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# Urinary incontinence in Qatar: A study of the prevalence, risk factors and impact on quality of life



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## KEYWORDS

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## ABBREVIATIONS

UI, urinary incontinence;  
SUI, stress UI;  
MUI, mixed UI;  
QoL, quality of life;

**Abstract Objective:** To study the prevalence of and risk factors for urinary incontinence (UI) in Qatar, and its impact on quality of life (QoL).

**Patients and methods:** This study was conducted in two phases, as phase 1 from 2010 to 2011 and phase 2 from 2011 to 2012. In phase 1 we calculated the prevalence of UI in Qatar and its risk factors. In phase 2 we determined the frequency and severity of different types of UI and its impact on QoL, by using the International Consultation Incontinence Questionnaire – Short Form (ICIQ-SF).

**Results:** The total of women included in phase 1 was 521, among whom 108 (20.7%) confirmed that they had experienced UI during the previous 4 weeks, whilst 413 (79.3%) denied any type of UI. Women with UI were older and less educated. Bronchial asthma was the only statistically significant factor affecting UI. In phase 2, 1085 patients with UI were enrolled, of whom 454 (41.9%) had urge UI (UII), 484 (44.5%) had stress UI (SUI) and 148 (13.6%) had mixed UI (MUI). This phase also showed a distribution of the type of UI according to the age of the patients. UII

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ICIQ-SF, International Consultation Incontinence Questionnaire – Short Form;  
BMI, body mass index;  
CS, Caesarean section

was predominant in women aged < 40 years, SUI in those aged < 70 years and MUI in those aged 40–70 years. Of these women, 86% had a small amount of urinary leakage (requiring 1–2 pads per day) but this had a significant effect on their QoL.

**Conclusion:** In Qatar, 21% of women have UI, but bronchial asthma was a significant risk factor influencing the occurrence of UI. Social and religious factors have a significant effect on the QoL of incontinent women. A well-designed national health programme for both women in general and for those with UI, and for physicians and nurses in primary health centres, is highly recommended.

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## Introduction

The ICS has defined urinary incontinence (UI) as ‘the complaint of any involuntary leakage of urine’ [1]. The most common types of UI are stress (SUI), urge (UUI) and mixed (MUI). UI is a common clinical condition world-wide that affects different cultures and races. The prevalence of UI in women is reported as 10–60% [2–10]. This wide range of prevalence is due to differences in definitions, study characteristics and target populations [11].

In Qatar, the exact number of women with UI is not known. This lack of data led us to conduct a cross-sectional study in our country, with the aims to determine the prevalence, types and characteristics of UI in women, and to analyse the risk factors associated with UI in our community.

Although numerous studies have reported data from different parts of the world, we think that the present study is the first to address the problem of UI in Qatar. Differences in cultures, dietary habits, climate and social habits might cause differences in the results from women in Qatar compared to others from different parts of the world.

## Patients and methods

This study was conducted in two phases. Phase 1 was carried out between 2010 and 2011, with the objective of calculating the prevalence of UI in Qatar, and to study the risk factors affecting the occurrence of UI. Data were collected from women and their accompanying persons who were attending public-health facilities in Qatar, and they were selected randomly. All women aged > 18 years and who agreed to participate in the study were included. The risk factors assessed included age, body mass index (BMI), marital status, number of pregnancies, number of normal deliveries, number of Caesarean sections (CS), and associated comorbidities including diabetes mellitus, hypertension and bronchial asthma.

To augment the results of the phase 1 study, a prospective phase 2 study was conducted between 2011

and 2012, that included all subsequent women with different types of UI who were seeking medical advice in the outpatient clinics. All women with UI attending the outpatient clinics and primary health centres were included. The objective of phase 2 was to determine the frequency and severity of UI and its effect on the women’s quality of life (QoL) by using the International Consultation Incontinence Questionnaire – Short Form (ICIQ-SF). This questionnaire included the following items: the frequency of UI, amount of leakage, overall impact of UI, and a self-diagnostic item. The ICIQ-SF score is in the range 0–21, with a larger overall score indicating increased severity, and the self-diagnostic item is not scored.

In both phases, the exclusion criteria were pregnancy or delivery in the last 3 months, gynaecological or lower urinary tract surgery during the previous 3 months, and those patients refusing to participate in the study.

Definitions used for the types of UI, whether SUI, UUI or MUI, were based on the standard definitions of the ICS [1]. Definitions of the amount of leakage were determined from the ICIQ-SF questionnaire.

The prevalence of UI was estimated as a ratio of the number of women who answered, ‘Yes I have UI’ to the total number of women screened. The sample size was calculated (from a population of 1.75 million in 2011) and it was found that the inclusion of 500 women would allow for a precision of  $\pm 0.5$  with respect to prevalence, regardless of the precise prevalence.

Continuous data are presented as the mean (SD) and ordinal and nominal data as the frequency and percentage. The univariate analysis was by a chi-squared test for categorical data and Student’s *t*-test and anova for continuous data. Variables that had a statistically significant effect were included in a logistic regression multivariate analysis to determine the independent risk factors that affect UI. In all tests,  $P < 0.05$  was considered to indicate significance.

## Ethical considerations

Informed consent was obtained from all patients in both phases of the study. The local ethics committee

approved the study and patients were managed according to the Declaration of Helsinki.

## Results

Between 2010 and 2011, 531 women were enrolled for the screening questionnaire in phase 1; five women were excluded, because of pregnancy in two and a delivery within the last 3 months in three. Therefore, 526 women were eligible for the study, but of these, five refused to participate, leaving 521, of whom 108 (20.7%) confirmed that they had experienced UI during the previous 4 weeks, whilst 413 (79.3%) denied any type of UI.

Table 1 shows characteristics of women with and without UI, and compares the risk factors by univariate analysis. Women with UI were significantly older and had a lower level of education. Among the studied comorbidities, bronchial asthma was the only factor that had statistical significance. The multivariate logistic regression (Table 2) showed that bronchial asthma was the only significant risk factor (odds ratio 3.39,  $P = 0.02$ ).

Between 2011 and 2012, in phase 2, 1086 women sought medical advice in the outpatient clinic of Hamad General Hospital and participated in this study. Of the 1086 women with UI, 454 (41.9%) had UUI, 484 (44.5%) had SUI and 148 (13.6%) had MUI. Table 3 shows the distribution of the type of UI according to the age of the patients. UUI was predominant in women aged < 40 years, SUI in those aged < 70 years, and MUI in those aged 40–70 years. The frequency and amount of leakage in women with UI are also shown in Table 3. Notably, more than half of the patients had UI a few times per day and the vast majority (86%) had a small amount of urinary leakage (requiring 1–2 pads per day), as defined by the ICIQ-SF questionnaire.

Table 3 also shows how different types of UI could interfere with daily activities. Of note, UI had a moderate impact in 42.6% and a severe impact in 49.8% of the women. However, in a minority of patients UI had either no interference or greatly affected their social activity.

Table 3 also shows the ICIQ-SF score in women with different types of UI. A fifth of the women had a score of  $\leq 10$  and about two-thirds had a score of 11–15. A minority of women (15.5%) had a high score of 16–21.

Table 3 also shows the treatment-seeking behaviour of patients with UI. Although most patients sought medical advice, most of them were not seeking surgical intervention.

## Discussion

In the present study the prevalence of UI in Qatar was 20.7%, which is close to the prevalence reported in Saudi Arabia of 29% [2]. Results of other studies of

**Table 1** A comparison of women with and without UI in phase 1 of the study (521 patients).

Mean (SD) or <i>n</i> (%) risk factor	UI		
	Yes (108)	No (413)	<i>P</i>
Age (years)	39.9 (8.4)	38.1 (7.0)	0.030
BMI (kg/m <sup>2</sup> )	31.8 (6.5)	31.0 (5.0)	0.280
Level of education:			
None	5 (4.6)	6 (1.5)	0.010
Read and write	31 (28.7)	144 (34.9)	0.010
Average level	36 (33.3)	173 (41.9)	0.010
High level	36 (33.3)	90 (21.8)	0.010
Number of pregnancies:			
None	12 (11.1)	44 (10.7)	0.830
1–5	58 (53.7)	235 (56.9)	0.830
> 5	38 (35.2)	134 (32.4)	0.830
Number of normal deliveries:			
None	24 (22.2)	80 (19.4)	0.226
1–5	60 (55.7)	258 (62.5)	0.226
> 5	26 (24.1)	75 (18.2)	0.226
Number of CS:			
None	78 (72.2)	324 (78.5)	0.376
1–3	24 (22.2)	73 (17.7)	0.376
> 3	6 (5.6)	16 (3.9)	0.376
Diabetes mellitus:			
No	82 (75.9)	334 (80.9)	0.254
Yes	26 (24.1)	79 (19.1)	0.254
Hypertension:			
No	98 (90.7)	388 (93.9)	0.236
Yes	10 (9.3)	25 (6.1)	0.236
Bronchial asthma:			
Yes	18 (16.7)	27 (6.5)	0.001
No	90 (83.3)	386 (93.5)	0.001

**Table 2** The multivariate logistic regression analysis of risk factors.

Variable	Adjusted odds ratio (95% CI)	<i>P</i>
Age	1.02 (0.99–1.06)	0.100
Asthma	3.39 (1.16–9.91)	0.020
Level of education		
None	1 (0.09–1.27)	0.110
Primary	0.35 (0.09–1.26)	0.110
Secondary	0.61 (0.17–2.26)	0.470
Higher	3.39 (1.16–9.91)	0.020

the prevalence of UI were not comparable to that in Qatar, as they had different inclusion criteria [3–5]. A study conducted in Qatar in 2003 on the prevalence of UI included only women aged > 45 years, and thus did not give an accurate prevalence for UI in all women in Qatar [12]. In the Middle East the reported prevalence of UI is 30–54.8% [6,13,14], which is higher than in Qatar. World-wide the prevalence of UI varies significantly among countries, reaching up to 45% in the USA [7]. This great variation has many causes,

**Table 3** The distribution of the types of UI according to; age, the frequency and amount of leakage, the interference of urinary leakage with everyday life, the ICIQ-SF score, and treatment-seeking behaviour, in 1086 women with UI in the phase 2 study.

Factor	Category, <i>n</i> (%)			
	All (1086)	UUI (454)	SUI (483)	MUI (148)
<b>Age (years)</b>				
18–29	162 (14.9)	121 (74.7)	27 (16.7)	14 (8.6)
30–39	258 (23.7)	140 (54.3)	94 (36.4)	24 (9.3)
40–49	316 (29.2)	114 (36)	169 (53.6)	33 (14)
50–59	238 (21.9)	60 (25.2)	133 (55.9)	45 (18.9)
60–69	93 (8.6)	15 (16.1)	55 (59.1)	23 (24.7)
70–79	18 (1.7)	4 (22)	5 (28)	9 (50)
<b>Frequency</b>				
1/week	52 (4.8)	15 (28.8)	35 (67.3)	2 (3.8)
2–3/week	179 (16.5)	19 (10.6)	151 (84.4)	9 (5)
1/day	165 (15.2)	9 (5.5)	145 (87.9)	11 (6.7)
Few/day	558 (51.4)	331 (56.3)	151 (25.7)	106 (18)
Always	132 (12.1)	90 (68.2)	11 (8.3)	31 (23.5)
<b>Amount of leakage</b>				
Small	939	438 (46.6)	434 (46.2)	67 (7.1)
Moderate	134	8 (6)	49 (36.6)	77 (57.5)
Large	8	4	0	4
<b>Interference with leakage, score 0–10*</b>				
1–3	1 (0.09)	–	1	–
4–6	462 (42.6)	249 (53.9)	205 (44.4)	8 (1.7)
7–9	541 (49.8)	177 (32.7)	262 (48.4)	102 (18.9)
10	81 (7.5)	28 (34.6)	15 (18.5)	38 (46.9)
<b>ICIQ-SF</b>				
≥10	227 (20.9)	76 (33.5)	150 (66.1)	1 (0.4)
11–15	690 (63.6)	341 (49.4)	284 (41.2)	65 (9.4)
16–21	168 (15.5)	37 (22)	49 (29.2)	82 (48.8)
<b>Treatment-seeking behaviour</b>				
Seeking medical assistance:				
Yes	1081 (99.6)	452 (41.8)	481 (44.5)	148 (13.7)
No	4 (0.4)	2 (0.4)	2 (0.4)	0
<b>Types of treatment:</b>				
Pelvic floor exercise	21 (1.9)	2 (9.5)	7 (33.3)	12 (57.1)
Medication	13 (1.2)	4 (30.8)	2 (15.4)	7 (53.8)
Surgery	9 (0.8)	1 (11.1)	1 (11.1)	7 (77.8)

\* 1–3, mild; 4–6, moderate; 7–9, severe; 10, great extent.

but highlights the need for further studies of UI worldwide. Also, it is important to have some agreement on the different definitions and variables to assess UI.

SUI was the predominant subtype among women in the present study. SUI was the commonest subtype of UI in many studies of females [2,5,8,13,15–18]. Studies that reported different results had different inclusion criteria from the present, e.g., the age group studied [7,14], or the medical status of the women enrolled [3,15,16].

In the present study most women with SUI were aged between 39 and 69 years, with the highest rate in those aged 60–69 years (59.1%). The appearance of SUI at such a young age can be explained by social factors, such as a relatively early age of marriage in Qatar and multiparity before 40 years of age. Unfortunately we could not evaluate the role of this social issue in similar communities, like those in the Gulf states, as age groups were not stratified for the subtypes of UI in the studies

published [2], or no comparison was possible as the medical status of women enrolled in those studies was different [4]. These two factors, plus ignorance and/or lack of knowledge about pre- and postpartum pelvic floor muscle exercises, lead to an increased prevalence of SUI in women in their forties.

In contrast to other studies [2,5–7,13,15–17,19] no clear association between UI and parity could be identified in the present study, nor with the mode of delivery. This could be a potential field for a future detailed study, as parity is considered an important risk factor in previous studies.

A low level of education was an important risk factor for UI ( $P = 0.010$ ). Women with a higher educational level have a greater awareness of UI, a greater perception of hygiene and a better lifestyle. Also, they have better access to medical services if they have had UI previously. All these factors could explain the significance

of educational level, and induce all physicians, especially general practitioners, to enquire about UI in specific groups of patients.

Bronchial asthma was another significant risk factor for UI in the present patients. A chronic cough or history of respiratory diseases was not often evaluated among other comorbidities. The significance of respiratory diseases was evaluated and noted by some [5,13,15]. This shows the importance of having a better control of bronchial asthma and other respiratory allergic diseases in our society, as they have a high prevalence [20].

In the present study women with UUI had daily urinary leakage more often than women with SUI. This could be explained by the 'protective' behaviour developed by patients with SUI, e.g., voluntary contraction of the pelvic muscles just before coughing or sneezing or changing position. The woman becomes familiar with her specific triggering factor for the leakage and so tries to voluntarily control the sphincter and pelvic muscles to decrease the incidence of leakage.

Most incontinent women reported a small amount of leakage in both SUI and UUI, but 92% assessed the interference with daily life activity by the leakage to be 'moderate' to 'severe'. This contradiction is understood if prayer and the ablution necessary for it are considered as an important daily activity in this region of the world. Women need to be dry before and during every prayer session and Muslims pray five times each day. So a urinary leak even once per day can be a great disturbance to such women. This issue was also noted in a previous study in Qatar [12]. Other authors in studies in the United Arab Emirates [3,4] and in Egypt [6] also evaluated this point, where most of the population in both countries are Muslims, and this emphasises our perception of the main concern about UI by women in the Middle East.

In the present study, 79% of women with UI had a moderate to severe degree of negative impact on their QoL, as evaluated by the ICIQ-SF score. Women with MUI had the highest ICIQ-SF score, followed by those with UUI, which is expected if the main considerations are the frequency of prayers during the day and the protective mechanisms in women with SUI discussed above. Although the ICIQ-SF score was not used in all studies evaluating the effect of UI on QoL, most of them evaluated this aspect, as UI has a significant negative effect on the daily lives of those affected. The other study in Qatar in 2005 reported that >70% of Qatari women with UI were ashamed of themselves and troubled by guilt [12]. Important social activities such as work, driving a car and shopping can be interrupted and affected by UI [6,12,17], which emphasises how the QoL can be affected by this problem. More frustrating and embarrassing to women is the effect of UI on sexual activity, as women will be hesitant to be involved in and/or have a sexual relationship because of concerns about urinary leakage

during such activity, which can have a huge psychological and emotional effect. More than half of women with UI were reported to have low self-esteem because of their urinary complaint [6,13].

We were surprised by the high proportion of women who sought medical advice in our study (>90%), despite the social embarrassment associated with UI world-wide, and especially in the Middle East. This was the highest proportion reported; in the Middle East the previous highest proportion was 30% in Saudi Arabia [3]. In Europe, studies report different proportions of women seeking medical advice among different countries, from <15% in Turkey [9] to 40% in Germany [8]. In China, 25% of women with UI consulted a doctor for their UI [15]. This world-wide relatively low rate of reporting of UI to a physician is understood and explained by the special nature of this complaint. However, in the present study, <5% of women who consulted a physician had treatment, whether pelvic floor muscle exercises, medical therapy or surgery. This surprising result has many possible causes. First, women are always hesitant when they complain of a urological problem, so they more easily withdraw after the first assessment, especially if that was with a male urologist, as is mostly the case in our setting. Second, there is no well-designed national programme of pelvic-floor muscle rehabilitation for women, in which a proper assessment and follow-up can be conducted for the patients. Finally, a lack of experience in UI by primary healthcare physicians, who are the first line of contact with patients, directs patients to tertiary hospitals, with all the difficulties in appointment schedules and the associated long waiting times. Thus patients prefer to discontinue follow-up and 'suffer silently', despite their initial encouragement for therapy.

In conclusion, the prevalence of UI in Qatar was 20.7%, with UUI being predominant in women aged <40 years and SUI predominant in those aged >40 years, most probably due to an early age of marriage and multiparity, and a low level of education and ignorance about UI. Bronchial asthma was a significant risk factor influencing UI. Because of the social and religious perspectives the effect of UI on QoL was high, despite only small urinary leakages in all types of UI. A well-designed national health programme for both women in general and for those with UI, and for physicians and nurses in primary health centres, is highly recommended.

#### **Conflict of interest**

None declared.

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None.

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