

Prevalence of Non-Fistulous Urinary Incontinence among Nonparturient Women in A Tertiary Hospital

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Abstract

Objective: To determine the prevalence and risk factors of non-fistulous urinary incontinence (UI) among non-parturient women at University College Hospital, Ibadan, Nigeria.

Methods: A hospital based cross sectional study of 500 non-parturient women presenting with non- fistulous gynaecological symptoms at the University College Hospital, Ibadan. An interviewer administered questionnaire was used to obtain information. Data were analyzed using SPSS version 20. Data analysis involved descriptive statistics, bivariate and multivariate analysis to determine the risk factors of urinary incontinence.

Results: Mean age was 36.61 (SD=10.1) years and almost all (83.2%) were married. Prevalence of urinary incontinence is 21.4%. Majority (40.6%) had symptoms of stress urinary incontinence and 8.0% had urge urinary incontinence. Only 19.6% of those who leaked urine in the last one month sought medical attention despite visiting the hospital for other ailment(s), while of those that had ever leaked urine, 13.1% of them ever sought medical attention. Risk factors for UI were age at first delivery (OR=21.21, 95%CI=2.179-206.478), marital status (OR=0.142, 95%CI=0.044-0.454), chronic illness (OR=3.987, 95%CI=2.147-7.405) and history of prolonged labour (OR=3.111, 95%CI=1.584-6.110).

Conclusion: UI is not uncommon in Nigeria. The identified predisposing factors were low age at first delivery, history of prolonged labour and chronic illness. There is need to sensitize women of the symptoms and complications associated with urinary incontinence as well as its prevention and need to seek medical care if they have the symptoms.

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INTRODUCTION

Urinary incontinence (UI) definition changed from 'the involuntary loss of urine that is a social or hygienic problem and is objectively demonstrable' in 1979 to 'the complaint of any involuntary leakage of urine' in 2002. [1,2] The International Continence Society (ICS) defined urinary incontinence as "any form of urine leakage" so as to include the entire population of individuals who have either complained or are currently having urine leakage. [2-4]

Urinary incontinence varies in degree of severity from several drops to complete bladder emptying and may occur daily, many times a day, or only occasionally perhaps once a month. It may be fairly predictable (low-grade stress incontinence) or totally unpredictable (urge incontinence). [5] Urinary incontinence affects women of all ages and is due to the bladder dysfunction, failure of urethral sphincter control or weakness of pelvic floor muscles. [6] The prevalence of UI increases with age, with one-third of women older than age 65 years experiencing some degree of UI. [7] There are different types of UI - stress, urge, mixed, overflow, continuous type (total) and others. [8] A history of urine leakage (generally small amounts) during periods of increased abdominal pressure (laughing, sneezing, coughing, lifting, high-impact physical activity) suggests a diagnosis of stress UI, while urge UI is an urge to urinate but being unable to reach the toilet before leaking or having a strong sudden urge to go to the toilet to urinate with no advance warning and mixed UI symptoms has at least one stress and one urge symptom. [2,9] Numerous factors have been associated with UI including age, pregnancy, childbirth, obesity, depression, diabetes, hypertension, fibroids, hysterectomy, vaginal surgery, chronic cough, high intake of caffeine, drugs. [10-12]

Urinary incontinence is a source of health-related poor quality of life, self esteem and regarded as a disgraceful situation. It is, however, not often disclosed, except when specifically enquired about by the healthcare provider or when it causes social embarrassment. [13,14] UI could lead to physical, social, psychological, sexual and economic problems among women of all age groups. [15] It is also a costly health

concern with its excessive burden more among the older female adults and the health-care system. [9,16]

Many women with urinary incontinence do not seek care for their condition. This is because UI could be of a mild and so they do not feel that treatment of the condition is warranted, others are embarrassed to speak with a health care provider about their condition or fear that treatment will require surgery. [17,18] It is thus against this background that this study is aimed at determining the prevalence of urinary incontinence among non-parturients women presenting with non-fistulous gynaecological complaint(s) at the gynaecology clinic in University College Hospital, Ibadan, Nigeria.

METHODS

A hospital based cross sectional study carried out from October 2016 to March, 2017 at the University College Hospital, Ibadan, a government tertiary health facility. Five hundred consenting non-parturients were recruited during the study period. Data was collected by four trained research assistants using validated questionnaire (Incontinence Questionnaire-Urinary Incontinence-Short Form) which was structured and modified to include five sections: socio-demographics characteristics, obstetrics and gynaecology history, medical history, history and symptoms of UI and impact of UI on their daily activities.

In this study urinary incontinence was defined as involuntary leakage of urine of any form. Stress UI symptoms was defined as a leak or loss of urine caused by sneezing, coughing, exercising, lifting or physical activity, urge UI symptoms was defined as an urge to urinate but being unable to reach the toilet before leaking or having a strong sudden urge to go to the toilet to urinate with no advance warning and mixed UI symptoms was defined as at least one stress and one urge symptom. [2] Data collected was cleaned, entered and analyzed using the IBM SPSS Statistics 20. Bivariate and multivariate analysis was carried out. Logistic regression was used to determine the risk factors of UI among the women. The level of statistical significance was set at $p < 0.05$ and 95% confidence level. Pregnant

women, breastfeeding mothers, women less than 16 years and those who presented with urinary fistula were excluded from the study.

Ethical approval was obtained from the Oyo state ethical review committee and a written informed consent was obtained from each of the participant before administering the questionnaire.

RESULTS

The prevalence of urinary incontinence was 21.4% among the 500 women who participated in the study. Their mean age was 36.61 (SD=10.1) years and a higher proportion 36.8% fall within the 26-35 age category. More than half (67.6%) had tertiary level of education with almost all (83.2%) being married (Table 1).

The mean age at first and last delivery was 20.89 (SD=12.09) and 29.32 (SD =16.52) years

respectively. A little above a quarter (28.6%) of the participants has had two parous experience and 22.8% were nulliparous women. Less than a quarter (22.5%) and 8.5% of the study population had history of prolonged labour and prolonged second stage respectively. Very few of them (13.7%) ever had babies weighing more than 4kg. Only 92 (18.4%) of the study population have a chronic illness with diabetes (52.2%) being the commonest illness type, followed by hypertension (15.2%) (Table 2).

Of the 21.4% of the participants who had ever leaked urine, less than one-fifth (18.8%) leaked urine involuntarily in the last 12 months with/without activities while 9.2% leaked urine in the last one month. Majority (43.5%) leaked about 8 times a week with most of them (30.4%) regularly changing their underwear, 26.1% of them do nothing while others use pant liner and increase their frequency of urination to manage the situation. Only 19.6% of the 46 women that leaked in

Table 1: Participants Demographics

VARIABLES	FREQUENCY(n=500)	PERCENT
AGE		
16-25	65	13.0
26-35	184	36.8
36-45	159	31.8
46 and above	62	18.4
LEVEL OF EDUCATION		
Primary	32	6.4
Secondary	130	26.0
Tertiary	338	67.6
MARITAL STATUS		
Single	58	11.6
Married	416	83.2
Divorced	3	0.6
Separated	10	2.0
Widowed	13	2.6

Table 2: Medical and Obstetric History

Variable	Frequency	Percent
Parity		
0	114	22.8
1	118	23.6
2	143	28.6
3	83	16.6
4	34	6.8
5	4	0.8
6	4	0.8
AGE AT FIRST DELIVERY (years)*		
<20	22	5.7
20-24	87	22.5
25-29	156	40.4
30-34	96	24.9
≥35	25	6.5
Mean 20.89 (SD=12.09)		
AGE AT LAST DELIVERY (years)**		
<25	8	2.7
25-34	182	61.7
≥35	105	35.6
Mean 29.32 (SD =16.52)		
Mode of delivery of first pregnancy*		
SVD	253	65.5
CS	104	26.9
AVD	29	7.5
Mode of delivery of second pregnancy (n=268)		
SVD		
CS	175	65.3
AVD	79	29.5
	14	5.2
Mode of delivery of third pregnancy (n=121)		
SVD		
CS	91	75.2
AVD	23	19
	7	5.8
Mode of delivery of fourth pregnancy (n=37)		
SVD		
CS	23	62.2
AVD	10	27
	4	10.8

Had history of prolonged labour?*		
Yes	87	22.5
No	299	77.5
Prolonged second stage*		
Yes	33	8.5
No	353	91.5
Ever had a \geq 4kg baby?*		
Yes	53	13.7
No	353	86.3
ANY CHRONIC ILLNESS?		
Yes	92	18.4
No	408	81.6
ILLNESS TYPE		
Diabetes	48	52.2
Thyroid disorder	1	1.1
Neurological illness	1	1.1
Hypertension	14	15.2
Depression	6	6.5
Peptic Ulcer Disease	5	5.4
HIV infection	9	9.8
Fibroid	7	7.6
Hepatitis B	1	1.1

*n=386, **n=295; SVD- "Spontaneous vaginal delivery", CS- "Caesarean section", AVD-"Assisted vaginal delivery", HIV-"Human immunodeficiency virus"

the last one month sought medical attention, while of the overall population that ever leaked; only 13.1% ever sought medical attention (Table 3).

Among those who leaked in the last one month, majority experience leakage when they laugh, cough suddenly and sneeze 10.2%, 8.6% and 8.0% respectively (Figure 1).

A few (11.2%) of the participants are aware of anyone with UI, about one-quarter had heard of SUI, 20.6% has heard of UUI while 15.8% has heard of mixed incontinence (Figure 2).

In this study, the identified factors predisposing participants to UI are age ($p=0.021$), parity ($p<0.001$), marital status ($p<0.001$), having a chronic illness ($p<0.001$), age at first delivery ($p=0.031$), history of

Table 3: Symptoms and Management of Ui among the Study Population

Variable	Frequency	Percent
Ever involuntarily leaked urine?		
Yes	107	21.4
No	393	78.6
Ever leaked urine involuntarily in the last 12 months with/without activities?		
Yes	94	18.8
No	406	81.2
Have you involuntarily leaked urine in the last one month?		
Yes	46	9.2
No	454	90.8
How often do you leak urine involuntarily?		
Everyday	6	13.0
Few (1-3) days in a week	12	26.1
About 8 times a week	20	43.5
About 12 times a week	8	17.4
Managing the situation		
Use of pant liner	10	21.7
Regular change of underwear	14	30.4
Increase in frequency of urination	10	21.7
Nothing	12	26.1
Ever sought medical attention in the last one month?		
Yes	9	19.6
No	37	80.4
Ever sought medical attention at all?		
Yes	14	13.1
No	93	86.9

prolonged labour ($p < 0.001$), history of prolonged second stage ($p < 0.001$), delivery of ≥ 4 kg weight baby ($p = 0.048$) and menopause ($p = 0.022$) (Table 4).

Women who had their first delivery within 20-24 years of age were about 21 times likely than those of them whose age at first delivery is ≥ 35 years to develop UI (OR=21.21, 95%CI=2.179-206.478), women whose age at first delivery is within 25-29 years age category were 13 times more likely to have UI than those ≥ 35 years of age (OR=13.16, 95%CI=1.444-119.999) while those of them whose age at first delivery is from 30-34

years were 11 times likely than those ≥ 35 years of age to develop UI (OR=11.41, 95%CI=1.203-108.155). Also, nulliparous women were 7 times more likely to develop UI. Participants who reported having chronic illness had about 4 times chances to develop UI compared to those without chronic illness (OR=3.987, 95%CI=2.147-7.405). The women who had history of prolonged labour were 3 times likely than those with no history of prolonged labour to develop UI (OR=3.111, 95%CI=1.584-6.110) (Table 5).

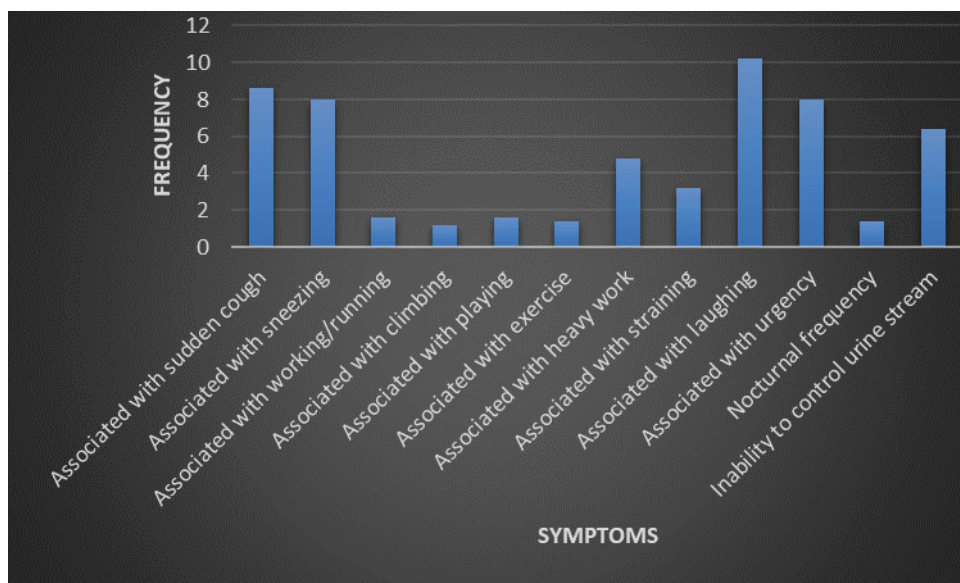


Figure 1: Symptoms of UI among participants that leaked in the last one month

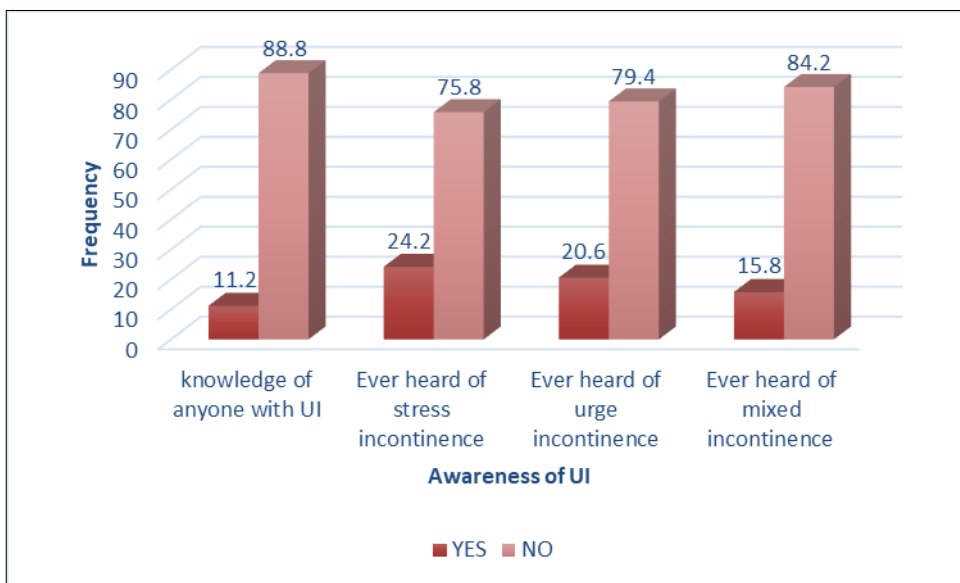


Figure 2: Participants' general knowledge of UI

Table 4: Bivariate Analysis of Factors Predisposing Participants to Ui

Variables	Ever leaked urine before?		Total	Chi square	P-value
	Yes	No			
Age					
16-25	6 (5.6)	59 (15.0)	65(13.0)	9.69	0.021
26-35	37 (34.6)	147(37.4)	184(36.8)		
36-45	37 (34.6)	122(31.0)	159(31.8)		
≥45	27 (25.2)	65 (16.5)	92 (18.4)		
Educational status					
Primary	15 (14.0)	17 (4.3)	32 (6.4)	13.94	0.001
Secondary	29 (27.1)	101(25.7)	130(26.0)		
Tertiary	63 (58.9)	275(70.0)	338(67.6)		
Occupation					
Skilled	46 (43.0)	170(43.3)	216(43.2)	0.41	0.814
Semi-skilled	31 (29.0)	123(31.3)	154(30.8)		
Unskilled	30 (28.0)	100(25.4)	130(26.0)		
Marital status					
Single	9 (8.4)	49 (12.5)	58 (11.6)	17.83	<0.001
Married	84 (78.5)	332(84.5)	416(83.2)		
others	14 (13.1)	12 (3.1)	26 (5.2)		
Do you have any chronic illness?					
Yes	44 (41.1)	48 (12.2)	92 (18.4)	46.809	<0.001
No	63 (58.9)	345(87.8)	408(81.6)		
Age at first delivery					
<20	4 (4.5)	18 (6.1)	22 (5.7)	10.67	0.031*
20-24	27 (30.3)	60(20.2)	87(22.5)		
25-29	40 (44.9)	116(39.1)	156(40.4)		
30-34	17 (19.1)	79 (26.6)	96 (24.9)		
≥35	1 (1.1)	24 (8.1)	25 (6.5)		
Age at last delivery					
<25	4 (5.3)	4 (1.8)	8 (2.7)	2.67	0.264
25-34	47 (61.8)	135(61.6)	182(61.7)		
≥35	25 (32.9)	80 (36.5)	105(35.6)		
Parity					
0	16 (15.0)	98 (24.9)	114(22.8)	17.97	<0.001
1	19 (17.8)	99 (25.2)	118(23.6)		
2-3	54 (50.5)	172(43.8)	226(45.2)		
≥ 4	18(16.8)	24(6.1)	42(8.4)		
Mode of delivery (1)					
SVD	55 (61.8)	198(66.7)	253(65.5)	2.38	0.304
CS	24 (27.0)	80 (26.9)	104(26.9)		
AVD	10 (11.2)	19 (6.4)	19 (7.5)		

Mode of delivery (2)					
SVD	40 (58.8)	135(67.5)	175(65.3)	5.13	0.077
CS	21 (30.9)	58 (20.9)	79 (29.5)		
AVD	7 (10.3)	7 (3.5)	14 (5.2)		
Mode of delivery (3)					
SVD	24 (70.6)	67 (77.0)	91 (75.2)	3.1	0.212
CS	6 (17.6)	17 (19.5)	23 (19.0)		
AVD	4 (11.8)	3 (3.4)	7 (5.8)		
Mode of delivery (4)					
SVD	9 (64.3)	14 (60.9)	23 (62.3)	3.72	0.156
CS	2 (14.3)	8 (34.8)	10 (27.0)		
AVD	3 (21.4)	1 (4.3)	4 (10.8)		
History of prolonged labour					
Yes	40 (44.0)	47 (15.9)	87 (22.5)	31.28	<0.001
No	51 (56.0)	248(84.1)	299(77.5)		
History of prolonged second phase					
Yes	19 (21.1)	14 (4.7)	33 (8.5)	23.69	<0.001
No	71 (78.9)	282(95.3)	353(91.5)		
Baby weight >4kg					
Yes	18 (20.0)	35 (11.8)	53 (13.7)	3.89	0.048
No	72 (80.0)	261(88.2)	333(86.3)		
Menopause					
Yes	22 (20.6)	47 (12.0)	69 (13.8)	5.23	0.022
No	85 (79.4)	346(88.0)	431(86.2)		

*=Fisher's exact; ***SVD- Spontaneous vaginal delivery; CS- Caesarean section; AVD-Assisted vaginal delivery

Discussion

This was a hospital-based cross sectional study aimed at determining the prevalence, risk factors and find out the health seeking behaviour of women with UI.

The prevalence of UI observed in this study falls within the range of 2.8% to 38.1% reported among non-pregnant women in previous Nigerian studies. [13,18,19] However, higher rate have been documented in other countries Turkey (44.6%), France (44%), Germany (41%) United Kingdom (42%) and United states (53.4%). [6,20,21] This difference might be due to the difference in the study population, location and sample size.

Interestingly, age at first delivery was a risk factor of UI, the younger the women were at first delivery, the more likely they were to develop the condition. This might be due to the increased pressure that has been exerted on the pelvic floor muscles each time of delivery causing weakness of the pelvic support structures [22] because the earlier a woman starts her reproductive career the more likely chance that she will have many children especially in Nigeria where there is high unmet need of family planning.

In addition, prolonged labour was associated with UI and this corroborated previous studies in Nigeria, this is not unexpected because prolonged labour and prolonged second stage of labour causes damage the pelvic support structures due to pressure been exerted on the pelvic floor for a long period and predisposes to UI. [18,22,23] This is also not surprising because about 60% of deliveries in Nigeria are at home, or by unskilled personnel, [24] which causes several complications of labour including injuries to the bladder and urethra.

In this study, chronic illness was associated with UI and majority of the women have either diabetic or hypertensive. This is not a new finding because the disease or the medication for its treatment could trigger a high urinary frequency and having any of these illnesses was also one of the factors identified to predispose to UI by Ojengbede et al, [19] Sensoy et al, [20] and Erikson et al [25].

The health seeking behaviour of the women

with UI is poor in that less than one-fifth of the incontinent women sought medical attention with majority stating that the reason they did not seek medical attention is because UI is not life threatening. This is also reported in different studies. [4,18,19,26] Other reasons are because they are ashamed of the condition, do not believe that treatment is available or afraid of the complications of the treatment despite been attended to by a doctor from whom they can seek help and clarify their fears. On the other hand, when comparing this study with other studies on UI in the same geopolitical zone in Nigeria, there is a little improvement in the number of women that sought medical attention because none of the women in those studies sought for medical intervention. [13,27] Severity of the symptoms is one of the reasons identified in previous studies as why women seek out for medical attention, conversely in this study majority of the women who leaked urine did so about 8 times a week. [26,27]

A higher proportion of the study participant reported symptoms of stress UI which is comparable to other studies, [6,19, 27,28] however the study by Ojengbede et al reported a higher proportion (13.7%) of women with urge incontinence in the same environment. [19]

Remarkably, mode of delivery and education were not causal factors of UI in this study, although it was observed that majority of those with UI had increased parity and vaginal delivery. Similar trend was also revealed in earlier studies, [19,25] though, in the study by Ojengbede et al mode of delivery was associated with developing UI. [19] Additionally, it has been documented that the association of UI with childbirth and parity decrease with age. [6,25]

The interpreting of the results of this study must be considered with the limitations. In this study incontinence was defined by self-report by the participants using questionnaires. Urodynamic and clinical evaluation was not done to confirm and characterize the presence or type of incontinence and evidence has shown there could be some wrong diagnosis using only self-report symptoms of urinary incontinence. [29] However, standard questionnaire (Incontinence Questionnaire-Urinary Incontinence-Short Form) which has been shown to be highly reliable in

Table 5: Logistic Regression Analysis of The Determinants of Ui Among the Participants.

Factors	Odds Ratio	95% CI	P-Value
Age			
16-25	0.369	0.030-4.517	0.436
26-35	1.734	0.574-5.239	0.329
36-45	1.988	0.665-5.942	0.219
≥45 (Ref)	-	-	-
Age at first delivery			
<20	11.89	0.764-185.074	0.077
20-24	21.21	2.179-206.478	0.009
25-29	13.16	1.444-119.999	0.022
30-34	11.41	1.203-108.155	0.034
≥35 (Ref)	-	-	-
Parity			
0	7.23	1.540-34.442	0.012
Para 1	2.57	0.856-7.730	0.092
Para 2-3	1.87	0.671-5.204	0.232
Para ≥4 (ref)	-	-	-
Marital status			
Single	0.208	0.021-2.041	0.178
Married	0.142	0.044-0.454	0.001
others (Ref)	-	-	-

Educational status			
Primary	1.35	0.426-4.275	0.61
Secondary	1.226	0.617-2.436	0.561
Tertiary (Ref)	-	-	-
Do you have any chronic illness?			
Yes	3.987	2.147-7.405	<0.001
No (Ref)	-	-	-
Baby weight >4kg			
Yes	1.344	0.643-2.811	0.431
No (Ref)	-	-	-
Menopause			
Yes	1.361	0.448-4.132	0.578
No (Ref)	-	-	-
History of prolonged labour			
Yes	3.111	1.584-6.110	0.001
No (Ref)	-	-	-
History of prolonged second phase			
Yes	2.415	0.918-6.954	0.074
No (Ref)	-	-	-

determining UI and correlate with urodynamic report and classification was used thus the study is reliable and reproducible. [30] Furthermore, even though, this study identified the predisposing/risk factors for UI in the study population, it did not predict the aetiology of the UI which is important in the prevention and treatment of the condition.

Conclusion

UI, a condition of public health importance is not uncommon in Nigeria with low age at first delivery, history of prolonged labour and chronic illness identified as predisposing factors. However, most of these women did not report their symptoms despite being attended to by a gynaecologist. There is need to sensitize women of the symptoms and complications associated with urinary incontinence as well as its prevention and need to seek medical care if they have urinary leakage.

Conflict of Interest

None declared.

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