

# Lower Urinary Tract Symptoms (LUTS) Among Women Attending Gynaecology Clinic And Its Effect On Their Social Life

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## ABSTRACT

**Objective:** Lower Urinary Tract Symptoms (LUTS) is a highly prevalent disease which varies by geography and culture. It influences the quality of life and has social implication. The objectives of this study are to estimate the prevalence of LUTS among women attending our gynaecology clinic, the associated risk factors and their quality of life. **Method:** This is a cross sectional study on women attending gynaecology clinic in a tertiary centre. Participants were given 3 sets of validated self-answered questionnaire, UDI-6, IIQ-7 and OAB V8. **Results:** the prevalence of luts is 50.6% which is common among Malay women. Forty nine percent is due to stress urinary incontinence (SUI). The risk of LUTS is significantly associated with obesity (AOR = 12.14 95% CI = 1.21 to 121.99, p - value = 0.034), higher parity (AOR = 1.68 95% CI = 1.26 to 2.24, p - value = <0.001) and previous pelvic surgery (AOR = 5.38 95% CI = 1.41 to 20.62, p - value = 0.014). LUTS does not really affect our patient's quality of life (QOL) except for travelling (1.2%) and emotion (1.6%). **Conclusion:** This study shows that LUTS is highly prevalent in our local population, but it has no serious effect on QOL. Further population-based study is needed for better understanding of severity and impact on quality of life.

Keywords: LUTS, urinary incontinence, over active bladder, quality of life

## Introduction

Lower Urinary Tract Symptoms (LUTS) is a worldwide problem and a common condition encountered by women of all ages.<sup>1,2</sup> The magnitude varies by geography and culture and is a highly prevalent condition. These symptoms have profound influence on the quality of life of these women with significant social implications such as discomfort, shame and loss of self-confidence.<sup>1-4</sup>

LUTS are divided into 3 groups according to current standards recommended by International Continence Society (ICS); storage, voiding and post-micturition. The storage symptoms include overactive bladder (OAB) and urinary incontinence (UI). The voiding

symptoms include slow or weak stream, hesitancy and terminal dribble. For post-micturition symptoms, it consists of incomplete emptying and post-micturition dribble. LUTS also encompass symptoms associated with sexual intercourse, genital and lower urinary tract pain.<sup>3,5</sup>

The prevalence of LUTS is high and tends to increase with age. Other main risk factors are pregnancy, childbirth and overweight. Other associated risk factors include smoking, diabetes, chronic obstructive airway disease and neurological disorders, previous major pelvic surgery such as hysterectomy and possibly also hereditary factors.<sup>5</sup>

The reported prevalence of UI varies widely among women. Large cross-sectional population based study have shown that prevalence of UI range between 20% in young adults to 50% in older women. The estimated prevalence of OAB is approximately 17% whereas frequency of other symptoms of bladder control vary according to the symptoms and severity.<sup>1,4</sup>

An International Urogynaecological Association (IUGA) and International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction in 2010, suggested standardisation of the terminology to

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enable accurate communication for clinical and research purposes.<sup>3</sup>

LUTS were a dynamic process and many factors may contribute to the incidence, progression and remission of the disease. There are a few studies describing the prevalence of LUTS especially in local population. A detailed knowledge of the natural history and of LUTS in women may help to improve urogynaecological services in Malaysia.

The objective of the study was to estimate the prevalence of LUTS (urinary incontinence, overactive bladder and other LUTS) among female population in our local set up, to assess the severity of the disease and to determine the association of risk factor with LUTS.

## MATERIALS & METHODS

This is a cross sectional study on all women attending the gynaecology clinic at tertiary hospital over a period of 5 months. All women who agreed to participate aged more than 15 years were recruited in the study. The participants must also understand the Malay language. Ethics approval for the study was by the hospital ethical committee and clinical research committee (CRC). Written consent was obtained by a research assistant. The participants were then given 3 questionnaires to fill, the validated Malay version of Urogenital Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7) and Overactive Bladder Assessment Tool (OAB V8).

UDI-6 consists of 6 item question and used to assess the degree to which symptoms associated with LUTS are troubling. The IIQ-7 consists of 7 items and was designed to assess the impact of urinary incontinence on activities and emotions in women.<sup>6-8</sup> The OAB V8 consists of 8 question self-filled surveys primarily intended to identify patients with symptoms of OAB and their severity. Each item of all the questionnaires have a Likert scale. For UDI-6 and IIQ-7, the scale ranges from not at all, slightly, moderately or greatly. As for the OAB V8, the scale ranges from not at all, little bit, sometimes, quite a bit, great deal and very great deal.

If a particular woman could not read or write, a research assistant will assist her to complete the questionnaire. Women with mental capacity that would preclude completion of the questionnaire were excluded from the study.

The estimated sample size was 246 based on the expected prevalence of 20%, confidence interval (CI) of 95% and error of margin of 5% (standard value of 0.05). The formula used was;<sup>9,10</sup>

$$n = \frac{Z^2 P(1-P)}{d^2}$$

where n= sample size

Z= Z statistic for a level of confidence

P= Expected prevalence or proportion

(If the expected prevalence is 20%, then P=0.2)

D= precision (If the precision is 5%, then

d=0.05)

The data obtained was analysed using the IBM SPSS version 20.0. Basic descriptive statistics and frequency calculations were performed on all the variables. Other analysis used to analyse the data includes Pearson's Chi-square test was used to perform analytical statistic. P value of < 0.05 was considered statistically significant.

## Results

A total of 278 respondents had participated in this study. However, only 253 (91%) completed their questionnaire, the other 25 (9%) had to be excluded. Respondents are predominantly Malay, 188(74.3%). Chinese and Indians were about the same, which were 35(13.8%) and 30(11.9%) respectively.

There were equal number of participants who had secondary (48.2%) and tertiary education (45.1%). Ninety one (36%) respondents were in the normal BMI group and another 95 (37.5%) were overweight. About 23.3 % of the respondents were obese.

For obstetric history, 33.2% of the respondent had history of vaginal delivery, 15.0% had previous caeserean section and another 15.4% had history of instrumental delivery. Twenty seven (10.7%) had history of delivering a baby with birth weight more than four kilograms and 65(25.7%) of the respondents were nulliparous. (Table 1)

Table 1: Background Characteristic of Respondents (n=253)

		Frequency (n=253)	%
Age (years) <sup>#</sup>		38	13
Education Level	primary	17	6.7
	secondary	122	48.2
	college/university	114	45.1
Race	Malay	188	74.3
	Chinese	35	13.8
	Indian	30	11.9
BMI Status	Underweight	8	3.2
	Normal	91	36.0
	Overweight	95	37.5
	Obese	59	23.3
Parity <sup>#</sup>		3	2
Obstetrics History	birth weight >4.0kg	27	10.7
	instrumental	39	15.4
	vagina	84	33.2
	caesarean	38	15.0
	nulliparous	65	25.7
Menopausal Status		50	19.8
HRT History		15	5.9
Pelvic Surgery History		36	14.2
Smoking Status		1	0.4

# Mean (SD)

The overall prevalence of LUTS is 50.6% (128/253). Among these three subgroups, SUI is the most frequent LUTS encountered, followed by OAB and voiding dysfunction (Table 2). A logistic regression

test showed that obesity, parity and previous pelvic surgery were common associated risk factors for LUTS (Table 3).

Table 2 : Prevalence, subgroups and severity of LUTS

	Severity	Frequency	%
LUTS		128	50.6
Stress Urinary Incontinence	Not at all	4	3.2
	slightly	79	63.7
	moderate	38	30.6
	greatly	3	2.4
Voiding Dysfunction		23	8.3
	slightly	11	52.4
	moderate	10	47.6
OAB		80	31.6
	slightly	56	70.3
	moderate	22	27.5
	greatly	2	2.2

Table 3 : Associated risk factors of LUTS

		Total	With LUTS		Adjusted OR	95%CI		P-value
		(N)	n	Prevalence (%)		Lower	Upper	
<b>Age (years) [Mean (SD)]</b>		38	42	(12)	0.973	0.93	1.01	> 0.05
<b>Race</b>	Malay	188	93	49.5	1.000			
	Chinese	35	13	37.1	0.998	0.39	2.53	> 0.05
	Indian	30	22	73.3	2.964	0.97	9.02	> 0.05
<b>Education Level</b>	Primary	17	10	58.8	1.000			
	Secondary	122	76	62.3	1.796	0.48	6.76	> 0.05
	college/ university	114	42	36.8	0.953	0.23	3.93	> 0.05
<b>BMI Group</b>	Underweight	8	1	12.5	1.000			
	Normal	91	32	35.2	3.175	0.32	31.46	> 0.05
	Overweight	95	59	62.1	8.801	0.90	86.53	> 0.05
	Obese	59	36	1	12.140	1.21	121.99	0.034*
<b>Parity [Mean (SD)]</b>		3	4	(2)	1.680	1.26	2.24	< 0.001*
<b>Obstetrics History</b>	birth weight >4.0kg	27	17	63.0	1.000			
	instrumental	39	28	71.8	1.317	0.36	4.81	> 0.05
	Vagina	84	43	51.2	0.556	0.18	1.70	> 0.05
	Caesarean	38	26	68.4	1.947	0.54	7.05	> 0.05
	None	65	14	21.5	0.818	0.19	3.50	> 0.05
<b>Menopausal Status</b>		50	36	72.0	1.144	0.30	4.30	> 0.05
<b>HRT History</b>		15	11	73.3	0.810	0.14	4.85	> 0.05
<b>Pelvic Surgery History</b>		36	30	83.3	5.386	1.41	20.62	0.014*

For the respondent who experienced LUT symptoms, they were disturbed with their travelling, social life and were emotionally affected. However their physical activity was minimally affected (Table 4).

Table 4: Quality of life

	Not at all n(%)	Slightly n(%)	Moderate n(%)	Greatly n(%)	P value
<b>IIQ 7</b>					
House chores	230 (90.9)	21 (8.3)	2 (0.8)	0 (0)	<0.05
Physical activity	210 (83)	38 (15)	5 (2.0)	0 (0)	<0.05
Entertainment	218 (80.2)	28 (11.1)	7 (2.8)	0 (0)	<0.05
Travel	172 (68.0)	61 (24.1)	17 (6.7)	3 (1.2)	<0.05
Social activity	183 (72.3)	59 (23.3)	11 (4.3)	0(0)	<0.05
Emotion	153 (60.5)	64 (25.3)	32 (12.6)	4 (1.6)	<0.05
Feeling frustrated	161 (63.6)	60 (23.7)	31 (12.6)	1 (0.4)	<0.05

## DISCUSSION

The prevalence of LUTS in our local tertiary centre is high 50%, which is similar to other studies.<sup>1,2</sup> Debra et al.<sup>2</sup> in their study found that LUTS are highly prevalent in both men (62.5%) and women (66.6%). Among all the subgroups SUI is the most common type of urinary incontinence, with the reported prevalence of 48.9%, followed by OAB (31%) and voiding dysfunction (8%).

The risk factors for LUTS are multifactorial. Anna et al.<sup>1</sup> in their observational study noted that the main risk factors for LUTS are age, pregnancy/childbirth and overweight. In women who have had vaginal deliveries, the risk is twice of nulliparous women, while relative risk of women who have had caesarean section is approximately 1.5. The increased risk of LUTS due to vaginal delivery might be explained by injury to pelvic floor tissues or ischaemic trauma to distal branch of pudendal nerve causing denervation to the intrinsic urethral sphincter.

In this study, we found that obese women have 12 times higher risk of having LUTS compared to underweight women (AOR = 12.14 95% CI = 1.21 to 121.99, *p* - value = 0.034). Women with increased parity are almost twice at risk of developing LUTS (aOR = 1.68 95% CI = 1.26 to 2.24, *p* - value = <0.001). Women with previous pelvic surgery are likely to have 5 times higher risk of having LUTS compared to those without surgery (aOR = 5.38 95% CI = 1.41 to 20.62, *p* - value = 0.014). In another study by Karin et al.<sup>11</sup> they also found that women with LUTS tend to have higher BMI, history of hysterectomy, postmenopausal status and HRT use.

LUT symptoms do affect quality of life. This study shows that at least 23-25% respondent feels that their quality of life is slightly affected by LUTS. These mostly affect their travelling and social activity and emotion-wise. Incontinence will restrict their outdoor activity because it is difficult for them to find toilets and eventually experienced urine leakage. This is why they feel emotionally disturbed and finally choose to stay indoors.

OAB is a broad spectrum of symptoms, which are usually overlapping between stress, urgency and mixed incontinence. The single most important symptom for OAB is urgency. Urodynamic test is the objective confirmatory tool to differentiate the above diagnosis.<sup>12</sup>

A detailed history, physical examination and investigation may help in differentiating between the diagnoses.

It is important to recognise that there is often overlapping of the pathophysiology and symptoms related to LUTS. The global approach to LUTS reflects our contemporary recognition of the lower urinary tract as an integrated unit.<sup>13</sup> Although LUTS have widespread human and psychological implication that negatively affect women's quality of life, only a quarter to one-third of women with LUTS seek professional help. A detailed knowledge of natural history of LUTs in women may help to target treatment resources, to provide ideas for preventive steps in the future. Raising awareness of the impact of LUTS in primary care will provide opportunities to improve symptoms, deal with comorbid conditions, reduce costs and improve quality of life.

The limitation of this study is that it was conducted in one tertiary centre and therefore caution should be used in extrapolating the findings to a wider population. We were also not able to collect objective clinical data such as urine evaluation to exclude urinary tract infection, bladder diary, pad tests and urodynamic studies.

A population based longitudinal studies should be carried out in the future for better understanding of occurrence and impact of LUTS among the local population.

As a conclusion, the prevalence of LUTS is high with predominantly SUI symptoms. Parity, obesity and previous pelvic surgery associated with increased risk of LUTS. LUTS affects patient emotion and travelling in moderation. Further population-based study is needed for better understanding of severity and its impact on the quality of life of the women involved.

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