



Prevalence of Urinary Incontinence and Associated Risk Factors among Married Women

KEYWORDS

Prevalence; Urinary incontinence; Risk factors; Married women

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ABSTRACT *BACKGROUND AND OBJECTIVE: Urinary incontinence (UI) and other symptoms of lower urinary tract such as frequency, urgency and incomplete emptying of the bladder are common among women of all ages. The aim of this study was to determine the prevalence of urinary incontinence with its impacts associated with demographic characteristics in Malaysian married women.*

PATIENTS AND METHODS: This is a cross-sectional study carried out for three months at Klinik Kesihatan Seberang Takir Kuala Terengganu. The married women who fulfilled the criteria for the study were considered after written consent had been given. Of the total 480 women sampled, 392 (81.7%) successfully completed the Bristol Female Lower Urinary Tract Questionnaire.

RESULTS: Overall prevalence 44.1 % of women sampled suffered from urinary incontinence based on International Continence Society definition. The prevalence of stress urinary incontinence, urge incontinence and mixed incontinence were 52%, 19.1% and 25.4% respectively. The occurrence of urinary incontinence was found to be significantly associated with body mass index, parity, dilatation and curettage, and type of delivery ($p < 0.05$). The impact was strongly associated with the amount of urinary leakage. However, 11.6% of the women with urinary incontinence in this study sought medical services to solve problems that were significantly related to the amount of leakage.

CONCLUSION: The prevalence of urinary incontinence was high among the study population but only a small percentage sought medical help. It was recommended that education should be given to increase public awareness of urinary incontinence and to encourage them to get appropriate treatment to improve the quality of life.

INTRODUCTION

Urinary incontinence (UI) and other symptoms of lower urinary tract such as frequency, urgency and incomplete emptying of the bladder are common among women of all ages, objectively demonstrable, and form social and hygienic problems. These distressing and embarrassing conditions are among the most common health problems in women, and frequently occur in men also (Hampe et al., 1997). These symptoms are widespread, causing discomfort, shame and loss of self-confidence and may negatively affect the quality of life (Milsom et al., 1993).

In elderly women, urinary incontinence may lead to possible rejection on the part of the relative, and may be a possible factor in the decision on whether to institutionalize an elderly person (Ekelund and Rundgren, 1995). Previous study reported that the annual direct cost of UI of all types was estimated at USD 16.3 billion in those aged >15 years: USD 10.8 billion of which was incurred by those aged >65 years: these underlines a huge variability in study results concerning the burden of this disease (Hu et al., 2004; Aguzzi et al., 2010). The impact of urinary incontinence on quality of life and the cost to the health care systems for the diagnosis and therapy are comparable to those for diabetes mellitus (Komaroff et al., 1996).

A wide range of risk factors have been identified in several previous studies, which can be categorized into constitu-

tional, obstetric and gynecological risk factors. The impact of urinary incontinence on the physical activities, social life, functional activities and sexual life among respondents of the incontinence women who sought treatment are being looked into as well. A few studies found that pregnancy and childbirth are potential risk factors (Dolan et al., 1999; Peyrat et al., 2002; Walker and Gunasekera 2011). In Malaysia the prevalence of UI was 13.1% based on this study (Lapitan and Chye, 2001) and 9.9% among the elderly respondents (Sidik, 2010). The aim of this study was to determine the prevalence of urinary incontinence with its impact associated with demographic characteristics in Malaysian married women.

PATIENTS AND METHODS

A cross-sectional study was carried out for three months at Klinik Kesihatan Seberang Takir Kuala Terengganu. 480 female patients out of a total 2092 attending outpatient clinic, were selected using systematic random sampling for case study. All married women registered for whatever reason at outpatient clinic and able to communicate either in Malay or English were included in the study. Single ladies; those who refused to participate; having active psychiatric illness; pregnant, acutely ill; or having altered sensorium were excluded from this study.

Trained staff nurses measured the weight (kg), height (cm) and marital status of the participants that were included in the study. The participants were given the questionnaire for self-completion with the letter explaining the aim of the

study and a form for written consent. If a participant was not able to fill by herself, the questionnaire was returned to the trained staff or researcher who offered help in answering the questionnaire. A structured questionnaire having two parts was used in this study. The first part was about the socio-demographic data of the respondent, which included age, education, occupation, weight, height, parity, menopausal status, surgical, obstetric and gynecological history. The second part was the validated Bristol Female Lower Urinary Tract Symptoms (BFLUTS) questionnaire (Jackson et al., 1996). The permission was given by the Bristol Urological Institute to use the questionnaire, translate it into the Malay language and to adjust a few words based on the local population without altering the original contents of the questionnaire. The BFLUTS consists of 34 questions, provides the detailed assessment relating to urinary incontinence, other urinary symptoms, sexual function and aspect of quality-of-life. Each question has two parts: the first part relates to symptoms occurrence during the previous month with a five-point scale; and the second part describes the degree to which the symptom causes a problem, on a four-point scale. The questionnaire was self-administered by the participants with help from the researcher or trained staff.

All the completed questionnaires were checked and compiled. The data was analyzed using Statistical Package for Social Sciences (SPSS for Windows version 15.0). The chi-square test was used to test for an association between the symptom occurrence and age, and also to compare the potential risk factors between women with and without urinary incontinence. The relationship between increasing age and UI, relationship between other risk factors such as parity, mode of delivery, gynecological operation and body mass index were estimated with chi-square test. The association between amounts of leakage with the impact of life activities, and with seeking medical treatment, were also analyzed with chi-square test. A p value of less than 0.05 was considered to be a statistically significant difference. Consent was obtained from Professor Paul Abrams from Bristol Urology Institute, Southmead Hospital to use BFLUTS questionnaire in this study. Ethical clearance approval was also obtained from Hospital Universiti Kebangsaan Malaysia (HUKM). Consent from the Medical Officer of Health of Kuala Terengganu District had been obtained prior to the study.

RESULTS

480 married female were selected out of a total 2092 female patients attending outpatient clinics for this study. However, only 392 (81.7%) responded and completely answered the questionnaire, while 36 patients did not fill up the questionnaire completely and another 52 patients refused to participate for reasons their own.

Socio-Demographic Characteristic of the Respondents

The socio-demographic characteristics of the respondents are shown in Table 1. All the respondents were Malays. The mean age of the respondents was 41.5 years. The age ranges of the respondents were between 20 to 60 years in which 57.1% of them were from the 30 to 50 age group. Most of the respondents were housewives (74.2%). 35% of the respondents were grandmultiparous (having delivery more than 5). Of those who experienced childbirth, 73% had normal vaginal deliveries. The majority of the respondents never had any pelvic surgery (84.9%). Only 10 respondents (2.6%) had undergone hysterectomy. The mean body mass index among respondents was 25.54. Almost half of the respondents 193 (48.9%) were overweight or obese (Table 1).

The Prevalence of Urinary Incontinence

One hundred eighty eight respondents (48%) reported that they experienced positive urinary leakage using BFLUTS questionnaire in the past one month. However, only 173 (44.1%) actually fit the criteria for UI according to Incontinence Society Classification (ICS) definition.

The Association between Urinary Incontinence, Age and Parity

There was no significant association between urinary incontinence and different age group, educational status and occupation ($p=0.319$), ($p=0.544$) and ($p=0.135$) respectively. There was no significant association between urinary incontinence, menopausal state and duration of menopause ($p>0.05$). There was a significant relationship between urinary incontinence and nulliparous and those who had one child ($p<0.05$). There was no significant relationship between urinary incontinence and other numbers of childbirth (Table 2).

Table 1 Characteristic features of the respondents (n=392)

Socio-Demographic	n	%
Age group (year)		
20-30	74	18.9
31-40	104	26.5
41-50	120	30.6
51-60	94	24.0
Race (Malay)	392	100
Educational status		
Not schooling	60	15.3
Primary	56	14.3
Secondary	235	59.9
Tertiary	41	10.5
Occupational status		
Housewife	291	74.2
Others	101	25.8
Parity		
Nulliparous	30	7.7
Para 1	32	8.2
Para 2	38	9.7
Para 3-5	155	39.5
Para 6-9	106	27.0
Para 10 and above	31	7.9
Menopause status		
Menopause	80	20.4
Not menopause	312	79.6
Years of menopause		
1-5	27	6.9
6-10	41	10.5
More than 10	12	3.1
Not applicable	312	79.6
Type of delivery		
Normal	286	73.0
Instrumental	30	7.7
Caesarian section	40	10.2
CS + Instrumental	6	1.5
Not applicable	30	7.7
Pelvic surgery		
None	333	84.9
D + C	49	12.5
Hysterectomy	10	2.6
Body mass index		
Underweight	38	9.8
Normal	162	41.3
Overweight	97	24.7
Obese	95	24.2

D+C= Dilatation and Curettage

Table 2: The association between urinary incontinence and parity (n = 392)

Risk factors Parity	Urinary incontinence		X ²	P value
	Yes (%)	No (%)		
Nulliparous	6 (3.5)	24 (11.0)	7.673	0.006
Others	167 (96.5)	195 (89.0)		
Para 1	22 (12.7)	10 (4.6)	8.564	0.003
Others	151 (87.3)	209 (95.4)		
Para 2	19 (11.0)	19 (8.7)	0.588	0.443
Others	154 (89.0)	200 (81.3)		

Para 3-5	69 (39.9)	86 (39.3)	0.015	0.902
Others	104 (60.1)	133 (60.7)		
Para 6-9	45 (26.0)	61 (27.9)	0.166	0.683
Others	128 (74.0)	158 (82.1)		
Para 10 and above	12 (6.9)	19 (8.7)	0.402	0.526
Others	161 (93.1)	200 (91.3)		
TOTAL	173 (100)	219 (100)		

Urinary incontinence was significantly associated with instrumental delivery but not other types of delivery (p<0.05) (Table 3). There was significant association between urinary incontinence and dilatation and curettage (p=0.008). However, no significant relationship was found between urinary incontinence and hysterectomy (p>0.05) (Table 4). The occurrence of urinary incontinence was significantly associated with body mass index (p=0.000) (Table 5).

Table 3: The association between urinary incontinence and type of delivery

Risk factors Mode of delivery	Urinary incontinence		X ²	P value
	Yes (%)	No (%)		
Normal	129 (74.6)	157 (71.7)	0.405	0.524
Others	44 (25.4)	62 (28.3)		
Instrumental	21 (12.1)	9 (4.1)	8.816	0.003
Others	152 (87.9)	210 (95.7)		
Caesarean section	14 (8.1)	26 (11.9)	1.507	0.220
Others	159 (91.9)	193 (88.1)		
Caesarean section and instrumental	3 (1.7)	3 (1.4)	0.085	0.541
Others	170 (98.3)	216 (98.6)		
TOTAL	173 (100)	219 (100)		

Table 4: The association between urinary incontinence and gynecological operation

Risk factors Gynecological operation	Urinary incontinence		X ²	P value
	Yes (%)	No (%)		
Dilatation and curettage	30 (17.9)	19 (8.9)	6.635	0.008
Others	143 (82.1)	200 (91.1)		
Hysterectomy	5 (2.9)	5 (2.3)	0.143	0.473
Others	168 (97.1)	214 (97.7)		

Table 5: The association between urinary incontinence and risk factors of body mass index

Body mass index	Urinary incontinence		X ²	P value
	Yes (%)	No (%)		
Underweight (<18.5)	11 (6.4)	27 (12.3)	32.432	0.000
Normal (18.5-24.9)	56 (32.4)	106 (48.4)		
Overweight (25-29.9)	41 (23.7)	56 (25.6)		
Obese (>= 30)	65 (37.6)	30 (13.7)		
TOTAL	173 (100.0)	219 (100.0)		

The Impact of Urinary Incontinence on Life Activities

The presence of urinary incontinence seemed to affect the life activities of the respondents. 128 (67%) respondents reported that the urinary incontinence interfere with their general life activities, and 79 (45.7%) respondents reported that the urinary incontinence interfere with their physical activities which includes walking, praying, exercise and others. There is significant relationship between the amounts of leakage with the physical impact (p<0.05). The more leakage they had, the more it caused an impact to the physical activities. There is however, no significant association between urinary flooding onto the floor and physical activities (Table 6).

Impact on Social Life

Urinary incontinence also affected the social life of 83 (48 %) of the incontinent respondents. The social life includes meet-

ing friends, going out and working. There is significant association between the amount of urinary leakage and social impact (Table 7).

Table 6: Relationship between amount of urinary leakage among incontinent women and physical impact

Amount of urinary leakage	Physical impact		X ²	P value
	Yes (%)	No (%)		
Drops	24 (30.4)	62 (66.0)	21.734	0.000
Others	55 (69.6)	32 (34.0)		
Dribble pants wet	34 (43.0)	26 (27.7)	4.481	0.034
Others	45 (57.0)	68 (72.3)		
Floods outer clothes	19 (24.1)	3 (3.2)	16.827	0.000
Others	60 (75.9)	91 (96.8)		
Floods onto the floor	2 (2.5)	3 (3.2)	0.067	0.582
Others	77 (97.5)	91 (96.8)		
TOTAL	79 (100)	94 (100)		

Table 7: Relationship between amount of urinary leakage among incontinent women and social impact

Amount of urinary leakage	Social impact		X ²	P value
	Yes (%)	No (%)		
Drops	18 (21.7)	68 (75.6)	50.121	0.000
Others	65 (78.3)	22 (24.4)		
Dribble pants wet	43 (51.8)	17 (18.9)	20.654	0.000
Others	40 (48.2)	73 (81.1)		
Floods outer clothes	20 (24.1)	2 (2.2)	18.614	0.000
Others	63 (75.9)	88 (97.8)		
Floods onto the floor	2 (2.4)	3 (3.3)	0.131	0.538
Others	81 (97.6)	87 (96.7)		
TOTAL	83 (100)	90 (100)		

Impact on Functional Activities and Impact on Sexual Life

Their functional activities were also being affected by urinary incontinence. 25.4 % (44 respondents) avoid going out to the places where the toilet facilities were not available. There is significant relationship between the amount of leakage and the impact on the functional activities (p<0.05). However, those who had urinary dribbles or floods onto the floor, the impact on their functional activities were not statistically significant (p>0.05) (Table 8).

Amount of Leakage and Seek Medical Treatment

There was significant relationship between the amount of urinary leakage (floods outer clothes) and the initiative to get treatment. The more leakage the respondents had, the more they came for treatment (p<0.05). Out of 173 respondents who had urinary incontinence, only 11.6% (20 respondents) sought treatment (Table 9).

Table 8: Relationship between amount of urinary leakage among incontinent women and impact on the functional activities

Amount of urinary leakage	Impact on functional activities		X ²	P value
	Yes (%)	No (%)		
Drops	11 (25.0)	75 (58.1)	14.413	0.000
Others	33 (75.0)	54 (41.9)		
Dribble pants wet	20 (45.5)	40 (31.0)	3.023	0.082
Others	24 (54.5)	89 (69.0)		
Floods outer clothes	11 (25.0)	11 (8.5)	8.021	0.005
Others	33 (75.0)	118 (91.5)		
Floods onto the floor	2 (4.5)	3 (2.3)	0.576	0.376
Others	42 (95.5)	126 (97.7)		
TOTAL	44 (100)	129 (100)		

Table 9: Relationship between amounts of urinary leakage among incontinent women and seek medical treatment

Amount of urinary leakage	Medical treatment		X ²	P value
	Yes (%)	No (%)		
Drops	6 (30.0)	80 (52.3)	3.515	0.061
Others	14 (70.0)	73 (47.7)		
Dribble pants wet	5 (25.0)	55 (35.9)	0.936	0.332
Others	15 (75.0)	98 (64.1)		
Floods outer clothes	8 (40.0)	14 (9.2)	15.166	0.000
Others	12 (60.0)	139 (90.8)		
Floods onto the floor	1 (5.0)	4 (2.6)	0.359	0.463
Others	19 (95.0)	149 (97.4)		
TOTAL	20 (100)	153 (100)		

DISCUSSION

In this study it was discovered that a high percentage of Malaysian women experienced urinary incontinence (UI) with the prevalence of 44.1% out of which more than half (59.5%) perceived it as problematic. The prevalence of urinary incontinence in this study was in the similar range with previous study (Pauck et al., 2012).

The prevalence of stress incontinence (52%) was higher compared with urge (19.1%), mixed (25.4%) and unclassified incontinence (3.5%). It was similar to most of other studies that found that the stress incontinence was predominant among women in the world (Hampe, et al., 1997; Peyrat, et al., 2002; Subak, et al., 2009). The women reported more of stress incontinence compared with other types because this type of incontinence could not be controlled and probably affected their activities. The women with urge incontinence can modify their life style such as early urinating to reduce incontinence. Furthermore childbirth may contribute to stress incontinence as two third of the respondents experienced more than three childbirths. However, a few studies found that the prevalence of stress incontinence is lower than that of other types (Lapitan and Chye, 2001; Chen et al., 2003; Subak, et al., 2009).

The variables that emerged as risk factors for incontinence were body mass index, parity, gynecological operation and mode of delivery. This study showed that urinary incontinence was significantly associated with body mass index. Previous studies have yielded similar results with regard to the role of body mass index in urinary control. The prevalence of urinary incontinence increased with increasing body mass index (BMI) (Brown, et al., 1996; Dwyer, et al 1998; Wesnes, et al., 2010). A link between body mass index and incontinence supports the concept that weight gain may increase the susceptibility to incontinence and suggests that weight loss may decrease the incontinence (Burgio, et al., 1991; Wesnes, et al., 2010).

The present study showed that instrumental delivery gave a higher risk of urinary incontinence and was statistically significant. This finding was in contrast with other studies that found vaginal delivery gave a higher risk for urinary incontinence (Foldspang, et al., 1999; Peyrat, et al., 2002; Arrue, et al., 2010). Peyrat, et al. (2002) compared vaginal delivery, Caesarean section, forceps delivery and vacuum extraction, and found that vaginal delivery was risk factors. However, Arya et al. (2001) reported that urinary incontinence after forceps delivery is more likely to persist than urinary incontinence after spontaneous vaginal or vacuum delivery. Foldspang et al. (1999) reported that perineal suturing also significantly contributed to urinary incontinence after childbirth. Probably those who had instrumental delivery in my study also had perineal suturing which gave a higher risk of urinary incontinence. However, this was not asked in the questionnaire in this study.

This study also found that there was no significant association between urinary incontinence and gynecological operation

namely hysterectomy. This finding was contrary to those of other studies (Milsom, et al., 1993; Peyrat, et al., 2002; Chen, et al., 2003). Brown et al. (1996) reported that women who had undergone hysterectomy had a 40% higher prevalence of daily incontinence than women who did not have hysterectomy. In the present study, lack of significance between urinary incontinence and hysterectomy could be due to the small number of hysterectomized respondents (10 respondents). Brown et al. (2000) did a meta-analysis on 12 studies on the association of urinary incontinence and hysterectomy, and found that among the women who were 60 years or older, the occurrence of urinary incontinence was increased by 60%. Urinary incontinence was the common complaint of women attending hospital out-patient clinics and those accompanying the patients. It was under-reported by the women, although it affected their daily lives. Only small proportion of women sought medical advice (Tahir and Abdullah 2012).

This study also found that those who had a history of dilatation and curettage had a higher risk of the urinary incontinence. This is probably related with childbearing and parity. The occurrence of urinary incontinence in this study was not associated with age, whereas most of the studies reported that the prevalence of urinary incontinence increased with increasing age (Simeonova et al., 199; Chen et al., 2003; Bodhare et al., 2010).

From this study, it was found that the occurrence of urinary incontinence was significantly higher in nulliparous group and those who had one delivery. Most of the studies reported that the urinary incontinence was more common in parous than nulliparous women of all ages (Peyrat, et al., 2002; Chen, et al., 2003; Eliasson, et al., 2008). There is a possibility that those who were nulliparous in this study were also active and may be involved with heavy lifting work, which is one of the contributors to the urinary incontinence. It is believed that the processes during pregnancy and childbirth are strongly associated with the prevalent urinary incontinence. Postmenopausal women were less likely to report incontinence than premenopausal women. This is probably due to there being less awareness and increased acceptance among postmenopausal women. However, it is consistent with prior studies which showed a significantly lower prevalence rate of urinary incontinence among postmenopausal women than among premenopausal women (Dolan, et al., 1999; Chen, et al., 2003; Eliasson, et al., 2008).

The urinary incontinence has been associated with reduction in quality of life. This study assesses the impact of urinary incontinence on certain elements of quality of life such as physical, social, functional and sexual life. It was found that urinary incontinence affected the life activities of about 50% of the women affected, although the effects were not always perceived to be problematic. The impact on physical activities was significantly associated with the amount of urinary leakage ($p < 0.000$). The more leakage they had, the more restricted were their life activities. However, among those who had urinary incontinence which flooded onto the floor, there was no significant association with the impact on their physical activities and therefore their quality of life. This is probably due to the small number of samples (5 respondents) reported having that amount of incontinence. Approximately 28.7% of women suffering from this problem need to restrict their activities in social life, especially activities involved with unfamiliar places where the availability of the restroom was not known. Studies in Taiwan and Netherlands also found similar result (Chen, et al., 2003; Botlero, 2010). However, only a small percentage of this study group (0.8%) claimed that urinary incontinence affected their sexual lives. The smaller percentage obtained compared to that obtained by Chen et al. (2003) (30%) was probably due to the reservation shown by the local population when talking about their sexual lives.

While nearly fifty percent of the women reported incontinence, only 11.6% had sought treatment. The findings in our study contribute to the small body of literature that indicate consistently that more than half of the individuals who experienced incontinence did not seek medical attention. These studies reported that the percentage of those who sought medical treatment were between 27% to 42% (Dolan, et al., 1999; Lapitan and Chye, 2001; Chen, et al., 2003). The result of our study showed a lower percentage of women with urinary incontinence seeking treatment compared to those of other studies. The incontinent women did not come for treatment because they were too embarrassed to discuss their problems. They probably thought that urinary incontinence was normal following childbirth and increasing age. These results consistently indicate that the women did not perceive the urinary incontinence as problematic so as to make them seek medical help. Although the reason for not seeking treatment is not clear, prior research suggests that much of the unrecognized incontinence is dismissed by patients as well as by physicians as a minor problem (Jolleys, 1988). Furthermore, seeking treatment was strongly associated with the frequency and volume of urine loss. In this study it was also found that more women sought medical treatment when the leakage wet their outer clothes than

when urinary incontinence is in the form of only dribbles or when dribbles wet their pants. The relationship between severity and the probability of seeking medical attention has been documented in prior research (Burgio et al., 1991; Holst and Wilson, 1988; Melville et al., 2006).

In conclusion, urinary incontinence is a common condition among married women as reflected from the prevalence rate of 44.1%. Most of the women were young and of the middle-aged group. This indicates that urinary incontinence is not only occurring in the elderly but also in the younger aged women. There is a significant association between urinary incontinence and body mass index. Obese people have a higher risk of urinary incontinence as compared to normal weight people. Those who had had a gynecological operation or a hysterectomy also had a higher risk of urinary incontinence than those who had none.

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