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Prevalence of bothersome Lower Urinary Tract Symptoms among Pregnant Women in Maiduguri, Northeastern Nigeria

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ABSTRACT
Background: *Lower urinary tract symptoms (LUTS) can occurs in pregnancy with variable presentations. These symptoms are perceived to have negative effect in the quality of life (QoL) in pregnant women. The study aimed to determine the prevalence of Bothersome LUTS in this population using the International Consultation on Incontinence questionnaire English module for female LUTS (ICIQ-FLUTS)*
Materials and Methods: *A descriptive cross sectional study of five hundred pregnant women using the ICI-FLUTS questionnaire. The questionnaires were administered by trained interviewers to consented pregnant women at various trimesters between the age of 17 to 46 years who were attending antenatal care at the university of Maiduguri Teaching Hospital and State Specialist Hospital in Maiduguri, Borno state, Nigeria. Socio-demographic and obstetrics data including the impact of LUTS on the QoL of pregnant women were obtained from the administered questionnaires. The data were analyzed using SPSS version 16.*
Results: *storage phase symptoms (urgency, daytime frequency, nocturia and dysuria) were the commonest lower urinary tract symptoms observed. Nocturia has the highest occurrence among our respondents with a prevalence of 94.2%. Voiding phase symptoms observed were hesitancy and straining. Hesitancy was commoner with 34%. Occurrence of Incontinence in the form of stress (39.2%), urge (31.2%), overflow (11.8%) and enuresis (11.6%) were found among the respondents. Storage phase symptoms were most bothersome. Majority of the LUTS were reported in the first trimester.*
Conclusion: *LUTS in pregnancy was determined in our environment using the ICIQ-FLUTS questionnaire tool. The QoL of these women was negatively affected by bothersome LUTS from early pregnancy. Many of the participants will benefit from medical care if available.*
Keywords: *Lower urinary tract symptoms (LUTS), pregnancy, ICIQ-FLUTS, (International Consultation on Incontinence Questionnaire-Female LUTS).*

Introduction

Lower urinary tract symptoms (LUTS) are common urological conditions that affect both men and women of all ages.[1] These symptoms have been shown to have widespread negative impact; both medically and socially on the quality of life (QoL) of patients.[2] The term LUTS was first introduced in 1994 in order to replace the

term" prostatism" in men and to shift focus from "urinary incontinence" which was traditionally the only lower urinary tract symptoms studied in women.[3] LUTS as defined by the International Continence Society are symptoms due to change in the conditions or disease affecting the urinary bladder and urethra. These are symptoms defined from the subject or patient's perspective as could occur during the filling (storage), voiding (obstructive) and post micturition phase. These symptoms include frequency, nocturia, urgency, urge incontinence, dysuria, Stress urinary incontinence, straining and hesitancy.[1, 4] The prevalence and determinant of LUTS varies between male and female sexes.[1] These variations is also seen among women at different phases of their lives from adolescence through reproductive years to menopause which is chiefly due to the sensitivity and physiological response of the female urogenital tract to sex hormones throughout adult live.[5]

LUTS are among the commonest urological complaints also seen in pregnancy as it is a known fact that the female lower urinary tract undergoes anatomical and functional changes during pregnancy which underlines the pathogenesis of LUTS in pregnancy.[6] The hypotonic effect of progesterone on the lower urinary tract, the upward and anterior displacement of the bladder by the gravid uterus have been linked to the prevalence of LUTS in pregnancy.[5, 6] Anzaku et al reported a prevalence of LUTS in a study of 459 women before pregnancy as 52.9% and a 1.7 fold increase during pregnancy.[2] The study revealed that multi-parity, previous vaginal delivery and obesity are significant risk factors associated with the development of LUTS in pregnancy. For women who have had vaginal deliveries (spontaneous or operative), the risk of LUTS is almost twice than in nulliparous women.[1, 5] The reason can be explained by the stretching of the pelvic floor muscles resulting to anatomical, structural and neuronal damage which can affect intrinsic bladder functions. The relative risk of LUTS in women with caesarian section is reported to be approximately 1.5.[7] Several other risk factors including smoking, diabetes, neurological disease, chronic obstructive airway disease and possibly hereditary factors have been identified. However the genetic influence of LUTS in women is backed by few evidences for epidemiological consideration.[1]

Bothersome LUTS is LUT symptoms in a patient beyond a week. These symptoms are sufficient enough to impact negatively on the physical, social and psychological wellbeing of the patient.[8] Few studies have been conducted to describe bothersome LUTS and the effect in the quality of life (QoL) in pregnant women.[2] A study conducted in Ahmed Bello University Teaching Hospital Zaria, 204 pregnant women reported nocturia as the commonest LUTS.[9]

The management of LUTS in pregnancy is slightly different from non pregnant women and can be quite challenging considering the impacts of treatment on the fetus, mother and labour. Some of these management options include behavioral changes ,electrical nerve stimulation, pelvic muscle training, vaginal sling operations and pharmacological agents such as desmopressin and oxybutynin.[1] It has been shown that despite these safe treatment approaches, only a small percentage of pregnant women seek medical care especially in this environment where pregnant women who develop LUTS symptoms, suffer in silence with the burden of the disease.[9]

The aim of this study was to determine the prevalence of bothersome lower urinary tract symptoms in pregnancy, its negative impact in the quality of life and altitude towards health care in this environment.

Methodology

A descriptive cross sectional study was conducted in the University of Maiduguri Teaching Hospital and the State specialist Hospital, both of them are in Maiduguri, in northeastern Nigeria. A total of 500 consented pregnant women at different trimester who complained of LUTS were screened for the study from 1st January-31stDecember 2014.

The ICIQ-FLUTS (International Consultation on Incontinence Questionnaire-Female LUTS) module in English version was used to collect data from respondents. This was done with the help of trained hospital staff in the antenatal clinics who could speak Kanuri or Hausa language to help respondent understand the contents of the questionnaire and answer appropriately.

The ICIQ-FLUTS is an ideal tool developed in 2002 by the International Consultation on Incontinence (ICI) for evaluating female LUTS and impact in QoL in research and clinical practice. The questionnaire contains 12 question items of LUTS in the three categories of LUTS.

A uniform scoring system of 0-4 grading was used for each of the symptom categories. Each sub scale was designated number from minimum to severity or frequency of symptoms. The Bothersome scale was on a scale of 0-10 to indicate the degree of impact of individual symptoms with 0-not bothered, 1-3slightly bothered,4-7moderately bothered and 8-10 severely bothered. Pregnant women with gestational diabetes, history of previous bladder or pelvic surgery, abnormal labour, drugs for bladder dysfunction and diuretics were excluded from the study.

The ethical clearance for the study was obtained from the Ethical Committee of the University of Maiduguri Teaching Hospital and the State Specialist Hospital. The sample size was calculated using statistical formula $n=z^2p\ (1-p)/d^2$based on proportions for an infinite population with 20% attrition rate and was approximated to 500 respondents.[10] The data collected were analyzed using statistical package of the social sciences (SPSS Inc, version 16, Chicago; Illinois, USA, 2007). Continuous variables were presented as mean+_ standard deviations and categorical variables were presented as percentages.

Results

During the period of the study, 500 pregnant women were respondents to administered questionnaires. The mean age of respondents was 26.37+_ 5.36 while the mean parity was 4.01+_2.27. The highest parity was 11 while nulliparous women were 17(3.4%). Majority of the pregnant women were in their third trimester which was 225, 178 in second trimesters and 97 in third trimester. Vaginal delivery was the commonest mode of delivery among respondents with 81.6% while 13.4% of the pregnant women have had both vaginal and caesarian deliveries. Among pregnant women with vaginal deliveries, 34% have had perineal tear and 33% have had episiotomy in past deliveries. About 41% of the respondents had previous history of prolonged labour and only25% delivered macrosomia babies." The participants responses to the LUT symptom 'nocturia ` defined as voiding one or more times at night is depicted in figure 1 which shows that 94.2% of respondents complained of it. Day time frequency defined as voiding beyond 7times had a prevalence of 51.6% as shown in figure 2. The prevalence of urgency, dysuria and hesitancy can be calculated from table 1 as 72.8%, 77.8% and 34% respectively.

The prevalence rate of genuine urinary incontinence comprises of urge, stress and overflow is found to be 82.2% shown in table 2.Nocturnal enuresis defined as passage of urine during night sleep was present in 58 pregnant women and 175 pregnant women had unexplained leakage of urine during pregnancy. Many of the respondents were bothered about LUTS as shown in table 3. Majority of the respondents with storage symptoms were moderately bothered. While those with voiding and incontinence symptoms were not bothered. As shown in table 4, the type of LUTS experienced in pregnant women varies with the trimester. In this study, nocturia was the commonest symptoms in all trimesters.

Figure 1: Nocturia on respondents.

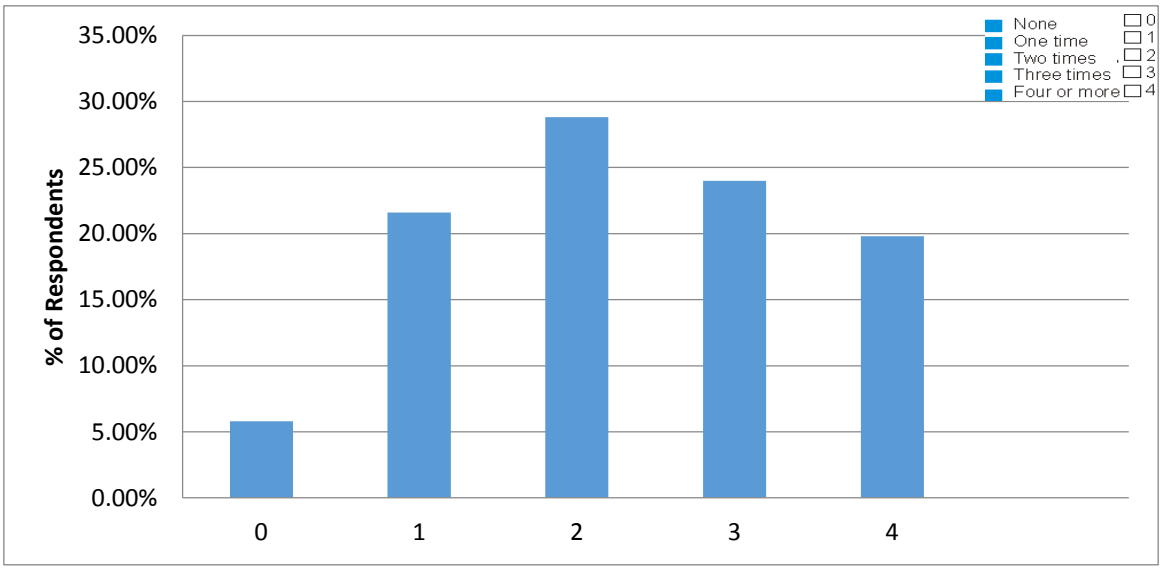

Figure 2: Daytime frequency among respondents.

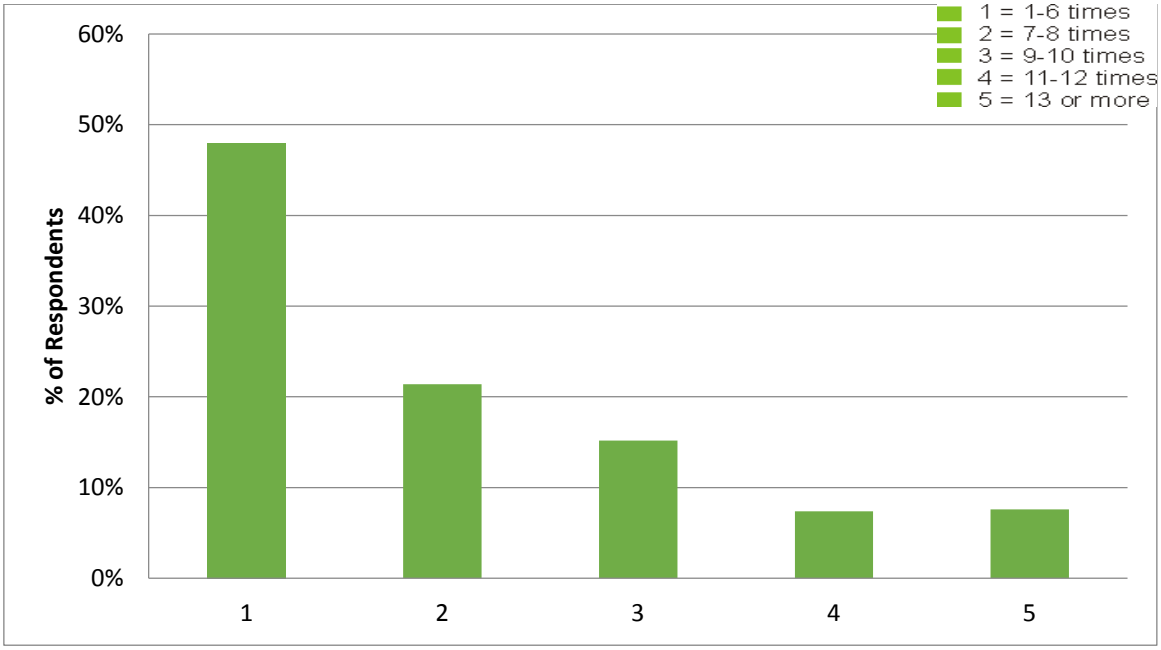

Table 1: Occurrence of urgency, dysuria, hesistancy and straining

Symptom	Never	Occasionally	Some times	Most of the time	All of the time	Total
Urgency	131(26.2%)	130 (26.0%)	119(23.8%)	89(17.8%)	31(5.2%)	500
Dysuria	111 (22.2%)	112 (22.4%)	184(36.8%)	87(17.4%)	6 (1.2%)	500
Hesistancy	407 (81.4%)	40 (8.0%)	37 (7.4%)	14 (2.8%)	2 (0.4%)	500
Straining	418(83.6%)	36(7.2%)	28(5.6%)	16(3.2%)	2(0.4%)	500

Table 2: Types of incontinence and their frequency of Occurrence

Type of incontinence	Never	Occasionally	Some times	Most of the time	All of the time	Total
Stress	303(60.8%)	88 (17.6%)	86(17.2%)	20(4.0%)	2 (0.4)	500
Urge	344(68.8%)	95 (19.0%)	46 (9.2%)	10(2.0%)	5(1.0%)	500
Over flow	441(88.2%)	31 (6.2%)	20 (4.0%)	6 (1.2%)	2(0.4%)	500
Nocturnal enuresis	442(88.4%)	35 (7.0%)	12 (2.4%)	4 0.8%)	7(1.4%)	500
Unexplained leakage	325 (65%)	83 (16.6%)	64(12.8%)	21(4.2%)	7(1.4%)	500

Table 3: Categories of Bothersome

Symptoms	Not bordered	Slightly bordered	Moderately bordered	Severely bordered	Total cases(*n*) *Prevalence(%)*
Storage symptom					
Urgency	48(24.6%)	26(13.4)	77(39.2%)	45 (22.8%)	196(39.2%)
Frequency	8(20.4%)	7(18.4%)	12 (31.4%)	12 (29.8%)	258(51.6%)
Nocturia	106(22.6%)	98(20.8%)	148(31.4%)	119(25.2%)	471(94.2%)
Dysuria	79(20.2%)	58(15.0%)	172 (44.2%)	80(20.6%)	389(77.8%)
Voiding symptom					
Hesistancy	131(77.0%)	18 (10.6%)	16 (9.2%)	5 (3.2%)	170(34%)
Straining	113(75.3%)	20(13.3%)	10(6.6%)	7(4.6%)	150(30%)
Incontinence					
Stress	110(56.2%)	15(7.8%)	27(14.0%)	43(22.0%)	196(39.2%)
Urge	103(66.2%)	13 (8.6%)	18 (11.8%)	21(13.4%)	156(31.2%)
Over flow	50(84.0 %	4 (7.0%)	3 (4.6%)	3(4.4%)	59(11.8%)
Nocturnal enuresis	49(84.2%)	3 (5.4%)	3(4.6%)	3 (5.8%)	58(11.6%)
Unexplained leakage	108 (61.8%)	13 (7.2%)	16 (9.0%)	39(22.0%)	175(35%)

Table 4. Luts Variations With Trimesters

Symptom	Trimester		
	1st *n = 97*	2nd *n = 178*	3rd *n = 225*
Storage phase			
Nocturia	95.8	93.8	93.7
Urgency	88.6	69.10	71.1
Dysuria	81.4	74.15	79.9
Frequency	58.7	45.5	54.2
Voiding phase			
Hesitancy	24.7	12.9	20.4
Straining	18.5	14.0	15.1
Incontinence			
Urge	41.2	28.6	28.8
Stress	56.7	33.7	36.0

Discussion

Storage symptoms were most frequently reported in this study of which nocturia was the commonest with a prevalence of 94.2%. A similar study done in Zaria reported a prevalence of 94.1% based on the same definition of nocturia; asvoiding urine more than one times at night.[9] The prevalence reported by Sum et al and Aslan et al were lower than our study probably due to sample size, but nocturia nonetheless was the commonest LUTS in both studies.[9, 11]

Nocturia expected to be higher in pregnant women by 2-3 fold than non pregnant women was demonstrated in this study.[2] This can be explained by the increased glomerular filtration rate, hormonal and mechanical influences on the lower urinary tract during the course of pregnancy.[2,11]

The variation of nocturia is expected to be higher in the first and third trimesters of pregnancy explained by the reduction in the functional bladder capacity as a result of the effect of the pelvic bound gravid uterus and the descending fetal parts which occur in early and late pregnancy respectively, our study showed nocturia was highest only in the first trimester. However, this normal pattern was demonstrated in the study done by Parboosingh et al with the incidence of nocturia in the first, second and third trimester as 58,57,66 percent respectively.[13] However the difference has no statistical significance.

The day time urinary frequency was the second commonest LUTS in the storage group. Defined as voiding urine beyond seven times in the day, our prevalence was 51.6%), 258 out of 500

respondents. This outcome is higher than the report in Zaria (17.6%) but lower than 74.0% reported among pregnant women in the Netherlands.[7,14] Parboosingh et al demonstrated an increasing trend in the prevalence rate of day time urinary frequency with increasing gestational age which was not replicated in this study.

The prevalence of urinary incontinence in this study was 82.2%. This outcome is higher compared to 26.5% from Zaria study and 43.7% reported by Chaliha et al. However in both studies, stress urinary incontinence was the commonest type of incontinence among pregnant women. The true prevalence of stress urinary incontinence in pregnancy is still unknown.[15] However; stress urinary incontinence was responsible for over one third of cases reported in this study. The prevalence of urgency and urge incontinence in this study were 72.8% and 31.2% respectively with more pregnant women affected in the first trimester in both conditions. Cutner et al also reported 62% of pregnant women with urgency and 18% with urge incontinence. In another study of 519 nulliparous women, 2.2% reported urgency before pregnancy, 22.9% in pregnancy and 7.8% at 12weeks post partum. Urge incontinence was also reported before pregnancy, pregnancy and 12weeks postpartum as 0.5%, 8.0% and 2.2% respectively. The etiology of these symptoms can be explained by detrusor instability and poor bladder compliance seen in pregnancy of which several investigators have suggested is due to elevated circulating progesterone.[15] The prevalence of dysuria in our study is 77.8% with the highest incidence occurring during the first trimester. Hesistancy was the commoner of the two `voiding LUTS in this study with a prevalence of 34% compare to straining with 30%. Similar to the study by Stanton et al, hesitancy was the commonest voidingsymptom experienced, with 27 % of the pregnant women experiencing it in the first 2 trimester's ofpregnancy.[17]

In conclusion, our study has shown that many pregnant women in our environment suffer from LUTS of various degrees and at different phase of pregnancy. All the LUTS peaked during the first trimester as demonstrated in this study. These symptoms negatively affected the QoL of these women right from the first phase of pregnancy and medical care for this trimester is inadequate in our environment. The fate of these pregnant women is to endure these symptoms during the course of pregnancy. Therefore, there is need to create awareness in women and encourage clinicians to evaluate and manage LUTS symptoms and their possible causes to improve the QoL of pregnant women..

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Conflict of interest: No conflict of interest.

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