



Toileting Behaviors and Factors Associated with Urinary Incontinence Among Women Attending Primary Health Care Centers in Ile-Ife, Osun State, Nigeria

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Abstract

Background: Toileting behaviors are an important determinant of the health condition of an individual as regarding urinary incontinence. We assess toileting behaviors and factors associated with urinary incontinence among women attending primary health care centers in Ile-Ife.

Methods: This study used a descriptive cross-sectional study design. A multi-stage sampling technique was used. Data was collected using a facilitated interviewer-administered questionnaire to gather information from 249 women who attended the primary health care centers where the study was carried out. Data was analyzed using the International Business Machine (IBM) Statistical Package for Social Sciences (SPSS) version 27. The level of statistical significance was set at 5% (0.05). Data were analyzed using descriptive statistics and Chi-square tests.

Results: The mean age in this study was 31.7 years \pm 2.5. More than half of the respondents 128 (51.4%) were married. The prevalence of urinary incontinence was 140 (56.2%). Majority of the respondents 151 (60.6%) had bad toilet habit while 98 (39.4%) women had good toilet habit. Age ($p \leq 0.05$), marital status ($p \leq 0.05$), religion ($p \leq 0.05$) and toilet habits ($p \leq 0.05$) were found to be significantly associated with urinary incontinence.

Conclusion: The study showed that more than half of the respondents have urinary incontinence and that there is a relationship between toileting behaviors and the occurrence of urinary incontinence. Increasing awareness on the importance of good toileting behaviors among women in Nigeria will curb the menace of urinary incontinence among women.

Keywords: Toilet behavior; Urinary incontinence; Women

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Introduction

The urinary system is an essential component of the human body. Maintaining the general well-being of an individual depends on this system functioning properly. The efficient operation of this system depends heavily on toileting behaviors, which are connected to both the storing and voiding of urine. Selecting the voiding place, time, position, and style are just a few of the voluntary actions that are associated with the physiological emptying of the bladder referred to as toileting behaviors [1]. Urinary incontinence, which is the involuntary loss of urine, has been linked to lower quality of life in persons who experience it, making it a problem of concern for public health [2]. Women have been found to be more likely to change their usual toileting behaviors in response to environmental conditions such as unfamiliar locations, lack of adequate toilet infrastructures as opposed to men [3].

A number of factors have been identified as possible causes of urinary incontinence in women but little attention has been drawn to toileting behaviors been a likely cause. In a study conducted by Stuart et al. 2020, it was noticed that many women avoid the use of public restroom due to issues centered on availability of amenities, cleanliness of the available amenities and privacy [4]. Subsequently, many of them adapt unhealthy toileting behaviors, and as a result, lower urinary tract symptoms like urinary incontinence were developed. Contrary to the various toileting behaviors taught in several parts of the world, women in particular, have been noticed to adopt new ones such as delaying or ignoring the urge to void due to several physical and socio-cultural environmental factors which later result in adaptation of new toileting behaviors becoming a habit in them [5]. Convenience voiding has been adopted by several women as a compensatory method to prevent

episodes of urinary incontinence [6].

Toileting behaviors such as premature voiding have been noticed to be associated with urinary incontinence in previous studies. Evidences show that women who reduce the use of the restroom while at work are more likely to develop lower urinary tract symptoms such as urinary incontinence among others [7]. Newman et al. 2021 also stated that the use of other positions by women apart from the sitting position due to poor restroom sanitation have been equally associated with incontinence [7].

While several studies have been done in other regions on this topic, no studies have been carried out in Ile-Ife, Nigeria on this particular topic. This study aims to fill the knowledge gap that exists in this region on this subject matter. Also, this study aims to further strengthen the claims of existing studies on this subject matter in other regions. It will also help to identify whether the risk factors for urinary incontinence identified in other regions are also applicable in this region. In addition, the findings in this research will inform policies and guidelines aimed at improving toileting behaviors of several women and also further enlighten the general populace on the possibility of toileting behaviors resulting in urinary incontinence.

Study Objectives

This cross-sectional study assessed toileting behaviors and factors associated with urinary incontinence among women attending primary health care centers in Ile-Ife.

Materials and Methods

Study design and setting

This cross-sectional study was carried out at Urban Comprehensive Health Centre Eleyele and Enuwa primary health center. The urban comprehensive health center is part of the Obafemi Awolowo University Teaching Hospitals Complex.

Sample size and sampling technique

Leslie Fischer's formula was used to calculate the sample size. The prevalence of 18.4%, the proportion of respondents with a positive history of dysfunctional toileting behaviors associated with urinary incontinence was used [8]. The level of significance was 0.05. A 10% non-response rate was anticipated. After correcting for 10% non-response, the sample size became 249. A multi-stage sampling technique was used to select the 249 respondents for the study.

In the first stage: Ife central LGA was chosen by simple random sampling out of the two local governments in Ile-Ife.

In the second stage: Two (2) major health facilities were purposively chosen among the health facilities in Ife central LGA because they are major delivery points for healthcare services in the Ile-Ife axis. These health facilities are; Urban Comprehensive Health Centre (UCHC) Eleyele and The Enuwa Primary Health Centre.

In the third stage: A list of women attending the immunization clinic was generated daily in each health facility to form the sampling frame. Women who met the inclusion criteria (Women >18 and women who have no background medical condition associated with urinary incontinence were selected from the list using a simple random sampling method was used to select the respondent from 2 centers. Pregnant women were excluded. One hundred and twenty-five respondents were selected from Enuwa and 124 respondents were selected from Eleyele. All the days for immunization in these centers were used for recruitment. This process was done until the

targeted number of interviews had been obtained which lasted for a period of 3 weeks.

Data sources

This study utilized primary data obtained from eligible respondents using data collection tool.

Data collection and tools

A facilitated interviewer-administered questionnaire was employed in data collection. The questionnaire was designed to meet the objective of the study with questions adapted from a standardized questionnaire used in a study on toileting behavior (the Toileting Behavior-Women's Elimination Behaviors (TB WEB) instrument [9] and urinary tract symptoms among younger women [10] and the Questionnaire for Urinary Incontinence Diagnosis (QUID): Validity and responsiveness to change in women undergoing non-surgical therapies for treatment of stress-predominant urinary incontinence [11]. The study questionnaire is composed of four sections: A, B, C, D.

Section A: To collect data on the sociodemographic characteristic of the respondents (age, date of birth, sex, religion, ethnicity, and marital status).

Section B: To collect data on the toilet behaviors (place preference for voiding, premature voiding, delayed voiding, straining voiding, and position preference for voiding).

Section C: To collect data about urinary incontinence.

Section D: To collect data about lower urinary tract symptoms.

The questionnaires were administered using a Likert scale; Section B has 5 items, Section C has 6 items, Section D has a mix of 4 and 5 items.

Data analysis

Data entry, cleaning and analysis was done by IBM Statistical package for Social Sciences (SPSS) version 27. Categorical variables were analyzed using frequencies and percentages. Associations among related variables were analyzed using Chi-square. Prose, tables and bar charts were used to present results.

Key variables and measurement

The outcome measure was urinary incontinence while the explanatory measures were toileting habits and sociodemographic variables. The toilet behaviors were graded on a 5-point Likert scale ranging from never to always. Of which never, rarely, and neutral were grouped together, while often and always were grouped together. The mean score generated from this group is 32. Those who had below 32 were classified as having poor toileting habits, while those who had more were classified as having good toilet habits. The urinary incontinence was graded on a 6-point Likert scale ranging from none of the time to all of the time. Of which, none of the time stood alone, while rarely, once in a while, often, most of the time, and all of the time were grouped together. The mean score generated from this group was 11. Those who had below 11 were classified as having any urinary incontinence, while those who had more than 11 were classified as having no urinary incontinence.

Ethical considerations

Ethical clearance was obtained from the Research and Ethics Committee of the Institute of Public Health (IPH), Obafemi Awolowo University, Ile-Ife for the entire study. Verbal consent was obtained from the respondents before the interview for the questionnaire was

conducted, and the data were anonymized. The confidentiality of the respondents was assured and maintained during and after the study.

Results

Sociodemographic characteristics of respondents

More than two-thirds of the respondents, 69.9%, were in (30-39 years). About half of the respondents were married and majorities were Christian (51.4% and 77.5%, respectively). Majority were Yoruba (92.3%), and about half (53.4%) had tertiary education (Table 1).

Toilet habits of respondents

Table 2a reveals that on the domain of place of preference for voiding more than two-thirds of the respondents 65.9% always

Table 1: Sociodemographic characteristics of respondents.

Variable	Frequency (n=249)	Percentages (%)
Age		
18-29 years	28	11.2
30-39 years	174	69.9
40-49 years	44	17.7
≥ 50 years	3	1.2
Mean age	31.7 years ± 2.5	
Marital Status		
Single	116	46.6
Married	128	51.4
Others	5	2.0
Religion		
Christian	193	77.5
Muslim	51	20.5
Traditional	5	2.0
Level of Education		
Primary	12	4.8
Secondary	104	41.8
Tertiary	133	53.4
Ethnicity		
Yoruba	231	92.3
Igbo	13	5.2
Hausa	5	2.0

worry about sanity in public toilets. About 48.0% of the respondents always avoid public toilets. About 35% of respondents empty their bladder at home and less than a quarter wait until they get home before emptying their bladder. With regards to premature voiding 17.3% of the respondents always void at home without desire, 5.6% of the respondents always void without desire at work or school. Only a few of the respondents always void without desire in the home of someone else, in a public place and just in case, preventive purpose (4.0%, 4.4% and 11.2% respectively).

Table 2b shows that on the domain of delayed voiding, 16.5% of the respondents always try to delay voiding if they are busy. Only 12.4% of the respondents always restrain the desire to void for as long as possible and 13.7% of the respondents always restrain the desire to void at work or in school. On the straining at voiding domain, only 3.6% of the respondents always strain to initiate the urinating, 3.2% of the respondents always strain during the whole urinating process, while a few of the respondents always strain to empty the bladder completely and to empty the bladder faster (10.8% and 10.0% respectively). In the domain of position reference for voiding, 38.2% of the respondents always prefer to sit down on the seat while voiding, only 8.0% of the respondents always prefer to hover over the toilet while voiding, while 19.3% always prefer to squat on the toilet while voiding. Sixty-one percent (60.6%) of the respondents have bad toilet behavior while 39.4% of the respondents have good toilet behavior.

Factors associated with urinary incontinence

Table 3 reveals that there is a statistically significant relationship between respondents' marital status ($\chi^2=19.008$, $P<0.001$), religion ($\chi^2=8.323$, $P=0.012$) and toilet behavior ($\chi^2=8.424$, $P=0.004$).

Determinants of urinary incontinence

Respondents of that were married were twice likely to have urinary incontinence compared with their single counterparts (Adjusted Odds Ratio [AOR] =1.84, 95%; Confidence Interval [CI] =1.22-1.96; $P=0.016$). Respondents with secondary education were three times more likely to have urinary incontinence compared with respondents that have tertiary education (AOR=3.04, 95% CI, 3.37-3.87; $P=0.031$). Respondents that have poor toilet behavior were twice likely to have urinary incontinence compared with their counterparts with good toilet behavior (AOR=1.77, 95% CI, 1.46-1.91; $P=0.003$) Table 4.

Table 2a: Toilet behavior of respondents.

Variables	Never N (%)	Rarely N (%)	Neutral N (%)	Often N (%)	Always N (%)
Place Preference for Voiding					
I worry about sanity in public toilets					
I avoid public toilets	23 (9.2%)	12 (4.8%)	10 (4.0%)	40 (16.1%)	164 (65.9%)
I empty the bladder at home	36 (14.5%)	29 (11.6%)	24 (9.6%)	72 (28.9%)	88 (35.3%)
I try to wait until I come home	48 (19.3%)	49 (19.7%)	21 (8.4%)	72 (28.9%)	59 (23.7%)
Premature voiding					
I void without desire at home	116 (46.6%)	42 (16.9%)	19 (7.6%)	29 (11.6%)	43 (17.3%)
I void without desire Work/school	142 (57.0%)	40 (16.1%)	33 (13.3%)	20 (8.0%)	14 (5.6%)
I void without desire in the home of someone else	150 (60.2%)	40 (16.1%)	28 (11.2%)	21 (8.4%)	10 (4.0%)
I void without desire in a public place	162 (65.1%)	37 (14.9%)	20 (8.0%)	19 (7.6%)	11 (4.4%)
I void without desire Just in case, preventive purpose	109 (43.8%)	41 (16.5%)	31 (12.4%)	40 (16.1%)	28 (11.2%)

Table 2b: Toilet behavior of respondents.

Variables	Never N (%)	Rarely N (%)	Neutral N (%)	Often N (%)	Always N (%)
Delayed voiding					
Try to delay voiding if I'm busy	47 (18.9%)	55 (22.1%)	32 (12.9%)	74 (29.7%)	41 (16.5%)
Restrain the desire as long as possible	63 (25.3%)	60 (24.1%)	37 (14.9%)	58 (23.3%)	31 (12.4%)
Restrain the desire at work/school	60 (24.1%)	48 (19.3%)	27 (10.8%)	80 (32.1%)	34 (13.7%)
Straining voiding					
To initiate the urinating	179 (71.9%)	27 (10.8%)	19 (7.6%)	15 (6.0%)	9 (3.6%)
During the whole urinating process	186 (74.7%)	27 (10.8%)	21 (8.4%)	7 (2.8%)	8 (3.2%)
To empty the bladder completely	162 (65.1%)	23 (9.2%)	15 (6.0%)	22 (8.8%)	27 (10.8%)
To empty the bladder faster	157 (63.1%)	30 (12.0%)	15 (6.0%)	22 (8.8%)	25 (10.0%)
Position preference for voiding					
Sit down on the seat	93 (37.3%)	19 (7.6%)	12 (4.8%)	30 (12.0%)	95 (38.2%)
Hover over the toilet	143 (57.4%)	40 (16.1%)	15 (6.0%)	31 (12.4%)	20 (8.0%)
Squat on the toilet	123 (49.4%)	21 (8.4%)	24 (9.6%)	33 (13.3%)	48 (19.3%)
Overall toilet habit					
Bad toilet habit	151 (60.6%)				
Good toilet habit	98 (39.4%)				

Table 3: Factors associated with urinary incontinence.

Variables	Urinary incontinence (140)	No Urinary incontinence (109)	χ^2	p-value
Age				
18-39 years	117 (57.9%)	85 (42.1%)	1.246	0.264
≥ 40 years	23 (48.9%)	24 (51.1%)		
Marital Status				
Married	55 (43%)	73 (57%)	19.008	<0.001
Single	81 (69.8%)	35 (30.2%)		
Others	4 (80.0%)	1 (20.0%)		
Religion				
Christian	116 (60.1%)	77 (39.6%)		
Muslim	20 (39.2%)	31 (60.8%)	8.323	0.012
Traditional	4 (80.0%)	1 (20.0%)		
Ethnicity				
Yoruba	130 (56.3%)	101 (43.7%)		
Igbo	7 (53.8%)	6 (46.2%)	0.059	0.971
Hausa	3 (60.0%)	2 (40.0%)		
Level of Education				
Primary	5 (41.7%)	7 (58.3%)		
Secondary	57 (54.8%)	47 (45.2%)	1.435	0.488
Tertiary	78 (58.6%)	55 (41.4)		
Overall toilet behavior				
Bad toilet behavior	96 (63.6%)	55 (36.4%)	8.424	0.004
Good toilet behavior	44 (44.9%)	54 (55.1%)		

Discussion

Few studies have investigated urinary incontinence among women in Nigeria despite indications that urinary incontinence is a public health problem for this population. This current study revealed that more than half of the respondents have urinary incontinence. This

Table 4: Predictors of urinary incontinence among respondents.

Variables	Confidence Interval	Adjusted odds Ratio	p-value
Age			
18-39 years (ref)	1.00		
≥ 40 years	1.53	1.24-1.86	0.672
Marital Status			
Single (ref)	1.00		
Married	1.84	1.22-1.96	0.016
Religion			
Christian (ref)	1.00		
Others	0.23	0.18-0.49	0.084
Ethnicity			
Yoruba (ref)	1.00		
Others	0.14	0.11-0.59	0.052
Level of Education			
Tertiary (ref)	1.00		
Primary	3.04	3.37-3.87	0.031
Secondary	1.81	1.56-1.92	0.011
Overall toilet behavior			
Good toilet behavior (ref)	1.00		
Bad toilet behavior	1.77	1.46-1.91	0.003

is contrary to the findings of a study done among college students in China [12], Portuguese and Netherland which placed the prevalence of urinary incontinence at 23.6%, 19.9% and 20.1% respectively [13-15]. The difference in the prevalence might be due to the differences in study population, study design and data collection methods [16].

In this current study respondents prefer to use toilet at home and two-thirds worry about sanity of the public toilet. This is similar to the findings of a study done among women in United States which revealed that black women preferred to void at home [17]. The preference to void at home might be due to the fact that women are

exposed to suboptimal toileting environment outside their home. Most toilets outside the home are unclean, lack privacy and are unsafe.

In this study about a quarter of the respondents said they strain to initiate during voiding. Also, a quarter said they strain during the whole urinating process, about a third strain to empty bladder completely and also a third strain to empty the bladder faster. All these contribute to the development of urinary incontinence. The optimal way to empty the bladder is to relax the pelvic floor and avoid straining. Position preference for voiding differs across cultures, environments. In Nigeria, most common urinating pattern is the squatting method and it has been associated with a significantly higher maximum flow. In contrast, various position preferences have been adopted across cultures and socioeconomic status, with a section using western-type toilets that encourages sitting, while the other spectrum still makes use of pit latrines to ventilated improved latrines, as they encourage squatting. Less than two-thirds of the respondents sit down on the toilet, less than half hover on the toilet, while about half squat on the toilet. It is of interest to put that women may have different voiding positions based on the sanity of toilet and other factors [17,18].

In our study there is no association between age and urinary incontinence. This is contrary to the findings from previous studies which revealed that there is association between younger age group and urinary incontinence [18,19], this is due to the fact that majority of our respondents were about thirty years and they may not engage in physical activities as the younger age group studied in the previous studies. Regular physical exercise is said to predispose to fatigue the pelvic floor muscles with no evidence of muscle damage, which may be associated with urine leakage [20]. This study revealed that there is association between toilet behavior and urinary incontinence. Previous studies have corroborated these findings revealing that toilet behavior, place preference for voiding, position preference, delayed voiding, straining to void, premature voiding are all associated with urinary incontinence [10,18].

Conclusion

This study revealed that about two thirds of the respondents' engaged in bad toilet behavior and that there is association between toilet behavior and urinary incontinence. Informative sessions on proper toileting techniques and strategies to prevent urinary incontinence should be conducted. Women should be educated on proper toileting techniques. In addition, awareness campaigns to destigmatize urinary incontinence and encourage women to seek help and support should be carried out. Furthermore, facilities, in general, should have clean and accessible toileting facilities, equipped with necessary amenities for women's comfort. Individual or group counseling sessions to address any emotional or psychological concerns related to urinary incontinence should also be provided to women with urinary incontinence.

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