Research Article

Prevalence of Lower Urinary Tract Symptoms in Women Based on Bahasa Indonesia Validated ICIQ-FLUTS Long Form

Prevalensi Gejala Saluran Kemih Bawah pada Perempuan Berdasarkan ICIQ- FLUTS Long Form Tervalidasi Bahasa Indonesia

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Abstract

Objective: To obtain the prevalence of women with lower urinary tract symptoms (LUTS) in Dr. Cipto Mangunkusumo National Hospital, Indonesia.

Method: We conducted a descriptive and analytic study with questionnaire-based data collection. All subjects were interviewed using the conventional method and International Consultation on Incontinence Questionnaire (ICIQ) Female LUTS long form validated in Indonesian language in the gynecology outpatient clinic in Dr. Cipto Mangunkusumo Hospital.

Result: Using the conventional method, proposing only one question of urinary disturbance without asking the detailed symptoms, a low prevalence of LUTS was obtained (17.3%). On the other hand, with a well-structured questionnaire using ICIQ-FLUTS long form, the prevalence of LUTS was 95.3%. This result revealed that LUTS was a common condition among Indonesian women in the study population with vaginal delivery as the common risk factor.

Conclusion: Screening for LUTS using a structured questionnaire identified a significantly higher prevalence of LUTS than the conventional method. The ICIQ-FLUTS long form validated in Indonesian language is a robust questionnaire that can be recommended for use in epidemiological research as well as routine clinical practice.

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Keywords: ICIQ FLUTS long form, Indonesia, LUTS, prevalence, women

Abstrak

***Tujuan**: Untuk memperoleh data prevalensi gejala saluran kemih bawah pada perempuan di RS Dr. Cipto Mangunkusumo, Indonesia.*

***Metode**: Kami melakukan studi deskriptif dan analitik dengan pengumpulan data menggunakan kuesioner. Subjek penelitian ini yaitu perempuan yang datang ke poliklinik Ginekologi RS Dr. Cipto Mangunkusumo Jakarta. Subjek kami menjalani wawancara menggunakan metode konvensional dan menggunakan International Consultation on Incontinence Questionnaire (ICIQ) Female LUTS long form yang divalidasi ke Bahasa Indonesia.*

***Hasil**: Menggunakan metode konvensional yang hanya menanyakan sebuah pertanyaan tentang gangguan berkemih tanpa menanyakan gejala yang lebih detail, didapatkan prevalensi LUTS yang rendah (17,3%). Di sisi lain, dengan menggunakan kuesioner yang terstruktur menggunakan ICIQ- FLUTS long form, prevalensi LUTS adalah 95,3% pada populasi penelitian. Hal ini menunjukkan bahwa LUTS mempunyai prevalensi yang tinggi pada populasi studi dengan faktor risiko umum berupa persalinan pervaginam.*

***Kesimpulan**: Skrining LUTS dengan menggunakan kuesioner terstruktur dapat mengidentifikasi prevalensi LUTS yang lebih tinggi secara signifikan dibandingkan metode konvensional. ICIQ-FLUTS long form yang divalidasi dalam Bahasa Indonesia direkomendasikan untuk digunakan pada penelitian epidemiologi dan dalam praktek klinik sehari-hari.*

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***Kata kunci**: ICIQ FLUTS long form questionnaire, Indonesia, LUTS, perempuan, prevalensi*

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INTRODUCTION

Lower Urinary Tract Symptom (LUTS) is a condition commonly seen in women, mostly in old age.[1] Urinary incontinence as a LUTS component was considered a major problem in women and the prevalence is 17-50% in the adult population around the globe.[2] Another problem needing to be underlined is the cost to overcome these daily complaint.[2,3] LUTS is considered a subjective indicator of a disease or change in condition as perceived by the patient, care giver or partner and may lead him/her to seek help from health care professionals.[2]

The Asia-Pacific Continence Advisory Board have conducted an Asian-wide epidemiologic survey on urinary incontinence to determine the magnitude of the problem. Philippines, Singapore, Malaysia, Thailand, and Indonesia were among the participating countries. The result of urinary incontinence prevalence in Indonesia is 10.6%.[4] Junisaf

and Agustina reported the prevalence of overactive bladder among women working in the Department of Obstetrics and Gynecology in Dr. Cipto Mangunkusumo Hospital to be 15.6%.[5] Several studies concerning LUTS prevalence in Asia obtained the prevalence of LUTS to vary between 28-69%.[6] LUTS, as an extensive indicator of lower urinary tract condition in Indonesia is yet to be studied. This condition had encouraged us to do a research using conventional question method and a structured questionnaire to obtain an accurate baseline prevalence of LUTS. This will further define the magnitude of the problem of LUTS affecting Indonesian women in general.

Risk factors of LUTS such as age, parity, mode of delivery, obesity, hysterectomy, drugs affecting micturition, menopausal state, and family history of LUTS were also studied in this research, to establish the distribution in the population.[1,2,4,7-16]

In many countries, a standardized questionnaire to inquire for clinical symptoms of lower urinary tract disturbances is used in everyday practice. In Indonesia, this practice is not yet reinforced. Many clinicians depend on a simple question asking whether the patient had any urination disturbance. This is perceived as the conventional method for screening of LUTS in daily clinical practice. Questionnaire based practice is currently not a regular practice in Indonesia. Few questionnaires recommended by the International Continence Society are ICIQ-Female Lower Urinary Tract Symptoms (ICIQ-FLUTS), Urogenital Distress Inventory (UDI-6/short form), Stress Incontinence Questionnaire (SIQ), and Symptoms Severity Index (SSI).[17] ICIQ-FLUTS long form is an extensive questionnaire to assess LUTS in women, which has already been adopted in many hospitals around the world and validated in many foreign languages from its English version. This study also validates the ICIQ-FLUTS questionnaire in Indonesian language so that it can be used properly in clinical settings throughout Indonesia.

METHOD

This study is a descriptive cross sectional study. It was conducted in the gynecology outpatient clinic in Dr. Cipto Mangunkusumo National Hospital (RSCM), Indonesia from 2012-2013. RSCM is a top referral hospital in Indonesia, treating referred patients from many regions in Indonesia. With the diversity of patients, RSCM is the representative of Indonesian standard in health platform.

Our subjects were women attending the gynecology clinic in RSCM with consecutive sampling method. With the predicted prevalence of LUTS being 50%, the minimal number of subjects required was 98 women. Each subject was interviewed using standardized questionnaire comprised of the conventional method of questioning: "Do you have any complaint of urination?" and a set of Indonesian version of ICIQ-FLUTS long form. Any patient that was proven pregnant at the time of interview was excluded from the research, since pregnancy itself causes a physiological change in the micturition pattern. Information of several risk factors affecting LUTS were also obtained, including BMI calculation, age, parity, mode of delivery, obesity, history of hysterectomy, drugs affecting micturition, menopausal state, and family history of LUTS. Other data such as history of stroke or other accompanying disease were also recorded, with the consideration that this condition could also contribute to changes in voiding pattern.

The original ICIQ-FLUTS long form was provided by Dr. Nikki Cotterill from Bristol Urological Institute, England. Questionnaire validation steps were provided by ICIQ. Research subjects underwent height, body weight, and blood pressure measurements. Then a series of questions from the research questionnaire will be conducted by the researcher and trained medical students. Participants with LUTS underwent further examination in the urogynecology clinic to determine the possible etiology of LUTS.

Statistical analysis was performed using Statistical Package for The Social Sciences (SPSS) version 6, Cronbach's α was calculated to evaluate the questionnaire's internal consistency. A minimum value of 0.70 was desirable for this study.

RESULTS

The validation steps provided by the ICIQ was carried out, with the original questionnaire being translated by a sworn translator in a language institution owned by the University of Indonesia. After an Indonesian version was completed, a back-translation process by another sworn translator who was unaware of the original questionnaire was conducted to produce the back translation of

the questionnaire. These results of questionnaire were used in preliminary research in clinical setting with the targeted population. Then a validation panel consisting of urogynecology experts as well as both of the sworn translator involved in the translation process held a consensus meeting to discuss the linguistic problems encountered in the preliminary research. The discussion emphasized on linguistic and clinical perspective of each question item. Differences of words and terms used in the questionnaire were debated to decide which would be used. This step was done to maintain conceptual and technical equivalence between the source and target language. The back-translation was also compared to the original version and the differences were discussed. The results of this meeting were two sets of questionnaires, in Indonesian language and back translation were sent back to ICIQ for further validation. The Indonesian questionnaire was used in this research until the minimal number of subjects was obtained. A statistical analysis generated the Cronbach's α value of the questionnaire; the internal consistency was satisfactory with Cronbach's α of 0.78.

A total of 278 women participated in this study, with all of them completing the research questionnaire with each method, conventional and structured questionnaire. Based on the conventional method, LUTS prevalence was only 17.3%, with 48 women frankly complaining about disturbance in urination process. After that, the same subject will answer a series of question directed by the researcher in order to complete the Indonesian version of ICIQ-FLUTS long form. From this detailed, structured questionnaire we obtained a LUTS prevalence of 95.3%. Only 13 participants were negative for LUTS from all the 18 points of the questionnaire. Nocturia contributed to as much as 86.7% of all positive LUTS results, followed by stress urinary incontinence amounting to approximately 36.7%.

As much as 55% of our sample was older than 40 years old, being almost equal with the 40 years old or younger subgroup. Around 40.3% were multiparous (parity 2-4), with nulliparous subjects making up around 36.7% of the sample group. Approximately 47.5% of our samples had vaginal delivery. The BMI of the samples was generally in the normal range (40.3% had normal BMI), with obesity only making up 25.2% of our sample. Up to 78.8% of our sample were pre-menopausal women and only 5% regularly consumed medication affecting the urination process. Only 2 subjects had a history of hysterectomy, both found to have LUTS. There was no family history of LUTS in 95% of the population. Additional data concerning other diseases that could have an impact in LUTS was diabetes mellitus and stroke, where 10 women had diabetes mellitus and 7 more admitted to having hypertension. None of the participants ever had stroke. Among the participants, 16 of them regularly consumed coffee or alcohol, these two beverages known to have an effect on urination process. Women that had disability due to some extent of LUTS thus forcing them to use pads or tissue or increased frequency in changing underwear consist of 31 participants (11%). Table 2 present the distribution of LUTS according to risk factors.

Table 1. LUTS Prevalence According to Symptom Using ICIQ- FLUTS Long Form

Symptoms	n (%)
Frequency	34 (12.2%)
Nocturia	241 (86.7%)
Urgency	75 (27%)
Urge incontinence	81 (29.1%)
Bladder pain	73 (26.3%)
Stress incontinence	102 (36.7%)
Insensible incontinence	35 (12.6%)
Amount of leakage	41 (14.7%)
Hesitancy	52 (18.7%)
Straining	42 (15.1%)
Intermittent stream	49 (17.6%)
Nocturnal enuresis	31 (11.2%)
Reduced Stream	38 (13.7%)
Urinary retention	14 (5%)
Dysuria	32 (11.5%)
Incomplete emptying	81 (29.1%)
Ability to stop stream	42 (15.1%)

Questionnaire method using the comprehensive ICIQ-FLUTS long form had yielded quite a different outcome of LUTS prevalence in comparison to the conventional method. Using the questionnaire method, the proportion of subjects with LUTS negative was 4.7% versus 82.7% in the conventional method. On the contrary, the proportion of subjects with positive LUTS based on the questionnaire method was 95.3% versus 17.3% based on the conventional method.

Table 2. Population Characteristics According to Risk factors of LUTS

Variable	n (%)
Age	
< 40 years old	153 (55%)
≥ 40 years old	125 (45%)
Parity	
Nullipara	102 (36.7%)
Primipara	42 (15.1%)
Parity 2-4	112 (40.3%)
Grandemultipara	22 (7.9%)
Mode of Delivery	
Nulliparity	102 (36.7%)
Vaginal delivery	132 (47.5%)
Caesarean Section	25 (9%)
Combination	19 (6.8%)
Body Mass Index	
Underweight	29 (10.4%)
Normal	112 (40.3%)
Overweight	67 (24.1%)
Obese	70 (25.2%)
Menopausal state	
Menopause	59 (21.2%)
Pre- menopause	219 (78.8%)
Medication affecting urination	
Yes	14 (5%)
No	264 (95%)
Hysterectomy	
Yes	2 (0.7%)
No	276 (99.3%)
Family history of urination disturbance	
Yes	14 (5%)
No	264 (95%)

DISCUSSION

From this research we found that conventional method could only screen 17.3% LUTS in the population, contrast to the detailed questionnaire method that obtained LUTS prevalence of 95.3%. Only 48 participants responded to have LUTS in the initial conventional method. The remaining 230 participants declined to have any urination disturbances in the conventional method, while later most of them were positive with LUTS with one or more positive symptom based on the questionnaire method. This could occur because LUTS is possibly not the main reason they presented to the hospital in the first place, but they were instead seeking medical attention for other symptoms. Being unaware of the extensive range of symptoms in LUTS was one of the reason that most of the participants were not aware of the urination disturbances they were experiencing. Hunter et al in a similar study using a questionnaire among older women receiving home support found the prevalence of LUTS to also be high, accounting for up to 91% of all research population.[18] This prevalence was higher from that from the study by Swithinbank et al (69%)[19] and by Zhang et al in an Asian population (39.7%)[20]. This research may not entirely represent the female population in Indonesia, since there was still selection bias due to the fact that it cannot be excluded completely. Further population-based research is needed to refine the LUTS prevalence in Indonesian women. Extended range of prevalence indicates that with the right method, LUTS can be better screened in the population.

Nocturia contributed as the most common symptom indicating LUTS based on the ICIQ-FLUTS questionnaire. Nocturia is defined as the passage of urine overnight, as proposed by the Standardization Committee of The International Continence Society (ICS), with symptoms being the complaint that an individual has to wake at night one or more times to void.[2] Swithinbank et al in 1998 investigated nocturia as one element of LUTS using Bristol Female Lower Urinary Tract Symptom (BFLUTS) that was adopted as ICIQ-FLUTS long form that was also employed in this research. The result was 9% in 19-39 years old population and increasing to 51% in women ≥80 years old. In that study, the definition of nocturia was frequency of voiding at night ≥2 times.[21] This was in contrast with this research where the individual only had to wake up one time at night to void already being classified as having nocturia, and the prevalence increased up to 86.7%. Further analysis revealed that 143 participants (51.4%) had to wake up 0-1 time at night to void, this cuts down the sample that had to wake up ≥2 times at night to void to be 35.4% of all population, still higher than the previous research. Nocturia as a complaint of LUTS was studied and the result that this subjective complaint was comparable with objective data of frequency

and voiding volume of voiding diary, where 82% of all respondents accurately reported nocturia (kappa coefficient 0.70).[22]

The second most prevalent symptom was stress urinary incontinence, affecting 102 participants (36.7%). This data is surprisingly high compared to a previous study from The Asia-Pacific Continence Advisory Board conducted in Indonesia, with the prevalence of urinary incontinence to be 10.6%.[4] The different study objective, population and screening tool was probably the reason for the different prevalence rate. We were also aware that many of the participants were positive not only for one symptom, but also multiple symptoms. This will be an initial data for clinicians to utilize better screening method in the community population, considering so many women suffer from incontinence.

Age distribution in this research is mostly <40 years old. Our sample was not dominated by old women, but there is an equal distribution with the younger population. It was estimated that LUTS also happened in young age, even though many studies stated that the risk of developing LUTS increases with age.[8,9,11,12] Distribution of parity in this research is dominated by the multiparous subgroup (parity 2-4) with vaginal mode of delivery experienced by 47.5% of the samples. Based on other literature, parity is one proven risk factor for incontinence.[1,8,13,14] Nevertheless, a study by Zalina et al confirmed that nulliparous women also showed a high prevalence of LUTS, accounting for 52.7% of all the study population.[23] Also corresponding with previous studies, this research found that most women delivered their babies vaginally. This could explain the high prevalence of stress urinary incontinence among the population.

Compared to several studies documenting increasing risk of incontinence in obese women, this study documented a surprising domination of women with normal BMI (40.3%) in the population, with only 25.2% classified as obese. Obesity was not the only risk factor for LUTS, other conditions also play a role contributing in the development of LUTS.

Estrogen plays an important role in the voiding process, so it was predicted that menopausal state will increase LUTS prevalence in women.[1] This research revealed that 78.8% of our sample is in pre-menopausal state. This could indicate that LUTS also affects pre-menopausal women, especially with other contributing risk factors existing in one individual. This could also represent the possibility of higher LUTS prevalence in a wider, more balanced community consisting of an equal proportion of pre- and post-menopausal women. This will be a good focus for further studies.

Only 2 women had undergone total hysterectomy due to postpartum hemorrhage in caesarean section and due to benign uterine abnormality. Both subjects admitted having symptoms of LUTS. Systematic review by Brown et al[16] concluded that women above 60 years old with hysterectomy operation had 6 times the relative risk to develop urinary incontinence.

A small number of participants (5%) consume regular medication that may affect the urination process. ACE inhibitors, calcium channel inhibitors, and NSAIDs (in this case aspirin) were used for hypertension medication. NSAID utilization will cause water retention; ACE inhibitors will cause coughing that further exacerbates existing stress incontinence. Calcium channel inhibitors have the side effect of overflow incontinence and urinary retention. On the other side, the same amount of participants consumed coffee or alcohol, which caused alteration in urination frequency.

Mushkat et al stated that genetic transmission correlates with incidence of stress urinary incontinence in first stage relatives.[7] In our study, only 5% of all participants claimed having a relative with urination disturbance.

CONCLUSION

Method of screening plays an important role in producing an accurate rate of prevalence. Conventional method lacking information in detailed symptoms, will lead to false LUTS prevalence. Conventional method leads to a LUTS prevalence of 17.3% in the study population, while ICIQ-FLUTS long form, which inquires precise, detailed symptoms of LUTS, produced 95.3% prevalence of LUTS, significantly higher than the conventional method. This data proved that LUTS is a frequent condition among the women included in the study, with the risk factor of multiple vaginal deliveries. Unrecognized symptoms and wrong perception that LUTS is a normal condition that mostly happened in parous and old, aging women were reasons that these women didn't seek for help. This initial research

calls for further population-based research of LUTS in Indonesia. Good screening method will be the first step to recognize any pathology of the lower urinary tract in women, thus later will increase the quality of life of women with LUTS. The ICIQ-FLUTS long form questionnaire is a brief and robust questionnaire that is recommended for use in epidemiological research, as well as routine clinical practice.

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