

Prevalence of stress urinary incontinence and its impact on quality of life among women in Jordan: a correlational study

Journal of International Medical Research
48(5) 1–8

© The Author(s) 2020

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/0300060520925651

journals.sagepub.com/home/imr



Fadi Sawaqed¹ , Ahlam Al Kharabsheh²,
Mohammad Tout³, Mohammad Zaidan³,
Hasan Khashram³ and Nadeem AlShunaigat⁴

Abstract

Objective: The study investigated the prevalence and impact of stress urinary incontinence (SUI) among women in Jordan.

Methods: A correlational study was conducted to evaluate 500 Jordanian women aged >20 years. Women with symptoms of dementia, delirium, neurodegenerative changes and osteodegenerative changes were excluded. Data were collected using self-administered questionnaires (Arabic version of the Urogenital Distress Inventory-6 and Incontinence Impact Questionnaire (IIQ-7) short forms).

Results: A total of 200 (40%) women reported SUI; 47% reported mild symptoms, 37% reported moderate symptoms and 16% reported severe symptoms. There were positive correlations between SUI prevalence and number of pregnancies, age and obesity. SUI had a substantial impact on all aspects of quality of life (QoL), as assessed by the IIQ-7.

Conclusions: A moderate prevalence of SUI was reported. There was a significant association between development of SUI and age, higher body mass index and number of pregnancies. Because SUI is highly prevalent and has a major effect on QoL, healthcare professionals should inquire about this condition and refer patients to related specialties for treatment.

Keywords

Body mass index, quality of life, pregnancy, prevalence, stress urinary incontinence, women, obesity, Jordan

Date received: 10 December 2019; accepted: 20 April 2020

¹Department of Special Surgery, Faculty of Medicine, Mu'tah University, Karak, Jordan

²Department of Obstetrics and Gynecology, Faculty of Medicine, Mu'tah University, Karak, Jordan

³Faculty of Medicine, Mu'tah University, Karak, Jordan

⁴Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

Corresponding author:

Fadi Sawaqed, Department of Special Surgery, Faculty of Medicine, Mu'tah University, Karak, 61710, Jordan.

Email: fadi.sawaqed@mutah.edu.jo



Introduction

Stress urinary incontinence (SUI) is an involuntary loss of urine on effort, physical exertion (e.g., sporting activities), sneezing or coughing.¹ The prevalence of SUI increases with age, with a typical rate in young adults of 20% to 30%, a peak around middle age (prevalence 30%–40%) and a steady increase in older age (prevalence 30%–50%).² The prevalence of SUI during labour is 4% to 35%.² There are numerous risk factors for SUI including aging, obesity and smoking.³ These risk factors have consistent causal relationships with the condition, whereas the roles of pregnancy and childbirth remain controversial. A few studies have identified several predisposing factors for urinary incontinence, such as genetic factors, gender, white race, pregnancy, childbirth, hysterectomy, menopause, heavy physical work and gruelling physical training.^{4–6} However, it is difficult to obtain consistent epidemiological data, as urinary incontinence is a stigmatizing condition in many populations.

SUI is a distressing medical condition associated with older age, childbirth, obesity and medical comorbidity.⁷ It causes substantial morbidity, psychological stress and social seclusion, which result in impaired quality of life.⁸ Vaginal childbirth is a major risk factor for SUI. One study showed that approximately one-third of women experience SUI 5 years after vaginal delivery.⁹ Urinary incontinence is linked with lower rates of healthcare-seeking behaviour among women either because they feel embarrassed to talk about the problem or because they believe that the condition is untreatable.¹⁰

Women are likely to experience low quality of life because of stress and urge incontinence. Moreover, comprehensive evaluation and treatment of urinary incontinence is impossible without considering the overall quality of life of the affected

women. The health-seeking behaviour of women in managing the condition of urinary incontinence depends on its severity and impairment of quality of life.¹¹ Older age and multiparity are also strongly associated with the development of urinary incontinence. Obesity is another important risk factor.^{3,7} Urinary incontinence can cause loss of self-esteem, limited daily activities and reduced quality of life.¹² However, appropriate and timely diagnosis is helpful in evaluating and treating affected women and assessing the impact of SUI on their quality of life.

In Jordan, the prevalence of SUI among women aged 50 to 65 years is 23.1%.¹³ Shakhathreh¹³ studied only patients aged 50 to 65 years. There is a higher incidence of urinary incontinence among diabetic women (13.8%);¹⁴ however, the incidence is 45% among women in late pregnancy.¹⁵ Women with symptoms of urinary incontinence experience humiliation, depression and high anxiety levels.⁷

Therefore, it is important to investigate the prevalence and impact of SUI among women in Jordan from different age groups. However, prevalence data for urinary incontinence in Jordan is limited and most studies have been carried out in developed countries. Moreover, none of the previous epidemiological studies have analysed the effect of ethnicity. Research is needed to obtain accurate data on the prevalence of urinary incontinence among rural women and its impact on quality of life to formulate strategies to prevent and control it. Therefore, the present study aimed to report the prevalence of SUI and its impact on quality of life among women in south Jordan. Unlike previous studies, the present sample was consecutively recruited from Jordan, which is a developing country with a population of Arabic ethnicity. Participants were recruited from the Karak governorate in south Jordan.

Karak is generally considered a rural area and most of the population are Muslims.

Materials and methods

Study design and period

A correlational study was conducted to evaluate SUI among women visiting the outpatient department of Al-Karak Governmental Teaching Hospital. The study was conducted between January 2018 and March 2018. The following demographic details of all participants were recorded: age, marital status, body mass index (BMI), premenopausal status, postmenopausal status, smoking, parity and history of any previous surgery.

Sampling

The sample size was calculated using the OpenEpi program (Andrew G. Dean and Kevin M. Sullivan, Atlanta, GA, USA). The population of Karak is approximately 317,000.

Study participants

Participants were 500 consecutively recruited women; the number of women who declined to participate was not recorded. Women with symptoms of dementia, delirium, neurodegenerative changes and osteodegenerative changes were excluded from the study. Women presenting with systematic biases (such as pelvic organ prolapse) that might affect the distribution of SUI were also excluded. The proportion of women who were illiterate and the amount of help they required to complete the questionnaire were not recorded.

Ethical considerations

The study was approved by the institutional ethics committee of the Faculty of Medicine, Mu'tah University, on 6 April

2017, in accordance with the Helsinki Declaration (as revised in 2013). All candidates were verbally asked to participate in the study; those who agreed to participate provided informed written consent. For those who could not read or write owing to visual and physical disabilities or illiteracy, the site investigator explained the consent form and signed it to state that the subject had given their verbal consent.

Study procedure

Detailed anamnesis was conducted with all patients visiting the outpatient clinic to obtain data on obstetric, gynaecologic and urinary issues, based on the recommendations given by the International Continence Society.¹⁶ The diagnosis of urinary incontinence was supported by complementary and urogynaecologic physical examination.

Data collection

Both questionnaires used in this study were translated into Arabic and validated. All participants completed the Arabic version of the Urogenital Distress Inventory (UDI-6) and an adapted Arabic version of the Incontinence Impact Questionnaire (IIQ-7) short form.¹⁷ The questionnaires were intended to be self-administered by participants who could read and write. The research investigators provided non-directive assistance to patients who could not read or write. IIQ-7 items are answered using a 4-point response scale: not at all, slightly, moderately, greatly.

The UDI-6 has three subscales: irritative (Q1 and 2), stress (Q3 and 4) and obstructive/discomfort (Q5 and 6). The adapted IIQ-7 comprises seven items covering four domains: prayer (item 1), physical activity (items 2 and 3), social/travel (items 4 and 5), and emotional health (items 6 and 7). A positive answer to Q3 and Q4 on the UDI-6 was used to diagnose SUI in the

absence of new objective assessment. Items on each question are answered using a 4-point response scale. Patients were asked to rate the extent to which their urinary incontinence affected their daily functioning: none; mild (occasional, no pads); moderate (often, 1–2 pads/day); severe (daily, a lot of pads).

Statistical analysis

The questionnaire data were analysed using IBM SPSS, version 22 (IBM Corp., Armonk, NY, USA). Descriptive statistics (mean and standard deviation) were used for normally distributed continuous variables and median (range) for non-normally distributed variables. Categorical data were expressed as percentages. The relationship and linear dependency between SUI and medical and obstetric characteristics was evaluated using regression analysis and a correlational matrix, respectively. A *P*-value <0.05 was considered statistically significant.

Results

A total of 500 female respondents were recruited with a mean age of 42.05 years (standard deviation = 13.75 years) (Table 1). The mean weight, height, BMI and number of pregnancies were 71.71 kg (standard deviation = 15.42), 160.25 cm (standard deviation = 10.97), 27.73 kg/m² (standard deviation = 5.56) and 3.25 (standard deviation = 3.21), respectively. Of the whole sample, 71 (14.2%) patients were smokers and 429 (85.8%) were non-smokers; only 27 (23.5%) of subjects who reported SUI were smokers. A total of 158 patients reported urinary frequency with SUI, 148 patients reported mixed urinary incontinence (urge and SUI), 109 reported difficulty emptying the bladder and SUI, and 120 patients reported pain with SUI.

BMI was stratified by age. For the age groups 20 to 29, 30 to 39, 40 to 49, 50 to 59

Table 1. Demographic details of participants.

Item	Measure	n	%
Age (years)	20–29	102	20.4
	30–39	126	25.2
	40–49	116	23.2
	50–59	100	20.0
	>60	56	11.2
Marital status	Married	106	21.2
	Unmarried	394	78.8
No. of pregnancies	0	159	31.8
	1	30	6.0
	2	42	8.4
	3	61	12.2
	4	63	12.6
	5	36	7.2
	6	35	7.0
	7	14	2.8
	8	10	2.0
	9	10	2.0
	10	28	5.6
	11	8	1.6
Smoking	No	429	85.8
	Yes	71	14.2

and >60 years, the mean BMI was 25.04, 26.76, 29.89, 28.63 and 29.73, respectively (Table 2).

Regarding the impact of SUI on quality of life, Table 3 shows the association between the severity of SUI and its impact on different aspects of quality of life, as measured by the adapted Arabic version of the IIQ-7 short form. Prayer, ability to do household chores, entertainment activities, social activities, ability to travel by car, nervousness and frustration were all significantly affected by SUI; *P*-values were <0.0005 for all the IIQ-7 items. Prayer was the domain most affected by SUI; 165 subjects (31.2%) reported that SUI affected prayer. Most of the population in this area are Muslims, for whom urine leakage prevents participation in prayer.

Table 4 shows the logistic regression analysis examining the relation between urinary incontinence and medical and obstetric

Table 2. Body mass index by age group.

	N	Minimum	Maximum	Mean	Standard deviation
BMI 20–29	102	17.80	43.70	25.0490	4.88345
BMI 30–39	126	18.50	55.50	26.7603	5.71736
BMI 40–49	116	19.10	51.00	29.8914	6.25195
BMI 50–59	100	19.90	37.30	28.6320	4.29058
BMI >60	56	20.80	42.20	29.7286	5.33447

BMI: body mass index.

Table 3. The impact of SUI on quality of life domains of the IIQ-7 questionnaire.

	UDI-Q3				Total count	Total %	Chi-square	P	
	0	1	2	3					
IIQ-Q1	0	258	53	31	2	344	68.80	161.601	<0.0005
	1	36	37	33	20	126	25.20		
	2	6	4	8	6	24	4.80		
	3	0	0	2	4	6	1.20		
IIQ-Q2	0	270	69	34	10	383	76.60	123.021	<0.0005
	1	24	18	26	12	80	16.00		
	2	4	7	14	8	33	6.60		
	3	2	0	0	2	4	0.80		
IIQ-Q3	0	280	65	37	8	390	78.00	175.100	<0.0005
	1	14	19	25	12	70	14.00		
	2	2	10	10	4	26	5.20		
	3	4	0	2	8	14	2.80		
IIQ-Q4	0	274	67	29	8	378	75.60	153.778	<0.0005
	1	18	21	25	12	76	15.20		
	2	4	6	16	8	34	6.80		
	3	4	0	4	4	12	2.40		
IIQ-Q5	0	276	75	38	8	397	79.40	164.004	<0.0005
	1	12	16	16	8	52	10.40		
	2	0	0	14	8	22	4.40		
	3	12	3	6	8	29	5.80		
IIQ-Q6	0	264	65	23	8	360	72.00	183.728	<0.0005
	1	24	16	27	12	79	15.80		
	2	2	9	20	2	33	6.60		
	3	10	4	4	10	28	5.60		
IIQ-Q7	0	264	75	41	8	388	77.60	122.666	<0.0005
	1	24	15	13	10	62	12.40		
	2	2	4	16	8	30	6.00		
	3	10	0	4	6	20	4.00		

UDI-Q3: stress; IIQ-Q1: prayer; IIQ-Q2: physical activity; IIQ-Q3: physical activity; IIQ-Q4: social/travel; IIQ-Q5: social/travel; IIQ-Q6: emotional health; IIQ-Q7: emotional health; SUI: stress urinary incontinence; IIQ-7: Incontinence Impact Questionnaire; UDI: Urogenital Distress Inventory.

Table 4. Regression analysis.

Measures	Coefficients	P
Age	0.018	0.015
Weight	0.011	0.043
BMI	0.031	0.031
No. of pregnancies	0.072	0.010
UDI-Q3	0.350	<0.0005
IIQ-Q2	0.690	<0.0005
IIQ-Q3	0.650	<0.0005
IIQ-Q4	0.660	<0.0005
IIQ-Q5	0.510	<0.0005
IIQ-Q6	0.520	<0.0005
IIQ-Q7	0.490	<0.0005

BMI: body mass index; IIQ: Incontinence Impact Questionnaire; UDI: Urogenital Distress Inventory.

characteristics. There was a positive correlation between higher prevalence of SUI and number of pregnancies ($P = 0.010$), age ($P = 0.015$) and BMI ($P = 0.031$).

A total of 200 (40%) respondents reported SUI, irrespective of degree of severity. Moreover, 47% of respondents reported mild symptoms of SUI, 37% reported moderate symptoms and 16% reported severe symptoms. A significant linear dependency was observed between BMI and number of pregnancies ($r = 0.240$, $P < 0.0005$). Similarly, there was a significant linear association between age and weight ($r = 0.221$, $P < 0.0005$), weight and height ($r = 0.173$, $P < 0.0005$), weight and BMI ($r = 0.921$, $P < 0.0005$), and age and BMI ($r = 0.275$, $P < 0.0005$).

Discussion

The present study showed a positive association between greater prevalence of urinary incontinence and number of pregnancies. These findings support and are in line with those of previous studies.^{13,18} For instance, Shakhathreh¹³ investigated the prevalence rate of urine incontinence among women aged 50 to 65 years in south Jordan and found an overall prevalence of 31.3%.

Their results also showed a greater SUI prevalence rate among 37.5% of women suffering from urinary tract infections, 34.8% of women with 5 to 6 parity, 39.5% who used diuretics and 28.6% with a history of hysterectomy.¹³ Shakhathreh¹³ also found a greater SUI prevalence among women with higher BMI, which is consistent with the present findings.

Another study by Dayili et al.¹⁸ reported significant risk factors leading to urinary incontinence. Females with urinary incontinence were aged above 50 years (66.3%). The present results also identified a significant association between greater prevalence of urinary incontinence and obesity (higher BMI). Similar results have been obtained by studies that reported obesity as a significant risk factor leading to urinary incontinence.^{19,20} Moreover, Vissers et al.²⁰ reported that a body weight reduction of approximately 10% resulted in reduced urinary incontinence. Some research indicates that hysterectomy and smoking are not strongly associated with urinary incontinence.¹⁸ In contrast, Hsieh et al.²¹ reported a significant association between smoking and development of urinary incontinence. Urinary incontinence is worse among women who have had a vaginal delivery, although the relationship between Caesarean delivery and urinary incontinence is controversial.

In the present study, SUI was considered the predominant subtype among most of the female population. There is evidence that urinary incontinence among women is caused by childbearing. Kilic²² found a significant positive association between total number of pregnancies and urinary incontinence. Similarly, Kasikci et al.²³ suggest that urinary incontinence is caused by muscle atrophy, impairment of the pelvic muscles during delivery and long-term advanced prolapse. Another study found that urinary incontinence is higher among women with episiotomy compared with

women without episiotomy.²⁴ However, episiotomy can effectively prevent perineal laceration by relaxing the pelvic floor.²³

On direct questioning, most women are reluctant to admit to a problem with SUI. However, the condition substantially interferes with social and work activities. Lack of sufficient knowledge about SUI and poor economic and social situations lead to problems with accessing healthcare services, as women with SUI feel humiliated, stigmatized, isolated and helpless about their condition.⁸ Overall, the present study showed a moderate prevalence and negative impact of urinary incontinence among Jordanian females. However, the results are limited because no definitive testing was conducted to measure urinary incontinence. Data were self-reported by patients and were not confirmed; therefore, there is a possibility of over- or under-reporting.

This study investigated the prevalence and impact of SUI among women in Jordan. BMI, number of pregnancies, UDI-6 scores (Q3) and IIQ-7 scores (Q2, Q3, Q4, Q5, Q6 and Q7) were significantly associated with SUI. Additionally, SUI outcome was predicted by BMI and number of pregnancies. Most women with SUI mentioned its severe negative impact on quality of life. The results indicated a moderate prevalence of urinary incontinence among Jordanian women. The strength of this study is that it was conducted with outpatients and so permitted the maintenance of privacy, unlike community-based studies. Moreover, health-seeking behaviour among women with incontinence is important, as the disorder cannot be detected through physical examination. However, the present study did not collect data on urinary tract infections or age distribution.

It is important to focus on the prevention of risk factors of urinary incontinence to eliminate its negative impact on quality of life. We recommend alerting health professionals to the presence of SUI among

women. SUI evaluation should be multifactorial and address related comorbidities. Moreover, physical examinations should be included to obtain cognitive and functional assessments, while focusing on potential comorbid conditions associated with SUI.

Acknowledgements

The author is very grateful to all the associated personnel who contributed to this research in any way.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ORCID iD

Fadi Sawaqed  <https://orcid.org/0000-0002-5743-880X>

References

1. Schanz JP, Dalnez VS and Almiron IO. Treatment of female stress urinary incontinence with hybrid fractional laser, preliminary study. *J Gynecol Womens Health* 2018; 11: 555815.
2. Hunskaar S, Lose G, Sykes D, et al. The prevalence of urinary incontinence in women in four European countries. *BJU Int* 2004; 93: 324–330. DOI: 10.1016/j.eururo.2004.09.014
3. Luber KM. The definition, prevalence, and risk factors for stress urinary incontinence. *Rev Urol* 2004; 6(Suppl 3): S3–S9.
4. Gyhagen M, Bullarbo M, Nielsen T, et al. The prevalence of urinary incontinence 20 years after childbirth: a national cohort study in singleton primiparae after vaginal or caesarean delivery. *BJOG* 2013; 120: 144–151. DOI: 10.1111/j.1471-0528.2012.03301.x

5. Opara JA, Socha T, Bidzan M, et al. Stress urine incontinence especially in elite women athletes extremely practicing sports. *Arch Budo* 2011; 7: OF227–OF231.
6. Stothers L and Friedman B. Risk factors for the development of stress urinary incontinence in women. *Curr Urol Rep* 2011; 12: 363–369.
7. Melville JL, Katon W, Delaney K, et al. Urinary incontinence in US women: a population-based study. *Arch Intern Med* 2005; 165: 537–542. DOI: 10.1001/archinte.165.5.537
8. Biswas B, Bhattacharyya A, Dasgupta A, et al. Urinary incontinence, its risk factors, and quality of life: a study among women aged 50 years and above in a rural health facility of West Bengal. *J Midlife Health* 2017; 8: 130. DOI: 10.4103/jmh.JMH_62_17
9. Riss P and Kargl J. Quality of life and urinary incontinence in women. *Maturitas* 2011; 68: 137–142.
10. Siddiqui NY, Levin PJ, Phadtare A, et al. Perceptions about female urinary incontinence: a systematic review. *Int Urogynecol J* 2014; 25: 863–871.
11. Tamanini JT, Dambros M, D’Ancona CA, et al. Validation of the International Consultation on Incontinence Questionnaire – Short Form (ICIQ-SF) for Portuguese. *Rev Saude Publica* 2004; 38: 438–444.
12. De Vries HF, Northington GM, Bogner HR. Urinary incontinence (UI) and new psychological distress among community dwelling older adults. *Arch Gerontol Geriatr* 2012; 55: 49012; DOI: 10.1016/j.archger.2011.04.012
13. Shakhathreh FM. Epidemiology of urinary incontinence in Jordanian women. *Saudi Med J* 2005; 26: 830–835.
14. Bani-Issa W, Almomani F and Eldeirawi K. Urinary incontinence among adult women with diabetes in Jordan: epidemiology, correlates and perceived impact on emotional and social well-being. *J Clin Nurs* 2014; 23: 2451–2460. DOI: 10.1111/jocn.12392
15. Al-Mehaisen LM, Al-Kuran O, Lataifeh IM, et al. Prevalence and frequency of severity of urinary incontinence symptoms in late pregnancy: a prospective study in the north of Jordan. *Arch Gynecol Obstet* 2009; 279: 499–503. DOI: 10.1007/s00404-008-0720-6
16. Abrams P, Andersson KE, Birder L, 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. *Neurourol Urodyn* 2010; 29: 213–240.
17. El-Azab AS and Mascha EJ. Arabic validation of the Urogenital Distress Inventory and adapted Incontinence Impact Questionnaires—short forms. *Neurourol Urodyn* 2009; 28: 33–39. DOI: 10.1002/nau.20609
18. Dayili AA, Mohammed A, Mohammed S, et al. Urinary incontinence in healthy Saudi women. *Egyptian Journal of Hospital Medicine* 2017; 69: 2890–2896.
19. Hakimi S, Aminian E, Alizadeh Charandabi SM, et al. Risk factors of overactive bladder syndrome and its relation to sexual function in menopausal women. *Urologia* 2018; 85: 10–14. DOI: 10.1177/0391560317750484
20. Vissers D, Neels H, Vermandel A, et al. The effect of non-surgical weight loss interventions on urinary incontinence in overweight women: a systematic review and meta-analysis. *Obes Rev* 2014; 15: 610–617.
21. Hsieh CH, Lee MS, Lee MC, et al. Risk factors for urinary incontinence in Taiwanese women aged 20–59 years. *Taiwan J Obstet Gynecol* 2008; 47: 197–202.
22. Kilic M. Incidence and risk factors of urinary incontinence in women visiting Family Health Centers. *Springerplus* 2016; 5: 1331.
23. Kasicki M, Kilic D, Avsar G, et al. Prevalence of urinary incontinence in older Turkish women, risk factors, and effect on activities of daily living. *Arch Gerontol Geriatr* 2015; 61: 217–223. DOI: 10.1016/j.archger.2015.06.008
24. Chang SR, Chen KH, Lin HH, et al. Comparison of the effects of episiotomy and no episiotomy on pain, urinary incontinence, and sexual function 3 months postpartum: a prospective follow-up study. *Int J Nurs Stud* 2011; 48: 409–418. DOI: 10.1016/j.ijnurstu.2010.07.017