) with UI did not use any protective garments or pads. Medical advice was sought by 22 women (6.5%). The impact of urinary incontinence on the emotional health was not very high, 12.4 % reported that UI affected their mental state or made them depressed. A total of 36 (10.6%) women discussed the issue with a relative or a friend. The majority women (93.5%) did not seek medical advice. The multivariate logistic regression (Table 5) showed that Older women were 2.2 times as likely to report UI as those younger women (95% GI, 1.1-4.4; P=0.013); and women who had 5 pregnancies were 1.7 times as likely to report UI as those who had < 5 pregnancies (95% GI, 1-3; P=0.01)

Table 1: Demographic and clinical Characteristics of the Patients (n = 340)

Characteristics	description	N (n%)
Age	< 45	243 (71.5%)
	>= 45	97 (28.5%)
Marital Status	Married	289 (85.0%)
	Single	30 (8.8%)
	Divorced	13 (3.8%)
	widow	8 (2.4%)
Educational Level	Illiterate	38 (11.2%)
	Basic literacy	9 (2.6%)
	Primary school	22 (6.5%)
	Secondary school	42 (12.4%)
	High school	92 (27.1%)
	University	123 (36.2%)
	Higher education	14 (4.1%)
Occupation	Employed	81 (23.8%)
	Unemployed	232 (68.2%)
	Other	27 (7.9%)
Parity	< 5	190 (60.9%)
	5	122 (39.1%)
History of caesarean delivery	No	230 (67.6%)
	Yes	110 (32.4%)
History of Normal spontaneous delivery	No	96 (28.2 %)
	Yes	244 (71.8 %)
Menopausal	No	289 (85.0%)
	Yes	51 (15.0%)
History of surgery for urinary incontinence	No	338 (99.4%)
	Yes	2 (0.6%)
History of vaginal gynaecologic surgery	No	314 (92.4%)
	Yes	26 (7.6%)

History of abdominal gynaecologic surgery	No	334 (98.2 %)
	Yes	6 (1.8%)
Chronic disease	No	205 (60.3%)
	Yes	135 (39.7%)
Regular exercise	No	253 (74.4%)
	Yes	87 (25.6%)
Smoking	No	334 (98.2%)
	Yes	6 (1.8%)
Caffeine intake (tea/coffee)	No	77 (22.6%)
	Yes	263 (77.4%)

Table 2: Comparative analysis in continent and non- continent women among study characteristics

Characteristics		**Non-Continent women (n = 145) (42.6%)**	**Continent women (n = 195)** (57.4%)	**OR [95 % C.I]**	**p. value**
Age Group	>= 45	61 (42.1%)	36 (18.5%)	3.21 [1.966 - 5.233]	* < 0.001
	< 45	84 (57.9%)	159 (81.5%)		
BMI Group	< 18.5 (Underweight)	4 (2.8%)	2 (1.0%)	0.37 [0.066 - 2.022]	0.086
	18.5 - 24.99 (Normal Weight)	29 (20.0%)	68 (34.9%)	2.14 [1.296 - 3.539]	0.062
	25 - 29.99 (Over Weight)	48 (33.1%)	64 (32.8%)	0.99 [0.625 - 1.559]	0.586
	>= 30 (Obese)	64 (44.1%)	61 (31.3%)	0.58 [0.369 - 0.9]	* 0.013
parity	>= 5	71 (51.1%)	51 (29.5%)	2.498 [1.567 - 3.981]	* < 0.001
	< 5	68 (48.9%)	122 (70.5%)		
Menopausal	Yes	33 (22.8%)	18 (9.2%)	2.9 [1.557 - 5.392]	* < 0.001
	No	112 (77.2%)	177 (90.8%)		
History of vaginal gynaecologic surgery	Yes	17 (11.7%)	9 (4.6%)	2.74 [1.186 - 6.35]	* 0.033
	No	128 (88.3%)	186 (95.4%)		
History of abdominal gynaecologic surgery	Yes	40 (27.6%)	38 (19.5%)	1.57 [0.947 - 2.616]	0.855
	No	105 (72.4%)	157 (80.5%)		
OM	Yes	31 (21.4%)	26 (13.3%)	1.77 [0.997 - 3.134]	0.636
	No	114 (78.6%)	169 (86.7%)		
HTN	Yes	32 (22.1%)	19 (9.7%)	2.62 [1.418 - 4.851]	* 0.015
	No	113 (77.9%)	176 (90.3%)		
BA	Yes	12 (8.3%)	15 (7.7%)	1.08 [0.491 - 2.389]	0.432
	No	133 (91.7%)	180 (92.3%)		
Chronic Cough	Yes	8 (5.5%)	3 (1.5%)	3.74 [0.974 - 14.343]	0.367
	No	137 (94.5%)	192 (98.5%)		
Chronic Constipation	Yes	15 (11.7%)	12 (6.2%)	2.03 [0.935 - 4.386]	0.178
	No	128 (88.3%)	183 (93.8%)		
Orink Coffee or Tea	Yes	115 (79.3%)	148 (75.9%)	1.22 [0.725 - 2.045]	0.745
	No	30 (20.7%)	47 (24.1%)		

Abbreviation: BMI, body mass index (calculated as weight in kilograms divided by the square of height in meters). / a Values are given as number (row percentage).

Table 3: The distribution of the types of VI according to; the frequency and amount of leakage, the interference of urinary leakage with everyday life, the ICIQ-SF score, and treatment-seeking behavior, in 145 women with VI

		UI (n = 145)	**SUI (n = 38)**	**UUI (n = 106)**	**MUI (n = 100)**
Interference with leakage	No Leakage	94 (64.8%)	23 (60.5%)	71 (67.0%)	60 (60.0%)
	1 – 3	27 (18.6%)	4 (10.5%)	19 (17.9%)	20 (20.0%)
	4 – 6	17 (11.7%)	8 (21.1%)	11 (10.4%)	15 (15.0%)
	7 – 9	4 (2.8%)	2 (5.3%)	2 (1.9%)	4 (4.0%)
	10	3 (2.1%)	1 (2.6%)	3 (2.8%)	1 (1.0%)
ICIQ score	<= 10	135 (93.1%)	36 (94.7%)	98 (92.5%)	94 (94%)
	11-15	10 (6.9%)	2 (5.3%)	8 (7.5%)	6 (6.0%)
	16-21	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
How often do you leak urine	Never	2 (1.4%)	1 (2.6%)	1 (.9%)	1 (1.0%)
	<=1 time/week	32 (22.1%)	11 (28.9%)	21 (19.8%)	20 (20.0%)
	2-3 times/ week	60 (41.4%)	13 (34.2%)	41 (38.7%)	42 (42.0%)
	once/day	43 (29.7%)	12 (31.6%)	37 (34.9%)	29 (29.0%)
	Several times/day	3 (2.1%)	0 (.0%)	3 (2.8%)	3 (3.0%)
	All the time	5 (3.4%)	1 (2.6%)	3 (2.8%)	5 (5.0%)
How much urine do you usually Leak	None	13 (9.0%)	2 (5.3%)	4 (3.8%)	7 (7.0%)
	Small amount	122 (84.1%)	34 (89.5%)	94 (88.7%)	86 (86%)
	Moderate amount	10 (6.9%)	2 (5.3%)	8 (7.5%)	7 (7.0%)
	Large amount	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Did you share this problem (urinary incontinence) with a family member/friend?	No	101 (73.7%)	21 (58.3%)	80 (76.9%)	70 (72.2%)
	Yes	36 (26.3%)	15 (41.7%)	24 (23.1%)	27 (27.8%)
Did you seek medical advice for urinary incontinence?	No	113 (83.7%)	27 (77.1%)	85 (81.7%)	81 (85.3%)
	Yes	22 (16.3%)	8 (22.9%)	19 (18.3%)	14 (14.7%)

A Values are given as number (column percentage).

Table 4: Impact of Urinary incontinence on different aspect of daily and social life

Daily activity	Description	UI 145
Over the past year, did you need to wear pads or protective garments for the urinary incontinence	No	294 (86.5%)
	Yes	46 (13.5%)
Does urinary incontinence interfere with you performing prayers	No	124 (85.5%)
	Yes	21 (14.4%)
Does urinary incontinence affect your social life (shopping, visiting friends...etc)	No	111 (76.5%)
	Yes	34 (23.4%)
Does urinary incontinence affect your state of mind, or made you depressed	No	103 (71%)
	Yes	42(29%)
If relevant, does urinary incontinence affect your marital or sexual relation with your husband	No	116 (80 %)
	Yes	29 (20 %)

Table 5: Multiple Logistic Regression Analysis & Independent risk factors for urinary incontinence

Characteristics	OR	95% C.I	P-value
Age	2.299	1.190 - 4.443	*0.013
Parity	1.758	1.005 - 3.078	*0.048
Chronic disease	0.543	0.291 - 1.016	0.056
HTN	1.981	0.879 - 4.464	0.099
Chronic constipation	2.249	0.978 - 5.173	0.057

Table 6: Help seeking behavior out of 145 women with UI

Urinary Incontinence is normal with advancing in age	No 120 (35.3%) Yes 142 (41.8%) I don't know 78 (22.9%) No
Do you know that there are treatments for urinary incontinence	179 (52.6%) Yes 84 (24.7%) I don't know 77
Who should be seen for the UI problem	(22.6%) Family Physician/GP 12 (3.5%) Internal Medicine 13 (3.8%) Surgery 5 (1.5%) Urologist 285 (83.8%) OBS/GYN 25 (7.4%)

Table 7: Reason of not seeking the medical advice out of 145 women with UI

Did not think my incontinence being a significant problem	No	10 (8.1%)
	Yes	113 (91.9%)
Did not know treatment is available	No	121 (98.4%)
	Yes	2 (1.6%)
Embarrassment	No	122 (99.2%)
	Yes	1 (.8%)
Did not want to see a male physician	No	122 (99.2%)
	Yes	1 (.8%)
Thought is/was Normal	No	0 (.0%)
	Yes	0 (.0%)

Discussion

Urinary incontinence seems to be one of the growing public health problems in terms of its medical, social, and cost to both the incontinent person or his family, and to the health care system. Different international studies had been conducted to elaborate this problem. Our Study confirms that Urinary incontinence (UI) is highly prevalent representing 42.6 % in adult Saudi women in the present sample, this figure is higher than the recent studies done in Saudi Arabia which reported a prevalence between 21-29% [11, 25], and other middle east countries like United Arab Emirates (UAE), Qatar, and Kuwait that reported prevalence of 20.3%, 20.6%, and 49.3 % respectively [10, 14, 37]. In contrast the prevalence of UI in western countries varies significantly reaching up to 45% in the USA, 23 -44% in continental Europe [14]. Of note, these divergences in the prevalence can be explained by the different study populations selected on different criteria and the sample size in those studies, furthermore, the different definitions of UI that have been used and use of questions with different sensitivities. The Egyptian study defined UI as "any involuntary urine leak", whereas the definition used in the

present study was "any leakage of urine in the past year". The Qatari study used "loss of urine in the past 12 months" [14, 37], while the UAE study described UI as "any involuntary leakage of urine or accidental loss of control of urine in inappropriate places or at inappropriate time regardless of its severity" [12, 14].

In the present study, 29.7% of the women experienced once/day leakage of urine, more than the rate of 21.7% reported in the UAE and 8.4% observed in the Egyptian study [12, 14, 15].

Of incontinent women the predominant subtype of UI recorded among women in the present study was urge UI (31.2 %) followed by mixed UI (29.4%) and stress UI (11.2%), which was consistent with a study done among Jordanian women [5], and inconsistent with many studies who reported stress UI is more prevalent [14, 45, 46.] and other studies who reported mixed UI as being more common type UI [12, 14, 15]. Studies that reported different results had different inclusion criteria from from our study, e.g., the age group studied or the medical status of the women enrolled [37, 12].

Prevalence of UI according to age represented 54 % in younger age group from18-39 years which is inconsistent with other studies that found highest prevalence in old age [19, 9]. This may due to the possibly of mean age in our study was 36 years, the appearance of UI at such a young age can be explained by social factors, such as a relatively early age of marriage in Saudi women and multiparty before 35 years of age which lead to stretching and bruising of nerves during delivery and subsequently weaken the pelvic floor muscles leading to development of prolapse and UI over time. These two factors, plus ignorance and/or lack of knowledge about pre- and postpartum pelvic floor muscle exercises, lead to an increased prevalence of UI in women.

Female UI seems to be underdiagnosed and underreported globally. It was quite surprising that the help seeking behavior was poor with only 6.5% of women had sought medical advice and 10.6% women discussed the issue with their relatives and friends. This observation is consistent with a study done in Riyadh where they found 9% of the study population sought medical care [11]. and a lower figure than noted in Jeddah (18.5%), and UAE (30.9%) [12, 14]. This may due 91.9% of women in our study didn't thought that UI was a significant problem and probably due to Riyadh is considered a conservative culture and to the fact that Middle East culture is a male- dominated society.

A substantial number (41.8%) cited that they belief that UI is normal consequence of ageing process rather than a pathological condition and this may reflect the poor knowledge of UI in our study group., However this view, which is widely held was less common among treatment seekers than no seekers [47].

Parity and type of delivery are well-documented and major risk factors for UI. Similar to the findings from other studies [14, 24,] childbirth and numbers of pregnancy significantly associated with a higher risk of UI. Specifically, UI was increased among women who had experienced 5 or more births or who had undergone vaginal delivery, the possible explanation for that injury to pelvic floor muscles occurring during vaginal delivery may weaken or damage the important muscles tissue and nerves leading to UI in later life.

Current study documented a direct correlation between increased BMI and presence of UI, this finding corresponding to several studies, [5, 14, 37], the can be explained by the consequences of increased intra-abdominal and urinary pressure for a long time that occurs with obesity predisposing to pelvic organ prolapse and urinary tract descent, making it easier for them to develop UI. In relation to hypertension, in our study we found that the presence of hypertension tends to be linearly associated with developing UI in our study population, which may relate to the drugs that have been used to treat this condition, such as alpha-blockers and diuretics which precipitate UI symptoms.

Although having abdominal surgery, bronchial asthma, chronic cough smoking, and regular consumption of Tea and coffee did not seem to increase the prevalence of UI in our study, these have been identified as risk factors in studies from Canada, United States and the Northern Europe, [35, 48, 49, 50].

Interestingly, we found UI mildly affect the Quality of life (QOL) of women affected, where is 10% had limitations on their social activities, 8.6% reported that the disorder affected their sexual life and only 6.2% women reported that UI interfere with their Prayer (salat) which is a great importance for Muslim women. This can be explained by the overwhelming majority of patients with UI did not seek help for their condition and in our study the proportion of women who suffered from mild UI were 18.6% less than 2.8% in those with severe UI, in addition to the fact that we used a standardized tool to assess quality of life (QoL) and face to face interview by the researcher which were not done in other studies that found higher percentage [11, 14l].

Conclusion and Recommendations

The findings of this study clearly indicate that female urinary incontinence is prevalent in Saudi Arabia. Age, multiparty obesity and hypertension significant risk factors influencing the occurrence of urinary incontinence. the majority of women with this condition did not seek medical advice which require the attention of the healthcare system. We consider our study as an important step to highlights the need for early detection, and treating urinary incontinence in Saudi Arabia. The findings of this study could serve as a source of information for health care systems that deal with UI in women, and it may help to educate both patients and health professionals on early diagnosis and treatment. Primary prevention of UI, providing adequate knowledge and education to women with UI should be encouraged in addition to public awareness about pelvic floor exercises to increase the pelvic floor muscle strength particularly during and after pregnancy.

It would be important to assess the knowledge, beliefs and attitudes of healthcare staff regarding UI. In this regard further studies are recommended to assess knowledge and attitudes of primary care health staff as this would have a direct impact on the care provided to women. Educating the public and physicians about the factors associated with treatment seeking as well as the available treatment options may help women to seek and receive more timely care for incontinence symptoms. Necessary measures should be taken regarding the health of women of all age groups, including creating policies in order to improve women's health in all age groups by developing early diagnosis and scanning programmes A well-designed national health programme for both women in general and for those with UI, and for physicians and nurses in primary health centers,

is highly recommended.

Limitation

Despite the strengths, this study has a few limitations, first cross-sectional analysis with no follow-up data available. Second UI was assessed by questionnaires and not confirmed by clinical gynecological examination and urodynamic studies or other tests. Third, of using a single city is drawback because the sample may not be representative of the whole country, especially of women living in rural areas. Finally, in the present study, the diagnosis of UI was made on self-reported data collected by personal interview-a design potentially susceptible to bias because interviewees wish to respond as they believe is desired or expected by the interviewer.

References

1. Ezeh AC, Bongaarts J, Mberu B. Global population trends and policy options. The Lancet. 2012; 380(9837):142-8.
2. Abrams P, Lowry SK, Wein AJ, Bump R. Assessment and treatment of urinary incontinence. The Lancet. 2000; 355(9221):2153. D
3. Avery K, Donovan J, Peters TJ, Shaw C, Gotoh M, Abrams P. ICIQ: a brief and robust measure for evaluating the symptoms and impact of urinary incontinence. Neurourology and urodynamics. 2004; 23(4):322-30.
4. Hunskaar S, Arnold EP, Burgio KE, Diokno AC, Herzog AR, Mallett VT, *et al*. Epidemiology and natural history of urinary incontinence. International Urogynecology Journal. 2000; 11(5):301-19. International Urogynecology Journal. 2000; 11(5):301-19.
5. Shakhatreh FM. Epidemiology of urinary incontinence in Jordanian women. Saudi medical journal. 2005; 26(5):830-5.
6. Abrams P, Andersson KE, Birder L, Brubaker L, Cardozo L, Chapple C, *et al*. Fourth International Consultation on Incontinence Recommendations of the International Scientific Committee: Evaluation and treatment of urinary incontinence, pelvic organ prolapse, and fecal incontinence. Neurourology and urodynamics. 2010; 29(1):213-40.
7. Sensoy N, Dogan N, Ozek B, Karaaslan L. Urinary incontinence in women: prevalence rates, risk factors and impact on quality of life. Pakistan journal of medical sciences. 2013; 29(3):818.
8. Buckley BS, Lapitan MCM. Epidemiology Committee of the Fourth International Consultation on Incontinence, Paris, 2008: Prevalence of urinary incontinence in men, women, and children current evidence: findings of the Fourth International Consultation on Incontinence. Urology. 2010; 76:265-271.
9. Milsom I, Altman D, Lapitan MC. Epidemiology of urinary (UI) and faecal (FI) in- continence and pelvic organ prolapse (POP); in Abrams P, Cardozo L, Khoury S (eds): In- continence, ed 4. Paris, International Con-sultation on Incontinence, 2009.
10. Al-Sayegh NA. Urinary Incontinence in Kuwait: Prevalence and Risk Factors of Men and Women Nowall A Al-Sayegh1, Al-Batool Leri 2, Amna Al-Qallaf 3, Hanan Al- Fadhli 4 & Shouq Al-Sharrah5. International Journal of Health Sciences. 2014; 2(4):47-57
11. Altaweel W, Alharbi M. Urinary incontinence. Prevalence, risk factors, and impact on health related quality of life in Saudi women. Neurourol Urodyn. 2012; 31:642-5.
12. Rizk DE, Shaheen H, Thomas L, Dunn E, Hassan MY. The prevalence of health care-seeking behavior for urinary inconti- nence in United Arab Emirates women. Int Urogynecol J Pelvic Floor Dysfunct. 1999; 10:160-5. D
13. Bani-Issa W, Fakhry R, Al Momani F. Urinary incontinence in Emirati women with diabetes mellitus type 2. Prevalence, risk factors and impact on life. J Clin Nurs. 2013; 2(21-22):3084-94. D
14. Al-Badr A, Brasha H, Al-Raddadi R, Noorwali F, Ross S. Prevalence of urinary incontinence among Saudi women. Int J Gynaecol Obstet. 2012; 117:160-3.
15. El-Azab A, Mohammed E, Sabra H. The prevalence and risk factors of urinary incontinence and its influence on the quality of life among Egyptian women. Neurourol Urodyn. 2007; 26:783-8. D
16. [16] Melville JL, Katon W, Delaney K, Newton K. Urinary inconti- nence in US women. Arch Intern Med. 2005; 165:537-42. D
17. Hunskaar S, Lose G, Sykes D, Voss S. The prevalence of urinary incontinence in women in four European countries. BJU Int. 2004; 93:324-30.
18. Kocak I, Okyay P, Dundar M, Erol H, Beser E. Female urinary incontinence in the west of Turkey: prevalence, risk factors and impact on quality of life. Eur Urol 2005; 48:634-41. D
19. Hannestad YS, Rortveit G, Sandvik H, Hunskaar S. Norwegian EPINCONT Study. Epidemiology of Incontinence in the County of Nord-Trandelag. J Clin Epidemiol 2000; 53:1150-7. D
20. Filiz TM, Uludag C, Cinar N, Gorpelioglu S, Topsever P. Risk factors for urinary incontinence in Turkish women. A cross- sectional study. Saudi Med J. 2006; 27:1688-1692. D
21. Kocak i, Okyay P, Dundar M, Erol H, Beser E. Female urinary incontinence in west Turkey: prevalence, risk factors and impact on the quality of life. Eur Urol 2005; 48:634-641. D
22. Jeter KF, Wagner DB. Incontinence in the American home. Journal of the American Geriatrics Society. 1990; 38(3):379-83.
23. Gasquet I, Tcherny-Lessenot S, Gaudebout P, Bosio Le Goux B, Klein P, Haab F, *et al*. Influence of the severity of stress urinary incontinence on quality of life, health care seeking, and treatment: a national cross-sectional survey. Eur Urol. 2006; 50:818-25.
24. Basak T, Kok G, Guvenc G. Prevalence, risk factors and quality of life in Turkish women with urinary incontinence: a synthesis of the literature. Nursing review. 2013; 60(4):448-60.
25. Bakarman MA, Al-Ghamdi SS. The Effect of Urinary Incontinence on Quality of Life of Women at Childbearing Age in Jeddah, Saudi Arabia. Global journal of health science. 2015; 8(2):281.
26. Saleh N, Bener A, Khenyab N, Al-Mansori Z, Al Muraikhi A. Prevalence, awareness and determinants of health care-seeking behaviour for urinary incontinence in Qatari women: a neglected problem? Maturitas.

2005; 50(1):58-65.
27. Simeonova Z, Milsom I, Kullendorff AM, Molander U, Bengtsson C. The prevalence of urinary incontinence and its influence on the quality of life in women from an urban Swedish population. Acta obstetricia et gynecologica Scandinavica. 1999; 78(6):546-51
28. Thom DH, HAAN MN, Van den Eeden SK. Medically recognized urinary incontinence and risks of hospitalization, nursing home admission and mortality. Age and Ageing. 1997; 26(5):367-74.
29. Form QS. The impact of urinary incontinence on quality of life among women in Hong Kong. Hong Kong Med J. 2005; 11(3):158-63.
30. Chin HY, Chen MC, Liu YH, Wang KH. Postpartum urinary incontinence: a comparison of vaginal delivery, elective, and emergent cesarean section. International Urogynecology Journal and Pelvic Floor Dysfunction. 2006; 17:631-635.
31. Tennstedt SL, Link CL, Steers WD, McKinlay JB. Prevalence of and risk factors for urine leakage in a racially and ethnically diverse population of adults: the Boston Area Community Health (BACH) Survey. American Journal of Epidemiology. 2008; 167:390-399.
32. Dolan LM, Hilton P. Obstetric risk factors and pelvic floor dysfunction 20 years after first delivery. Int Urogynecol J Pelvic Floor Dysfunct. 2010; 21:535-544
33. Menezes M, Pereira M, Hextall A. Predictors of female urinary incontinence at midlife and beyond. Maturitas. 2010; 65:167-171
34. Correia S, Dinis P, Rolo F, Lunet N. Prevalence, treatment and known risk factors of urinary incontinence and overactive bladder in the non-institutionalized Portuguese population. Int Urogynecol J Pelvic Floor Dysfunct. 2009; 20:1481-1489
35. Gleason JL, Richter HE, Redden DT, Goode PS, 8urgio KL, Markland AD, *et al*. Caffeine and urinary incontinence in US women. Int Urogynecol J. 2013; 24(2):295-302. D
36. Al-Shaikh G, Al-8adr A, Al Maarik A, Cotterill N, Al-Mandeel HM. Reliability of Arabic ICIQ-UI short form in Saudi Arabia. Urology annals. 2013; 5(1):34.
37. Ghafouri A, Alnaimi AR, Alhothi HM, Alroubi I, Alrayashi M, Molhim NA, *et al*. Urinary incontinence in Qatar: A study of the prevalence, risk factors and impact on quality of life. Arab journal of urology. 2014; 12(4):269-74.
38. 8arghouti FF, Yasein NA, Jaber RM, Hatamleh LN, Takruri AH. Prevalence and risk factors of urinary incontinence among Jordanian women: impact on their life. Health Care Women Int. 2013; 34:1015-23.
39. Shakhatreh FM. Epidemiology of urinary incontinence in Jordanian women. Saudi Med J. 2005; 26:830-5.D
40. Melville JL, Katon W, Delaney K, Newton K. Urinary inconti- nence in US women. Arch Intern Med. 2005; 165:537-42. D
41. Grimby A, Milsom I, Molander U, Wiklund I, Ekelund P. The influence of urinary incontinence on the quality of life of elderly women. Age and ageing. 1993; 22(2):82-9
42. Abrams P, Kelleher CJ, Kerr LA, Rogers RG. Overactive bladder significantly affects quality of life. Am J Manag Care. 2000; 6(11):S580-90.
43. Solomon DH, LoCicero J, Rosenthal RA. New frontiers in geriatrics research: an agenda for surgical and related medical specialties. American Geriatrics Society, 2007.
44. Chutka DS, Fleming KC, Evans MP, Evans JM, Andrews KL. Urinary incontinence in the elderly population. InMayo Clinic Proceedings. 1996; 71(1):93-101. Elsevier.
45. Minassian VA, Drutz HP, Al-8adr A. Urinary incontinence as a worldwide problem. Int J Gynecol Obstet. 2003; 82(3):327-38.
46. Manonai J, Poowapirom A, Kittipiboon S, Patrachai S, Udomsubpayakul U, Chittacharoen A, *et al*. Female urinary incontinence: a cross sectional study from a Thai rural area. Int Urogynecol J Pelvic Floor Dysfunct. 2006; 17(4):321-5.
47. Kinchen KS, Burgio K, Diokno AC, Fultz NH, Bump R, Obenchain R, *et al*. Factors associated with women's decisions to seek treatment for urinary incontinence. Journal of women's health. 2003; 12(7):687-98.
48. Perera J, Kirthinanda DS, Wijeratne S, Wickramarachchi TK. Descriptive cross sectional study on prevalence, perceptions, predisposing factors and health seeking behaviour of women with stress urinary incontinence. BMC women's health. 2014; 14(1):78.
49. Kirss F, Lang K, Toompere K, Veerus P: Prevalence and risk factors of urinary incontinence among Estonian postmenopausal women. Springer Plus. 2013; 2:524-10.1186/2193-1801-2-524.
50. Swanson JG, Kaczorowski J, Skelly J, Finkelstein M. Urinary incontinence: common problem among women over 45. Canadian Family Physician. 2005; 51(1):84-5.