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Prevalence and Risk Factors for Postpartum Urinary Incontinence Among Postnatal Women in A Tertiary Health Care Centre, North Central Nigeria

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ABSTRACT

Background: Urinary incontinence majorly impacts an individual's quality of life. Though not life-threatening, it imposes a substantial emotional, social, and financial burden not only on the affected person but also on her family members.

Objective: To determine the prevalence and risk factors for urinary incontinence other than vesicovaginal fistula among post-natal clinic women in Jos University Teaching Hospital, Jos.

Methods: It was a descriptive cross-sectional study involving 210 women attending a post-natal clinic in the Jos University Teaching Hospital over six months. Data collection was through an interviewer/self-administered questionnaire, which was sorted, coded, and analyzed using the Statistical Package for Social Sciences (SPSS). Analysis was done using descriptive statistics, into frequencies, Chi-square, and Fisher's exact test at $p<0.05$ significance level.

Results: The mean age of the study participants was 30.10 years. The overall prevalence of post-partum urinary incontinence among the study participants was 57 (27.10%): Stress urinary incontinence constituted 27 (47.37%), urge incontinence constituted 17 (29.82%), while those with mixed incontinence were 13 (22.81%). There were statistically significant relationships between post-partum urinary incontinence and age, religion, marital status, educational status, and occupation ($p=0.001$, 0.010, 0.002, 0.001, and 0.001, respectively)

Conclusion: The study found that urinary incontinence other than vesicovaginal fistula is not uncommon among women during the puerperium, with stress incontinence being the most prevalent. Risk factors associated with it include age, religion, marital status, educational status, occupation, grand multiparity, and obesity. It's important to actively evaluate post-partum women and offer them treatment where the diagnosis is made.

KEYWORDS: Prevalence, Risk Factors, Postpartum, Urinary Incontinence, Postnatal Clinic, Nigeria.

INTRODUCTION

Urinary incontinence has a major impact on the quality of life of affected women.[1] It imposes a substantial emotional, social, and financial burden not only on the life of the affected individuals but also on that of their family members, who often will be left with no option but to dedicate their lives to caring for such individuals. Urinary symptoms are a common presentation among women of childbearing age, and although rarely life-threatening, they have adverse effects on the women's quality of life due to social isolation and the physical and psychological trauma these conditions inflict on the women.[2,3,4]

Due to ignorance and embarrassment, many women suffer for years from urinary incontinence before seeking help, believing the loss of bladder control to be a result of childbirth a normal aging process.[5] Women with urinary incontinence feel highly ashamed and refrain from social activities.[6] It is associated with increased rates and severity of female sexual dysfunction such as impaired body image, fear of coital urinary incontinence, avoidance of sex, decreased desire, satisfaction as well as increased pain.[7] Additionally, untreated urinary incontinence is associated with sleep disturbances, depression, and urinary tract infections in affected women.[8,9,10]

Urinary incontinence has been defined by the Consensus Committee on Pelvic Floor Disorders as the complaint of any involuntary leakage of urine.[11,12] It can be a sign, a symptom, or a condition diagnosed by the examiner.12 The reported incidence of urinary incontinence varies widely across the world ranging from 10-70% of women living in communities;12 6%-72% in institutional surveys.[13]

Before 1979, urinary incontinence was defined by the International Continence Society (ICS) as "the involuntary loss of urine that is of social or hygienic problem and objectively demonstrable.[2] This definition was impracticable for huge epidemiologic studies but was mainly based on interviews and questionnaires.[14] To promote treatment-based symptoms, help in comparison of results, and facilitate effective interaction between investigators, the International Continence Society stated that urinary incontinence should be further described by specifying frequency, severity, risk factors, social and hygienic impact, effect of quality of life and whether or not the individual seeks help.[14] Several types of urinary incontinence can be distinguished but the commonest are Stress urinary incontinence, Urge urinary incontinence, and Mixed urinary incontinence. Others include Over-flow incontinence, bypass incontinence, and functional and transient incontinence.[11,12]

Stress Urinary Incontinence (SUI) is defined as the complaint of involuntary leakage of urine on effort or physical exertion, cough or sneezing, or laughing or dancing.[2,11,12] Normally at rest, intraurethral pressure is greater than the intra-vesical pressure. If the intra-abdominal pressure increases as it does with cough and sneeze, or straining and the pressure is not equally transmitted to the urethral, then continence is not maintained and leakage of urine occurs.[12] In urge urinary incontinence, urine leakage is accompanied or immediately proceeded by urgency. Mixed incontinence occurs when both stress incontinence and urge incontinence occur simultaneously. Patients may present with symptoms of both types of incontinence causing a diagnostic and therapeutic dilemma.[12]

Because maintenance of urinary continence is achieved by numerous factors, urinary continence is not attributable to a single cause or risk factor.[2] Aging, hormonal status, pregnancy, childbirth (Parturition), birth trauma, and genetic differences in tissues are some of the risk factors of urinary incontinence. Others are pelvic surgeries, radiation therapy, chronic constipation, chronic cough pelvic tumors, and obesity.[2,11]

Defining the extent of health care needs in a population is a prerequisite in establishing equitable, accessible, and effective health and preventive services. Therefore, estimating the prevalence and risk factors for urinary incontinence in any setting will help in projecting the level of need for medical and related health services.

Objective: This study aimed to determine the prevalence and risk factors for post-partum urinary incontinence other than from vesicovaginal fistula in the puerperium among women attending post-natal clinic care at Jos University Teaching Hospital Plateau State, North Central Nigeria.

MATERIALS AND METHOD

This was a descriptive cross-sectional study involving 210 women attending a post-natal care clinic in the Jos University Teaching Hospital from May – October 2021. All consenting women attending the post-natal care clinic within their puerperium and within the study period were recruited into the study. The tool for data collection was an interviewer-administered questionnaire consisting of the following information: Socio-demographic characteristics, history of involuntary leakage of urine during the puerperium, and factors associated with involuntary loss of urine.

Data obtained was analyzed using the statistical package for social sciences (SPSS) for Windows, version 23 Version 23.0, Hull, New York, USA. Frequencies were generated and Chi-square was used to explore association with the level of significance set at 0.05.

Sample Size Calculation

The size was calculated using the formula:[15] $n = Z^2p(p-1)$

d^2

Where:

n= desired sample size

z= standard normal deviation, 1.96, which corresponds to a 95% confidence interval

p= prevalence from a similar study which was 14.5%

q= 1-p, ie 0.85

d= degree of accuracy desired, ie 0.05.

n= $(1.96)^2x0.145x0.855 = 190.5$

$(0.05)^2$

Considering a 10% attrition rate,

n= 210

Study Population

The study population comprised women within the puerperium attending the postnatal care clinic at the Jos University Teaching Hospital during the study period.

Inclusion Criteria: Participants were those within the puerperium who had complaints of involuntary leakage of urine and gave consent to be part of the study.

Exclusion Criteria: Women who were diagnosed with vesicovaginal fistula before the study; those below the age of 18 years and those who denied consent.

Ethical Consideration: Approval for this study was obtained from the research and ethical committee of Jos University Teaching Hospital with reference number: JUTH/DCS/IREC/127/XXXI/2956. Permission was obtained from all the staff attending the women and informed consent from the clients after adequate counseling concerning the purpose of the study was also sought for and obtained.

RESULT

Table 1 *(Sociodemographic Characteristics of Study Participants (n = 210))*

Age	n (%)
18-24	43(20.5)
25-29	41(19.5)
30-34	62(29.5)
35-39	48(22.9)
40-44	16(7.6)
Religion	
Islam	95(45.2)
Christianity	115(54.8)
Marital status	
Single	12(5.7)
Married	198(94.3)
Educational status	
None	8(3.8)
Primary	20(9.5)
Secondary	77(36.7)
Tertiary	105(50.0)
Occupation	

Housewife	75(35.7)
Business	46(21.9)
Professional	23(11.0)
Artisan	48(22.9)
Student	16(7.6)
Others	2(1.0)

From Table 1 above, out of the 210 respondents who participated in the study, 43(20.5%) were between the ages 18-24, 41(19.5%) between 25-29 years, 62(29.5%) between 30-34 years, 48(22.9%) between 35-39 years while 16(7.6%) were between 40-44 years. About half (54.8%) were Christians while 45.2% were of Islamic faith. On marital status, an overwhelming majority were married while only 12(5.7%) were single. Exactly half (50.0%) of the participants had tertiary education; However, 8(3.8%) had no formal education. Most of the participants (35.7%) were housewives. The majority of tribes include Hausa/Fulani (44.3%), Yoruba (13.8%) and Igbo (10.0).

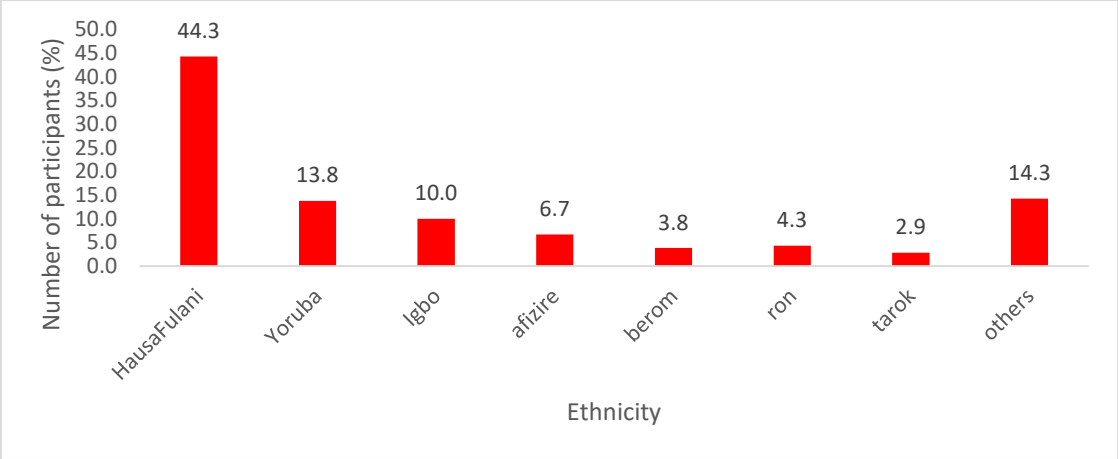

Figure 1 *(Distribution of Study Participants by Ethnicity (n = 210))*

From Figure 1 above, most of the study participants were of Hausa/Fulani ethnicity (44.3%), followed by Yoruba and Igbo constituting 13.8 and 10.0% respectively

Table 2 *(Distribution of Participants by Obstetric History (n = 210))*

Parity	n (%)
Primapara	57(27.1)
Multipara	117(55.7)
Grand multipara	36(17.1)
Booking status	
Booked	188(89.5)
Unbooked	22(10.5)

Mode/type of delivery	
SDV	152(72.4)
Forceps	4(1.9)
Cesarean section	54(25.7)
Gestational age at delivery (weeks)	
34-37	32(15.2)
38-40	144(68.6)
41-42	34(16.2)
Perineum post delivery	
Intact	153(72.9)
Laceration	20(9.5)
Episiotomy	37(17.6)
Place of delivery	
JUTH	156(74.3)
Elsewhere	54(25.7)

From Table 2 above, more than half (55.7%) of the participants were Multipara while 57(27.1%) and 36(17.1%) were Primipara and Grand multipara respectively. The majority of the participants (89.5%) booked for the Antenatal Clinic, while 22(10.5%) did not book. The major mode of delivery was SVD (72.4%). Other modes of delivery included Forceps (1.9%) and Caesarean section (25.7%). On Gestation age, 32(15.2%) had a gestational age of 34-37 weeks, 68.6% had a gestational age of 38-40 weeks and 34(16.2%) had gestational age of 41-42 weeks. On Perimeum post-delivery, It was further discovered that 153(72.9%) participants had Intact Perimeum while 20(9.5%) and 37(17.6%) had Laceration and Episiotomy respectively. Most of the participants booked for clinic in JUTH while 54(25.7%) booked elsewhere.

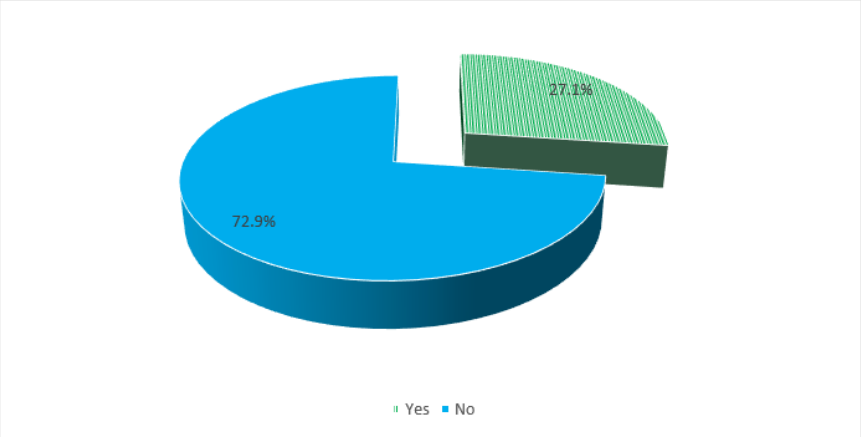

Figure 2 *(Prevalence (%) of Post-Partum Urinary Inconsistence among women attending Post-Natal Clinic in JUTH (n = 210))*

From Figure 2 above, the overall prevalence of Post-Partum Urinary incontinence among the study participants was 57(27.10%). Stress urinary incontinence constituted 27(47.37%), urge incontinence constituted 17 (29.82%) while those with mixed incontinence were 13 (22.81%).

Table 3 *(Persistence and Health-Seeking Behavior of Women with Post-partum Urinary Inconsistence.)*

Variable	n (%)
Did it persist	
Yes	6(10.5)
No	51(89.5)
Total	57(100.0)
Did you seek help	
Yes	1(16.7)
No	5(83.3)
Total	6(100.0)

From Table 3 above 6(10.5%) had persistent post-partum urinary incontinence. Among participants who had persistent post-partum urinary incontinence, only 1(16.7%) sought medical help. This opined that the health-seeking behavior of the participants was inadequate.

Stress urinary incontinence constituted 23.8%, urge incontinence constituted 15.2% and those with mixed incontinence were 13.3%.

Table 4 *(Demographic Predictors of Post-partum Urinary Inconsistence.)*

Demographic variables	Prevalence of post-partum urinary inconsistence			χ^2	P
	Yes n (%)	No n (%)	Total n (%)		
Age				29.757[f]	**0.001***
18-24	2(4.7)	41(95.3)	43(100.0)		
25-29	13(31.7)	28(68.3)	41(100.0)		
30-34	12(19.4)	50(80.6)	62(100.0)		
35-39	20(41.7)	28(58.3)	48(100.0)		
40-44	10(62.5)	6(37.5)	16(100.0)		

Religion				6.559	**0.010***
Islam	34(35.8)	61(64.2)	95(100.0)		
Christianity	23(20.0)	92(80.0)	115(100.0)		
Marital status				10.054	**0.002***
Single	8(66.7)	4(33.3)	12(100.0)		
Married	49(24.7)	149(75.3)	198(100.0)		
Educational status				25.494	**0.001***
None	6(75.0)	2(25.0)	8(100.0)		
Primary	12(60.0)	8(40.0)	20(100.0)		
Secondary	12(15.6)	65(84.4)	77(100.0)		
Tertiary	27(25.7)	78(74.3)	105(100.0)		
Occupation				20.008^{f}	**0.001***
Housewife	32(42.7)	43(57.3)	75(100.0)		
Business	4(8.7)	42(91.3)	46(100.0)		
Professional	5(21.7)	18(78.3)	23(100.0)		
Artisan	10(20.8)	38(79.2)	48(100.0)		
Student	6(37.5)	10(62.5)	16(100.0)		
Others	0(0.0)	2(100.0)	2(100.0)		

f = Fisher's Exact Test; χ2 = Chi-square value; *Statistically Significant

From Table 4 above, the percentage risk of post-partum urinary incontinence increases with age with the highest percentage among the age group 40-44 years (62.5%) this was statistically significant (p=0.001). There were also statistically significant relationships between post-partum urinary incontinence and Religion, marital status educational status, and occupation (p=0.010, 0.002, 0.001, and 0.001 respectively)

Clinical/Obstetric Predictors of Post-Partum Urinary Incontinence

The study further revealed that Grand multipara (55.6%) and multipara (28.2%) respectively, had a higher prevalence of post-partum urinary incontinence compared to Primipara (7.0). This difference was statistically significant (p = 0.001). However, there was no significant association between the prevalence of post-partum urinary incontinence and Booking status (p = 0.988), Mode/type of delivery (p = 0.658), Gestational age (p = 0.348), Perineum post-delivery (p = 0.295) and Place of delivery (p = 0.634) respectively.

Table 5 *(Clinical/Obstetric Predictors of Post-Partum Urinary Incontinence.)*

Variable	Prevalence of post-partum urinary incontinence			χ^2	P
	Yes n (%)	No n (%)	Total n (%)		
Parity				26.437	**0.001***
Primapara	4(7.0)	53(93.0)	57(100.0)		
Multipara	33(28.2)	84(71.8)	117(100.0)		
Grand multipara	20(55.6)	16(44.4)	36(100.0)		
Booking status				0.001	0.988
Booked	51(27.1)	137(72.9)	188(100.0)		
Unbooked	6(27.3)	16(72.7)	22(100.0)		
Mode/type of delivery				1.081^f	0.658
SDV	43(28.3)	109(71.7)	152(100.0)		
Forceps	0(0.0)	4(100.0)	4(100.0)		
Cesarean section	14(25.9)	40(74.1)	54(100.0)		
Gestational age at delivery (weeks)				2.113	0.348
34-37	12(37.5)	20(62.5)	32(100.0)		
38-40	37(25.7)	107(74.3)	144(100.0)		
41-42	8(23.5)	26(76.5)	34(100.0)		
Perineum post delivery				2.442	0.295
Intact	46(30.1)	107(69.9)	153(100.0)		
Laceration	4(20.0)	16(80.0)	20(100.0)		
Episiotory	7(18.9)	30(81.1)	37(100.0)		
Place of delivery				0.227	0.634
JUTH	41(26.3)	115(73.7)	156(100.0)		
Elsewhere	16(29.6)	38(70.4)	54(100.0)		

f = Fisher's Exact Test; χ2 = Chi-square value; *Statistically Significant

Involuntary loss of urine and type of Urinary Inconsistence

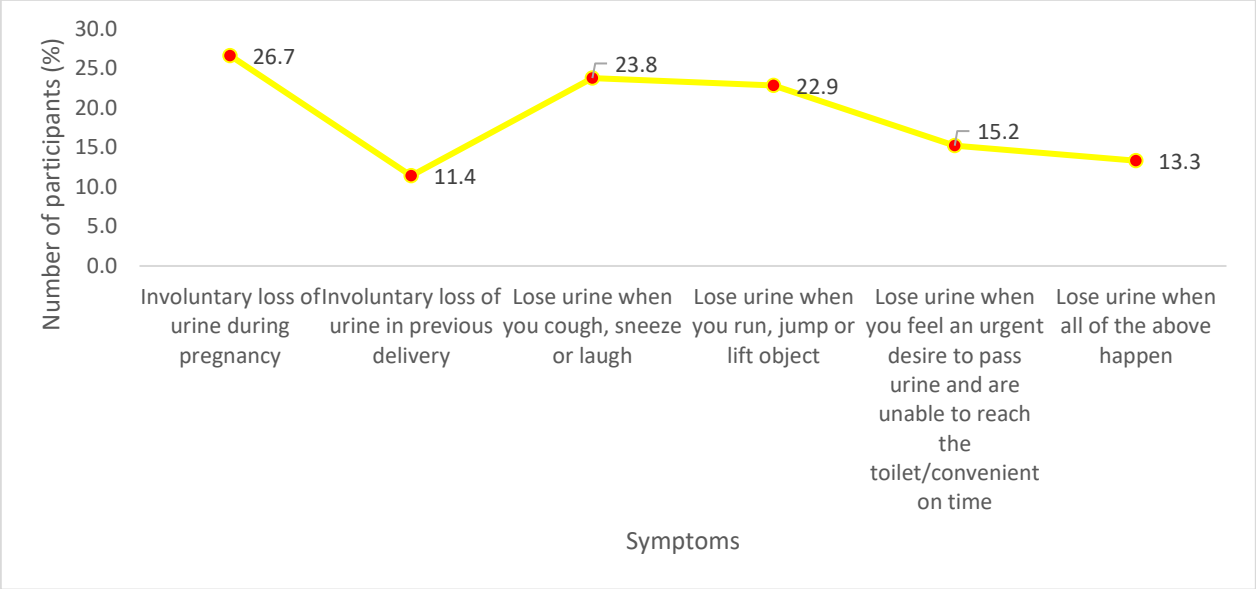

Figure 3 *(Symptoms Associated with Post-Partum Urinary Incontinence (n = 210).)*

DISCUSSION

The socio-demographic characteristics of the 210 participants of this study revealed that about twenty percent were between the ages 18-24, and 25-29 years respectively, a little below 30% between 30-34 years, over 20% were between 35-39 years while less than one-tenth were between 40-44 years, with a mean age of 31.5years. More than half of the respondents were of Christian faith while the remaining were of Islamic faith. On marital status, an overwhelming majority were married while less than 10% were singles. Exactly half of the participants had tertiary education while almost 4% had no formal education. More than 30% of the participants were housewives. Over 40% of them were of Hausa/Fulani ethnicity while 10% were of Yoruba and Igbo ethnicity respectively.

The study observed that the majority of the respondents were multipara. This finding was similar to that in a study conducted on post-partum urinary incontinence at Khon Kaen University Hospital, Thailand,16 but differs from an equal prevalence among primiparous and multiparous women reported in a systematic review.[17] There was a statistically significant association between parity and postpartum urinary incontinence (x2=26.437, p=0.001), in this study which was similar to what was reported in a study in Kano.[2] Ground multiparity and multiparity were risk factors identified from the study to be statistically significantly responsible for causing urinary incontinence in post-partum women. These variations may be due to factors such as the age differences and body mass index of the participants and whether they had an instrumental delivery. Increased age, obesity, and instrumental delivery are all risk factors for post-partum urinary incontinence. This study however did not demonstrate any association between gestational age at delivery and postpartum urinary incontinence (p=0.348), similar to what was reported by Rabiu et al.[2]

The overall prevalence of Post-Partum Urinary incontinence among the study participants was twenty-seven percent of which almost half had stress incontinence, about thirty percent had urge incontinence and a little above 20 percent had mixed incontinence. This prevalence was just a little below the 31% overall prevalence (with subcategories of 54%, 26%, and 16% for stress incontinence, urge incontinence, and mixed incontinence respectively) reported in a systematic review and meta-

analysis,[17] but higher than the 21% and 8% prevalence for stress and urgency incontinence at 1-year postpartum period reported by Jansson and co.18 It was still higher than the 15.2% overall prevalence reported by Rabiu and colleagues among women attending a post-partum clinic in Kano2 and the 16.1% reported by Njoku14 and co in a study done in Calabar. These prevalence rates were however all within the normal range of institutional surveys of 6-72%.[13] Factors responsible for these variations could be the development of stress and urge incontinence during pregnancy which was found to cause stress and urge incontinence respectively during the postpartum period and vaginal delivery was found to be a risk factor only in stress incontinence. Other factors responsible for post-partum stress urinary incontinence reported by Veliyeva and co in a systematic review included at least one of the following: mode of delivery, birth weight, length of the second stage of labor, age, body mass index (BMI), parity, gestational age, fetal head circumference, episiotomy, epidural anesthesia, induction of labor (IOL), or SUI during pregnancy.[19]

The findings in this study revealed that the prevalence of post-partum urinary incontinence increases with increased age, as participants aged 40-44 years had the highest occurrence of postpartum urinary incontinence, (P = 0.001); which was statistically significant. This is however different from the findings in a study done in AKTH on the prevalence of post-partum urinary incontinence among women attending postnatal clinics that showed no statistically significant association between the age groups and urinary incontinence (P = 0.257).[2]

The prevalence of post-partum urinary incontinence was higher in women who had spontaneous vertex delivery compared to those who had other modes of delivery however, this was not statistically significant (P = 0.658). This was different as Chang et al16 reported a statistically significant association between mode of delivery and post-partum urinary incontinence. Factors responsible for these variations may not be unconnected to variations in the sample size and the methodology used.

Furthermore, there were statistically significant relationships between post-partum urinary incontinence and age, religion, marital status, parity, educational status, and occupation (p=0.001, 0.010, 0.002, 0.001, 0.001, and 0.001 respectively). This clearly shows that risk factors for post-partum urinary incontinence include: age, religion, marital status, parity, educational status, and occupation of the parturient.

Limitations of the study

This study was limited by the fact that the sample size was small as such findings may not apply to the general population.

CONCLUSION

Urinary incontinence is not uncommon among women within the post-partum period. It often appears first during pregnancy and may remain in the puerperal period. Risk factors associated with it are grand multiparity and obesity.

Stress urinary incontinence and urge incontinence are the most prevalent among the respondents in the study. Urodynamics studies are required to diagnose true urinary incontinence. Deliberate attempts must be made by healthcare providers to ask questions concerning post-partum urinary incontinence so that appropriate management can be offered.

It was then recommended that a urodynamic study is usually carried out on any woman suspected to have urinary incontinence to make the correct diagnosis; Doctors and midwives should have a good understanding of pelvic floor exercise so that they can apply to parturient in the prevention or treatment of urinary incontinence. Women within 12 months post-partum period should be educated that post-partum urinary incontinence is an abnormality that can be treated and should always seek help whenever they develop such condition.

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