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Prevalence of Urinary Incontinence Among Hospital Based and Community Dwelling Women: A Survey

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Abstract:

Objective: The aim of this study was to determine the prevalence of urinary incontinence (UI) among hospital based patients and community dwelling women.

Material and Methods: This prevalence survey was conducted with 334 respondents, using the Medical Epidemiological and Social Aspects of Aging and Incontinence Severity Index questionnaire.

Results: UI was highly prevalent in hospital patients; 34.1% (n=57) compared to community dwelling women; 10.2% (n=17). This study's findings determined a significant association of age along with the severity of UI among hospital based women, considering a p-value=0.030. In addition, this study illustrated a substantial association of musculo-skeletal conditions along with the severity of UI among hospital based women considering a p-value=0.018. Consequently, there was a significant association of musculo-skeletal conditions along with the severity of UI in community dwelling women (p-value=0.040).

Conclusion: Hospital based patients with musculoskeletal conditions predominantly suffered with UI more so than the community dwelling women. Further studies should be conducted to establish the reasons for the difference in ratios of UI among hospital based and community dwelling women.

Keywords: community dwelling women, musculo-skeletal conditions, prevalence, urinary incontinence

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Introduction

Urinary incontinence (UI) is defined as an involuntary loss of urine. There are several types of UI, which include: stress urinary incontinence (SUI), urgency urinary incontinence (UUI) and mixed urinary incontinence (MUI).[1] SUI can be defined as an involuntary leakage of urine, upon coughing, laughing, sneezing and high velocity movements.[2] Furthermore, UUI can be defined as the involuntary leakage of urine associated with urgency; whereas, MUI is the involuntary leakage of urine associated with urgency coupled with high velocity movements, physical effort, sneezing, coughing or laugh-ing.[2] Studies have suggested that about 50.0% women younger than 65 years are suffering with SUI. However, about 10.0% of women suffer urgency incontinence, and 30.0% of women endure MUI, respectively.[3] UI is a common female dysfunction, affecting women of all ages.[4]

This present study was conducted as part of the academic activity of Doctor of Philosophy in Biomedical Science (Ph.D.) program to determine the prominent target population within the researcher's area of interest. There are special treatment groups for women seeking treatment for several musculoskeletal conditions at the Centre for the Rehabilitation of the Paralysed (CRP), Bangladesh. Musculo-skeletal conditions include: low back pain (LBP), osteoarthritis (OA) and peripheral joint pain. LBP and OA, which are most common conditions causing mobility limitation. A previous survey reported that 47.0% OA patients reported difficulty in controlling their urine.[5] Another study conveyed that people who suffer from OA are significantly at 1.5 time higher risk of UI.[6] This study suggested that the side effects of the disease itself, or medications taken might cause this problem. On the other hand, another previous study reported that 77.5% LBP women suffered with LBP. That study reported that LBP increased the risk of UI 3 times more among parous women.[4]

This present study was conducted as part of the academic activity Ph.D. program to determine the foremost target population within the researcher's area of interest: "UI". There are special treatment groups for women seeking treatment for several musculoskeletal conditions at the CRP, Bangladesh. However, the ratio of UI among the different musculo-skeletal conditioned women, who come to the CRP, has not yet been determined. Furthermore, the difference in prevalence rates among hospital based and community dwelling women in Bangladesh has not been affirmed. Hence, the aim of this study was to find out the prevalence and symptom severity of UI among both hospital based and community dwelling women. Consequently, the findings of the study would be beneficial for the researcher to determine the most vulnerable group of the population (target group) suffering with UI.

Material and Methods

A prevalence survey was conducted, by using a purposive sampling method considered for both the hospital based and community dwelling respondents. Data were collected from; April 2019 to October 2019. The inclusion criteria considered women with an age between 18-60 years, married women and those willing to participate.

This present study excluded patients who were pregnant or in their post-partum period, had urinary tract infectionsor pelvic floor surgery, had complete or incomplete spinal cord lesions and mentally retardate patients.For the conduction of this research, ethical permission was obtained from the ethical review committee of the Research Monitoring and Evaluation department of the CRP.

In total, four volunteer students administered the data collection from two groups of respondents. Face to face interviews were carried out for both the hospital based and community dwelling women, ensuring written inform consent form was obtained for both groups, and using

the Bengali version of Medical epidemiological and Social Aspects of Aging (MESA) questionnaire. The severity of UI was measured by the Incontinence Severity Index (ISI) questionnaire.[7–10]

The MESA questionnaire is a communication tool designed to help patients with UI, and for health care providers to reflect on the correct diagnosis of the type of UI. The MESA questionnaire is used to measure the duration, type, frequency, amount and severity of UI. In addition, this questionnaire is able to establish the respondents knowledge and awareness concerning their incontinence and health seeking behavior. Furthermore, the questionnaire also helps to determine the treatment or intervention received by the patients. In addition, the ISI is a two- item- questionnaire, which is used to measure frequency and volume of leakage. The first item is frequency of UI; whereas, the second item measures the volume of UI. The value of the scale is considered for 1 to 12 items, resulting from an eight level multiplicative score. The severity of UI is expressed as "slight" considering the score scores of 1 and 2, "moderate" taking into account scores of 3, 4, and 6, "severe" in view of scores being 8 and 9, or "very severe" considering a score of 12.[8]

As this study's aim was to measure the ratio of UI of hospital based and community dwelling women, this questionnaire was better suited to measure which group of respondents were predominant to suffer from UI. Consequently, the findings would make it possible to determine the target group population for the Ph.D. thesis.

Sample size was estimated by using the formula considering the prevalence of UI among the LBP women, as per the previous study by Nipa et al[11]. Sample size was determined through the following formula:

$$n = \left\{ \frac{z\left(1-\frac{\alpha}{2}\right)}{d} \right\}^2 \times pq$$

$$z\left(1-\frac{\alpha}{2}\right)=1.96$$

P=0.684 (Here, p=prevalence and p=68.4%)[11]

q=1–p

=1–0.68

=0.32

d=0.05

The calculated sample size is 334 women.

n=sample size, z=standard score, α=acceptable probability of type I error, d=acceptable amount of sampling error, pq=proportion of population elements, P=representative sample from population

Data were analyzed mostly in terms of descriptive statistics and chi-square test, so as to determine the correlation between the variables and the level of significance when the p-value≤0.050.

Results

The hypothesis of the study was; the prevalence of UI would be higher among the hospital based musculoskeletal patients than the community dwelling women. The survey was conducted among 334 respondents of the CRP hospital and within the community. The study included 167 respondents from the hospital, and 167 respondents from the residential area of Savar, Talbagh. The mean age of the respondents from the hospital was 40.88 years; S.D.±10.37; whereas, mean age of the respondents from the community was 31.70; S.D.±9.96. The socio-demographic status of the respondents is presented in Table 1.

Among the respondents (n=167), who came to the outpatient unit of the CRP, the majority of them were suffering with lower back pain (58.1%; n=97); whereas, only 10.8% (n=18) were suffering with neck pain and 9.6% (n=16) were suffering with osteoarthritis of the knee joint, in that order. On the other hand, among the respondents of the community (n=167), about 18.0% (n=30) women were

Table 1 Socio-demographic status of the respondents

Characteristics	Hospital patient Number (%)	Community patients' Number (%)
Occupation		
Housewife	130 (77.8)	124 (74.3)
Service holder	20 (12.0)	13 (7.8)
Teacher	8 (4.8)	4 (2.4)
Student	2 (1.2)	22 (13.2)
Garment worker	5 (3.0)	1 (0.6)
Other	2 (1.2)	3 (1.8)
Living place		
Urban	54 (32.3)	61 (36.5)
Rural	66 (39.5)	78 (46.7)
Semi-urban	47 (28.1)	28 (16.8)
Educational status		
Illiterate	14 (8.4)	27 (16.2)
Primary	45 (26.9)	28 (16.8)
Secondary	53 (31.7)	43 (25.7)
SSC pass	13 (7.8)	25 (15.0)
HSC pass	13 (7.8)	17 (10.2)
Honors	17 (10.2)	17 (10.2)
Post graduate	12 (7.2)	10 (6.0)

SSC=Secondary School Certificate, HSC=Higher Secondary Certificate

suffering with lower back pain; whilst, only 9.0% (n=18) and 6.0% (n=10) were suffering with neck pain and multiple joint pain, respectively. Prevalence of UI among hospital based and community dwelling women was 34.1% and 10.2%, respectively. Among the respondents the majority of them were suffering with SUI (56.1% and 64.7%). In addition, 35.1% of respondents of the hospital based women and 35.3% of community dwelling women were suffering with MUI; however, only 8.8% of hospital patients were suffering with UUI.

Among the respondents, who came to the hospital for different musculoskeletal conditions with UI, their mean score of severity of UI; measured by the ISI questionnaire, was 4.33; (S.D.)±2.97. Meanwhile, the mean severity of UI among the community dwelling women was 2.93; (S.D.)±0.77. The percentage in severity of both the ISI score and MESA scores among hospital based and community dwelling women is shown in Table 2. The study demonstrated a significant correlation of age compared to severity of UI

Table 2 Severity of urinary incontinence among hospital based and community Dwelling Women

Urinary incontinence	Hospital patient Number (%)	Community patient Number (%)
Severity of urinary incontinence (ISI) score		
Moderate (3-6)	22 (38.6)	10 (62.5)
Severe (8-9)	8 (14.0)	1 (6.3)
Very severe (12)	3 (5.3)	1 (6.3)
Severity of urinary incontinence (MESA) score		
Frequency		
Less than once in a month	11 (19.3)	1 (5.9)
A few times in a month	21 (36.8)	11 (64.7)
A few times in a week	11 (19.3)	5 (29.4)
Every day/every night	14 (24.7)	-
Amount of urine loss		
a few drops to less than ½ teaspoon	37 (64.9)	3 (17.6)
½ teaspoon to less than 2 tablespoons	12 (21.1)	9 (52.9)
2 tablespoons to ½ cup	2 (3.5)	4 (23.5)
½ cup or more	6 (10.5)	1 (5.9)

ISI=Incontinence Severity Index, MESA=Medical epidemiological and Social Aspects of Aging

among hospital based patients p-value=0.030. In addition, the findings of the study revealed a significant association between the musculo-skeletal conditions and the severity of UI among both hospital based p-value=0.010 and community dwelling women p-value=0.040, respectively, which is highlighted in Table 3.

Discussion

The findings of this study affirmed that, the prevalence of UI among hospital based women was higher (hospital patient=34.1%; community dwelling women=10.2%) than community dwelling women. The findings of this present study support the findings of the previous study, which stated the prevalence of UI among community patients varied from 2.0-58.0%[12,13] whereas, the prevalence of UI among hospital based patients was higher; considering the ratio from 40.0-60.0%.[14,15] This current study's prevalence is slightly lower than the prevalence of previous studies. However, another study stated that UI is not a static condition.[16]

According to the ISI questionnaire, the majority of hospital based and community dwelling women were suffering with moderate severity (3-6/12) of UI; considering the percentages of 38.6% (n=22/57) and 62.5% (n=10/17), respectively. Consequently, the MESA questionnaire reflected on the severity of UI on the subject of: "frequency" was "a few times in a month", about (36.8%; n=21/57) for hospital based patients and (64.7; n=11/17) for community dwelling women, respectively. When asked about the volume of urine produced the majority of hospital based women reported: "a few drops to less than ½ teaspoon" (64.9%; n=37/57). The findings of this current study supported the previous study, which declared that women with stress UI were more likely to lose small volumes of urine. It also supported frequency of UI as being 3-4 times in a month.[17] Nevertheless, the majority of community dwelling UI women (52.9%; n=9/17) reported as suffering with: "½ teaspoon to less than 2 tablespoons", of involuntary urine output. The severity of UI was similar to the findings of the previous study that stated that the majority of patients were suffering with moderate to large amounts of UI.[17] In this present study, it was stated that those with stress UI were more likely to lose small amounts of urine loss, which was about 62.3%; including the frequency of urine loss at 3-4 times in a month.[17] The findings of this study stated that there was a significant association of age and severity of UI among hospital based women, considering the p-value=0.030.

On the contrary, this study did not find any significant relationship between age and severity of UI among community dwelling women. This finding would suggest in its self a very short number of women were suffering with UI in the community. Consequently, the findings of this study stated that there was a significant association of musculo-skeletal conditions along with the severity of UI among both hospital based and community dwelling women; considering the level of significance p-value=0.018

Table 3 Association of age and musculoskeletal conditions with severity of urinary incontinence

Association of severity of urinary incontinence along with age and musculoskeletal conditions:				
Variables		**Chi-square value**	**df**	**p-value**
Age with severity of urinary incontinence	Hospital based patient	4.62	1	0.030
	Community based patient	42.81	1	0.901
Musculoskeletal conditions with severity of urinary incontinence	Hospital based patient	34.20	1	0.018
	Community based patient	23.40	1	0.040

and p-value=0.040, respectively. Similar findings, stated in a previous study, suggested that UI is associated with musculoskeletal conditions; particularly low back pain and osteoarthritis.[18]

The purpose of the study was to find out the prevalence of UI among hospital based and community dwelling women. From this ratio, it would be possible to determine which group is suffering more, or is vulnerable to suffer from UI. Therefore, the study's design of: "a prevalence survey", was justified to eliminate the bias towards the study outcome. The sample size (334) calculation was determined by the scientific calculation process and a previous, similar study. The total number of respondents were divided equally for both groups (334/2=167). The participants were purposively assigned and assured similar inclusion and exclusion criteria for both groups, which reduced the bias towards the outcome of the study.

The study facilitated researchers to determine the target group of people for the Ph.D. study within the allocated time frame. However, the study didn't objectively measure UI and pain severity; additionally, the study only used self-reporting from the respondents. Therefore, the prevalence of UI of these two different groups of people might be influenced by the symptoms severity. Furthermore, the study was not able to determine the causal inference of the outcome.

Conclusion

In conclusion, hospital based women who visited for treatments of musculoskeletal conditions were suffering more with UI than community dwelling women. SUI was highly prevalent among both hospital based and community dwelling women. Further research should be conducted to focus on mechanisms that can explain the relationship between musculoskeletal conditions and UI.

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Conflict of interest

There are no conflicts of interest in terms of financial or non-financial in the subject matter or materials discussed in this manuscript.

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