



Original Article/นิพนธ์ต้นฉบับ

Prevalence, Associated Factors and Impact on Quality of Life of Female Urinary Incontinence in a Thai Rural Area

Khuawan B¹, Manonai J², Suthutvoravut S², Singhakajen V³

¹ Master Degree student, Department of Obstetrics & Gynaecology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

² Department of Obstetrics & Gynaecology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

³ Department of Biostatistics, Faculty of Public Health, Mahidol University

Abstract

Objective: To assess the prevalence of urinary incontinence (UI), its associated factors, and its impact on the quality of life (QOL) of women.

Materials and Methods: This cross-sectional study was conducted by interviewing 385 women who lived in a Thai rural area in Wangsila Village, Wangnamyen District, Srakaew Province. The questions comprises of demographic data, history of childbirth and medical diseases. Urinary incontinence symptoms within 1 month prior to the interview were asked using simple questions. Quality of life was assessed using the Incontinence Quality of Life questionnaire.

Results: Seventy-eight women (20.3%) had urinary incontinence. Among them, 5 (1.3%) had stress urinary incontinence, 14 (3.6%) had urge incontinence and 59 (15.3%) had both types. The significant associated factor was parity with age as a confounder. The impact on QOL as assessed by I-QOL questionnaires was that all of the following three domains were affected: limiting activities, the psychological aspect, and social embarrassment. From a 100 percent score of quality of life, UI decreased the score of three domains of QOL: limiting activities, the psychological aspect, and social embarrassment (93.3%, 92.0% and 86.8%, respectively).

Conclusions: The prevalence of UI among Thai woman in the rural area was 20.3%. Most had both stress and urge incontinence. The significant associated factor was parity with age as a confounder. UI had a negative impact on three domains of QOL of Thai women in the rural area.

Keywords: Urinary incontinence, Prevalence, Associated factors, Quality of Life

Corresponding Author: Jittima Manonai

Department of Obstetrics & Gynaecology, Faculty of Medicine Ramathibodi Hospital, Rama VI Road, Ratchathewi, Bangkok 10400 Tel. 02-2012167 Fax. 02-2011416 E-mail: rajmo@mahidol.ac.th

Introduction

Urinary incontinence (UI) is defined by the International Continence Society (ICS) as the complaint of any involuntary leakage of urine.⁽¹⁾ UI is a common condition affecting adult women of all ages that may have a negative influence on their quality of life.⁽²⁾ Although urinary incontinence is not life threatening, it causes substantial incapacity, social seclusion, psychological stress, and economic burden.^(3,4) UI is classified as stress urinary incontinence (SUI, involuntary urine leakage that occurs with effort or exercise, when sneezing or coughing), urge urinary incontinence (UUI, involuntary urine leakage accompanied by or immediately preceded by urgency) and mixed urinary incontinence (MUI, the complaint of urine leakage associated with urgency and also with exertion, effort, sneezing, or coughing)⁽¹⁾. In Thai rural areas, Manonai J⁽⁵⁾ studied in Trad province found that the overall prevalence of urinary incontinence was 36.5% and Thammakoon T⁽⁶⁾ studied in an urban community of Phitsanulok Province, found the prevalence of 18.1%. The objectives of this study were to study (i) prevalence of UI (ii) factors associated with UI and (iii) Quality of life (QOL) affected by UI among Thai woman who lived in a rural area of Thailand.

Materials and Methods

The study was a cross-sectional survey. Eligible women were 20 years or older and lived in Wangsilar village, Wangnomyen district, Srakaew province.

Women were interviewed using a structured questionnaire from December 2011 to January 2012. The questions comprises of demographic data (such as age, married status, BMI, occupation), menstrual status, history of childbirth, medical diseases, and history of surgery, radiation, medications. Urinary incontinence symptoms (i.e. stress, urge, mixed) within 1 month prior to the interview were asked using simple

questions. Quality of life was assessed using the Incontinence Quality of Life (I-QOL) questionnaire.⁽⁷⁾

The I-QOL is a self-administered questionnaire contains 22 items regarding quality of life. The instrument is specific to patients with stress, urge, and mixed types of incontinence designed to assess concerns about urinary incontinence in three domains: (1) avoidance and limiting behavior, (2) psychosocial impact, and (3) social embarrassment. The score of the I-QOL was calculated by computer and transformed to a 0-100 scale for easy interpretability, with a higher score signifying higher quality of life and 0 representing the worst possible quality of life. A standard Thai translated version of the I-QOL was used in this study.⁽⁸⁾

The sample size was calculated according to the one population formula of Daniel.⁽⁹⁾ As a result, 385 women were required. The descriptive statistics were frequency, percentage (qualitative variables), mean and standard deviation (quantitative variables). The association between urinary incontinence and associated factors were analyzed using the chi-square test; fisher's exact test, Mantel Haenszel test and t-test. The difference of score of I-QOL was calculated using one sample t-test. The significance level was set at $P < 0.05$.

Results

A total 385 women with mean age of 42.31 ± 14.76 (range 20-78) years old were recruited. Seventy-eight women (20.3%) had urinary incontinence. Among them, 5 (1.3%) had stress urinary incontinence, 14 (3.6%) had urge incontinence and 59 (15.3%) had both types.

Table 1 showed that there were statistically significant differences in distribution of all characteristics between women with and without UI. Women who had UI tended to be older, more obese, married, and had delivered babies more than twice. There was a statistic significant association between UI and

**Table 1** Characteristic of respondents (N=385)

Characteristics	Without UI	With UI	p-value
	N=307 n (%)	N=78 n (%)	
Age group (years)			<0.05*
≤50	271 (88.3)	1 (1.3)	
50-55	35 (11.4)	4 (5.1)	
> 55	1 (0.3)	73 (93.6)	
Mean±SE	37±0.57	64.83±0.76	<0.05***
Range	20-56	45-78	
BMI (Kg/m²)			<0.05*
<25	274 (89.8)	10 (12.8)	
≥25	31 (10.2)	68 (87.2)	
Mean±SD	22.33±0.14	27.33±0.31	<0.001***
Range	17.63-32.89	19.03-34.22	
Marital Status			0.05**
Single	50 (16.3)	4 (5.1)	
Married & Widowed	257 (83.7)	74 (94.9)	
Occupation			0.05*
Civil servant, Housewife & Student	133 (43.3)	49 (62.8)	
Employee & Business owner	174 (56.7)	29 (37.2)	
Parity			<0.05*
0-1	147 (47.9)	10 (12.8)	
2	125 (40.7)	13 (16.7)	
≥3	35 (11.4)	55 (70.5)	
Mean+ SE	1.45±0.56	3.08±0.17	<0.001***
Range	0-5	0-7	
Total	307 (79.7)	78 (20.3)	

*chi square test, **Fisher's Exact test, ***t-test

Table 2 Association between parity and UI by age (N=157)

Characteristics		Without UI	With UI	p-value	
		N=79 n (%)	N=78 n (%)	Fisher's Exact Test	Mantel Haenszel
Parity	Age				
	≤2				
	45 - 55	60 (93.8)	4 (6.3)		
	≥56	1 (5.0)	19 (95.0)	<0.001	
≥3	45 - 55	18 (94.7)	1 (5.3)		
	≥56	-	54 (100)	<0.001	<0.001

Table 3 Association between age and urinary incontinence by parity (N=157)

Characteristics		Without UI N=79 n (%)	With UI N=78 n (%)	p-value	
				Fisher's Exact Test	Mantel Haenszel
Age	Parity				
	45 - 55				
	≤2	60 (93.8)	4 (6.3)	0.678	
	≥3	18 (94.7)	1 (5.3)		
≥56	≤2	1 (5.0)	19 (95.0)	0.270	0.466
	≥3	-	54 (100)		

Table 4 Comparison of QOL Scores between women with and without UI (N=385)

Quality of life (total score) (n=385)	Without UI (Mean±SE)	With UI (Mean±SE)	p-value t-test
Avoidance and limiting behavior	100.00±0.00	93.33±0.46	<0.001
Psychosocial impact	99.97±0.02	92.08±0.46	<0.001
Social embarrassment	99.97±0.02	86.87±0.88	<0.001
Total score	99.98±0.01	91.35±0.52	<0.001

age, BMI, marital status, occupation and parity ($p<0.05$). Table 2 showed that there was a statistically significant association between UI and parity when age was controlled. There was no statistically significant association between UI and age when parity was controlled (Table 3).

When compared QOL scores of limiting activities, psychological aspect, social embarrassment and total score of QOL between women with and without UI, there were statistically significant differences of scores between women with and without UI in all aspects ($p<0.001$) (Table 4).

Discussion

This study showed that the overall prevalence of urinary incontinence among Thai women who live in a rural area in the eastern part of Thailand was 20.3%. This prevalence is comparable to the study of Filiz TM⁽¹⁰⁾ which studied in Turkish women and the study in an urban community of Phitsanulok Province, Thailand.⁽⁶⁾ This finding is contrary to other

studies. Peyrat L⁽¹¹⁾ studied in France and found that the prevalence of UI was 27.5%. Melville JL⁽¹²⁾ studied in Washington State and found the prevalence of UI was 45.0%. In Asia, Zhu L⁽¹³⁾ studied in China and found that the overall prevalence rate of UI was 30.9%. Ham E⁽¹⁴⁾ studied in South Korea and found that the prevalence of UI among middle-aged women was 42.6%. In Thailand, Manonai J⁽⁵⁾ studied in Trad province found that the overall prevalence of urinary incontinence was 36.5%. The differences in prevalence of UI may be due to differences in population, type of questionnaire and mean of getting data whether by self-administration or interview.

Vaginal birth can contribute to weaken pelvic muscles or childbirth can injure the scaffolding that helps support the bladder in women. Pelvic floor muscles, the vagina, and ligaments support your bladder. If these structures weaken, bladder can move downward, pushing slightly out of the bottom of the pelvis toward the vagina. As a result, urinary incontinence might occur. The present study showed that



the parity and age were associated factors for urinary incontinence. The statistically significant association of parity and UI was still evident when age was controlled. This result was in accordance with the previous study of Peyrat L⁽¹¹⁾ which found that obstetric events (pregnancy, particularly previous vaginal delivery and hysterectomy) are risk factors for UI. Filiz TM⁽¹⁰⁾ found that the type of delivery and number of pregnancies/deliveries are risk factors of urinary incontinence. In Asia, Zhu L⁽¹³⁾ found that vaginal delivery is a risk factor for stress urinary incontinence. In Thailand, Manonai J⁽⁵⁾ also found that childbirth and vaginal delivery are associated with UI.

The natural aging process, estrogen levels in the body drop dramatically. Estrogen is responsible for keeping the urethra and the lining of the bladder healthy. It also stimulates blood flow to the pelvic region, increasing strength in the pelvic muscles. As the estrogen drop, pelvic muscles are simply weak. These muscles may not have enough strength to hold the opening of bladder closed. This is what causes the unwanted leakage of urine. This study showed that age was not associated with UI when parity was controlled. Peyrat L⁽¹¹⁾ found that there was a high prevalence of UI among young adult and middle-aged women. In Asia, Zhu L⁽¹³⁾ found that a factor of stress urinary incontinence is age. Ham E⁽¹⁴⁾ found that age is a risk factor of having UI. In Thailand, Jittima M⁽⁵⁾ found that advancing age is associated with urinary incontinence in women. All of these studies did not control the factor of parity. It is evident that age and parity were significantly associated with UI, and age was a confounder in this study.

Increased body mass index (BMI) is associated with increased intra-abdominal pressure, thereby

straining pelvic floor structures and increasing bladder pressure and urethral mobility. This study found that higher body mass index (body mass index >25) was a significant associated factor for urinary incontinence. This result is in accordance with previous studies.^(10,15,16)

The Incontinence Quality of Life (I-QOL) questionnaire used in this study is a self-reported quality of life measure specific to urinary incontinence and previously tested for validity and reproducibility.^(7,8) The terminology used in the questionnaire was the language understandable for Thai women. The present study showed that UI had a negative effect in all aspects of QOL i.e. avoidance and limiting behavior, psychosocial impact, and social embarrassment compared to women without UI. The most affected aspect was social embarrassment. The results of this study were similar to the previous study in Thailand.⁽⁵⁾ Regarding types of urinary incontinence, Tsai YC⁽¹⁶⁾ found that mixed incontinent patients exhibited the least satisfaction in quality of life, while no significant differences were observed between patients with stress and urgency incontinence. In Thailand, Manonai J⁽⁵⁾ and Wattanayingcharoenchai R⁽³⁾ found that urinary incontinence adversely affected quality of life; the mixed urinary incontinence group reported significantly greater impairment than the stress and urgency urinary incontinence groups.

In conclusion, the prevalence of UI among Thai woman in the rural area was 20.3%. Most had both stress and urgency incontinence. The significant associated factor was parity with age as a confounder. UI had a negative impact on three domains of QOL of Thai women in the rural area.

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Original Article/นิพนธ์ต้นฉบับ

ความชุก และผลกระทบต่อคุณภาพชีวิต ของภาวะกลั้นปัสสาวะไม่อยู่ในสตรีในชนบทไทย

เบญจมาศ เคลือวัลย์¹, จิตติมา มโนทัย², สมศักดิ์ สุทัศนวรวัฑ², วชิระ สิงทะกเชนทร์³¹ นักศึกษาปริญญาโท ภาควิชาสูติศาสตร์และสูติเวชวิทยา คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล² ภาควิชาสูติศาสตร์และสูติเวชวิทยา คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล³ ภาควิชาสูติศาสตร์ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล

บทคัดย่อ

วัตถุประสงค์ เพื่อประเมินความชุกของภาวะกลั้นปัสสาวะไม่อยู่ ปัจจัยที่เกี่ยวข้อง และผลกระทบต่อคุณภาพชีวิตของสตรี

วัสดุและวิธีการ การศึกษาแบบภาคตัดขวางนี้สัมภาษณ์สตรีจำนวน 385 ราย ในชนบทไทยที่หมู่บ้านวังน้ำเย็น อำเภอบางน้ำเย็น จังหวัดสระแก้ว โดยคำถามประกอบด้วยข้อมูลพื้นฐาน ประวัติการคลอดบุตรและโรคทางอายุรกรรม คำถามที่เข้าใจง่ายเกี่ยวกับอาการกลั้นปัสสาวะไม่อยู่ที่เกิดขึ้นภายในเวลาหนึ่งเดือนก่อนหน้านี และประเมินคุณภาพชีวิตโดยใช้แบบสอบถาม

ผลการศึกษา พบสตรีที่มีภาวะปัสสาวะเล็ด 78 คน (ร้อยละ 20.3) เป็นชนิดปัสสาวะเล็ดเมื่อเบ่งจำนวน 5 ราย (ร้อยละ 1.3) ชนิด ปัสสาวะเล็ดเมื่อปวด จำนวน 14 ราย (ร้อยละ 3.6) และแบบทั้งสองชนิดร่วมกัน จำนวน 59 ราย (ร้อยละ 15.3) ปัจจัยที่เกี่ยวข้องอย่างมีนัยสำคัญ คือ การคลอดบุตร โดยมีอายุเป็นตัวแปรกรวน เมื่อประเมินคุณภาพชีวิตโดยใช้แบบสอบถาม I-QOL ซึ่งประเมินคุณภาพชีวิตเป็นคะแนนใน 3 ด้าน ได้แก่ ด้านถูกจำกัดกิจกรรม ด้านจิตใจ และด้านความอับอายทางสังคม พบว่าจากคะแนนเต็ม 100 คะแนน ภาวะปัสสาวะเล็ดมีผลกระทบต่อคุณภาพชีวิตในสตรีในชนบท ในด้านถูกจำกัดกิจกรรม ด้านจิตใจ และด้านความอับอายทางสังคมลดลง ได้คะแนนร้อยละ 93.3, 92.0, 86.8 ตามลำดับ

สรุป ภาวะกลั้นปัสสาวะไม่อยู่ในสตรีไทยในชนบทพบร้อยละ 20.3 ส่วนใหญ่เป็นแบบผสมระหว่างปัสสาวะเล็ดเมื่อเบ่งและเมื่อปวดร่วมกัน ปัจจัยที่เกี่ยวข้องคือ การคลอด ภาวะกลั้นปัสสาวะไม่อยู่มีผลกระทบในด้านลบต่อคุณภาพชีวิตของสตรีไทยในชนบท

คำสำคัญ กลั้นปัสสาวะไม่อยู่ ความชุก ปัจจัยที่เกี่ยวข้อง คุณภาพชีวิต

Corresponding Author: จิตติมา มโนทัย

ภาควิชาสูติศาสตร์และสูติเวชวิทยา คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล