Prevalence of urinary incontinence subtypes in women

Prevalência dos subtipos de incontinência urinária em mulheres

Auristela Duarte de Lima Moser*
Nisangela do Vale Nogueira
Bruna Isadora Thomé
Luana Pereira Paz

Pontifícia Universidade Católica do Paraná (PUCPR), Curitiba, PR, Brazil

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*** Correspondence:** auristela.lima@pucpr.br

Abstract

Introduction: Urinary incontinence (UI) is present in the lives of a considerable number of women worldwide. This condition and its associated factors have been sufficiently investigated in recent years, however, prevalence estimates are still not fully clarified, as UI is seen as stigmatizing in a cultural context, and the search for treatment is not always considered by affected individuals. So, this dysfunction and its subtypes must be better understood so that it is possible to alleviate its consequences. **Objective:** To identify the prevalence of urinary incontinence subtypes, in women from a reference clinic in a public hospital in Curitiba, PR, Brazil. **Methods:** This was an observational and analytical study, with 227 women affected by UI, evaluated by means of a questionnaire including sociodemographic and general health information, in addition to defining the UI subtype. The SPSS version 25 was used for statistical analysis. **Results:** The patients presented a mean age of 60.33 ± 12.26 years. Mixed UI was the prevalent subtype (87.2%; n = 198), followed by stress (7.5%; n = 17), and urge (5.3%; n = 12). Among women with mixed UI, 60.6% had only completed elementary school, 59.1% were housewives, and 87.6% had experienced two or more pregnancies. **Conclusion:** Outlining UI subtypes, and the general and obstetric characteristics of the studied population enables the development of coping strategies for this condition, ranging from planning, diagnosis and treatment, to costs and public health management.

Keywords: Pelvic floor. Stress urinary incontinence. Urge urinary incontinence. Urinary incontinence. Women's health.

Resumo

Introdução: *A incontinência urinária (IU) está presente na vida de considerável número de mulheres no mundo. Essa condição e fatores associados a ela vêm sendo suficientemente investigados nos últimos anos, no entanto, as estimativas de prevalência ainda não são totalmente esclarecidas visto que a IU é vista como estigmatizante em âmbito cultural e a procura por tratamento nem sempre é considerada por indivíduos acometidos. Torna-se importante, portanto, esclarecer cada vez mais essa disfunção e seus subtipos para que seja possível amenizar suas consequências.* ***Objetivo:*** *Identificar a prevalência dos subtipos de IU em mulheres de um ambulatório de referência em um hospital público de Curitiba, PR.* ***Métodos:*** *Estudo observacional e analítico com 227 mulheres com IU, avaliadas por meio de um questionário para coleta de informações sociodemográficas e de saúde geral, além da definição do subtipo de IU. Utilizou-se o pacote estatístico SPSS versão 25 para a análise estatística.* ***Resultados:*** *A idade média da amostra foi de 60,33 ± 12,26 anos. IU mista foi o subtipo mais prevalente (87,2%; n = 198), seguida por esforço (7,5%; n = 17) e urgência (5,3%; n = 12). Das mulheres com IU mista, 60,6% tinham apenas o ensino fundamental, 59,1% eram donas de casa e 89,4% passaram por duas ou mais gestações.* ***Conclusão:*** *Delinear os subtipos de IU e as características gerais e obstétricas da população estudada permite que sejam elaboradas estratégias de enfrentamento desta condição, que vão desde planejamento envolvendo diagnóstico e tratamento até custos e gestão de saúde pública.*

Palavras-chave: *Assoalho pélvico. Incontinência urinária de esforço. Incontinência urinária de urgência. Incontinência urinária. Saúde da mulher.*

Introduction

Global life expectancy is growing every day, and urinary incontinence (UI) is a condition with high prevalence and considerable social impact, presenting negative repercussions in the most varied contexts of women's lives.[1,2]

The International Continence Society (ICS) defines UI as the complaint of any volume of urine lost involuntarily, constituting a social and/or hygienic problem that can be objectively demonstrated.[2,3] This condition is classified according to associated symptoms, and the most frequent types in women are: stress urinary incontinence (SUI), when the loss of urine happens after physical exertion such as coughing, sneezing, or other activities; urge urinary incontinence (UUI), when the loss occurs before or during urinary urgency; and mixed urinary incontinence (MUI), when both SUI and UUI are present.[4,5]

Treatment of UI results in substantial costs to health care systems. With more reliable estimates, it is possible to envision an annual cost of approximately $11 billion in the United States,[6] representing between $50-1000 per person.[7]

The Brazilian public health system faces chronic funding problems, and in 2018 R$1.92 billion was spent on UTI treatment, with a projection of R$3.87 billion for 2023.[8] These costs generate the need to seek low-cost, low-risk, and proven effective forms of assessment and treatment, to make them accessible to patients in the public health network.[4]

Since UI has physical and emotional consequences in women's lives, it is considered important to identify the subtype of incontinence, for possible contribution to the determination of treatment, support for public management of women's health care services, and for what is currently found in incontinence issues.

Methods

This was observational and analytical research, approved by the Ethics Committee of the C-HC/UFPR, under number 3.575.829. Data were collected at the urinary dysfunction, incontinence/nursing outpatient clinics, and at the pelvic floor interdisciplinary group of the Hospital de Clínicas of the Universidade Federal do Paraná (UFPR).

The inclusion criteria were: women aged 18 years or older, treated in one of the three clinics mentioned above, and who had UI symptoms. The participants were randomly recruited from the list previously organized by the clinic for the day's scheduled appointments, verifying the presence of UI complaints. The exclusion criteria were: presence of anatomical alterations, and/or neurological dysfunctions that could lead to UI.

The participant was approached during one of two periods: before or after her appointment on her scheduled day at the outpatient clinic. These procedures were designed to respect the routine already established for the institution's outpatient

clinics, without any interference. The objective of the first contact with the participant was to clarify all the points referring to the research. The participants signed the Terms of Free and Informed Consent Form.

Data collection comprised an individual interview using a sociodemographic and general health questionnaire (GHQ) developed by the research group. Aiming at characterizing the sample, the questionnaire was composed of specific questions about the characteristics of UI, which was subdivided into SUI, UUI, and MUI, by means of a selection of sentences separately representing stress and urgency symptoms. The UI was classified according to the characteristics identified by the participant; mixed was identified when stress and urgency symptoms were found together. The questions were developed by compiling validated instruments, such as the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF), and with symptoms that identify the most common types of UI, as described by the International Continence Society (ICS).

Data were analyzed using the SPSS statistical package, version 25. The results of categorical variables were described as absolute and relative frequencies, and those of quantitative variables were described by means and standard deviations.

Results

The sample included 227 women with a mean age of 60.33 ± 12.26 years. The most frequent UI subtype was mixed, with 87.2%, followed by SUI (7.5%) and UI (5.3%), as described in Table 1.

Table 1 - Distribution of the sample (n = 227) according to the subtypes of urinary incontinence (UI) and age group

Type of UI	n (%)	Age (± SD)
Stress UI	17 (7.5)	63.29 (10.36)
Urge UI	12 (5.3)	60.33 (14.46)
Mixed UI	198 (87.2)	60.07 (12.30)

The level of education was predominantly elementary or high school education across all groups. Regarding occupation, most women in the group with MUI were housewives (59.1%), while 38.9% had a paid activity (Table 2).

Table 2 - Sociodemographic characteristics of the population according to the subtype of urinary incontinence (UI)

Variables	**SUI** (n = 17)	**UUI** (n = 12)	**MUI** (n = 198)
	n (%)	n (%)	n (%)
Education			
Illiterate	---	1 (8.3)	9 (4.5)
Elementary school	9 (52.9)	6 (50.0)	120 (60.6)
High school	8 (47.1)	3 (25.0)	54 (27.3)
Higher education	---	2 (16.7)	15 (7.6)
Occupation			
Housewives	12 (70.6)	9 (75.0)	117 (59.1)
Retired	---	1 (8.3)	4 (2.0)
Paid activity	5 (29.4)	2 (16.7)	77 (38.9)

Note: SUI = stress UI; UUI = urge UI; MUI = mixed UI.

Table 3 shows the data concerning the gestational history of the study participants.

Table 3 - Gestational history of the study population distributed among the subtypes of urinary incontinence (UI)

Variables	**SUI** (n = 17)	**UUI** (n = 12)	**MUI** (n = 198)
	n (%)	n (%)	n (%)
Pregnancies			
None	---	1 (12.5)	7 (87.5)
One	2 (11.8)	1 (5.9)	14 (82.4)
Two or more	15 (7.4)	10 (5.0)	177 (87.6)
Vaginal delivery			
None	1 (2.6)	1 (2.6)	37 (94.9)
One	2 (7.7)	3 (11.5)	21 (80.8)
Two or more	14 (8.6)	8 (4.9)	140 (86.4)
Cesarean delivery			
None	10 (8.2)	8 (6.6)	104 (85.2)
One	6 (8.3)	3 (4.2)	63 (87.5)
Two or more	1 (3.0)	1 (3.0)	31 (93.9)
Abortions			
None	11 (8.3)	5 (3.8)	116 (87.9)
One	5 (7.4)	4 (6.0)	58 (86.6)
Two or more	1 (3.6)	3 (10.7)	24 (85.7)
Episiotomy			
No	5 (6.2)	4 (4.9)	72 (88.9)
Yes	12 (8.2)	8 (5.5)	126 (86.3)

Note: SUI = stress UI; UUI = urge UI; MUI = mixed UI.

Most participants had been pregnant at least once, although the group with MUI showed a higher frequency (87.6%) for two or more pregnancies. A significant number of women with MUI (86.4%) had two or more vaginal deliveries, and most women with MUI (85.2%) did not undergo cesarean sections. Regarding episiotomy, 86.3% underwent this procedure.

Discussion

The participants presented a mean age of 60.33 ± 12.26 years, an age range that corroborates data found in the literature.[9-11] The most common UI subtype found in this population, MUI (87.2), is consistent with the findings of Faria et al.[9] and Saboia et al.,[7] which similarly found 72.9% and 62.6% of MUI in their analyses, respectively, with Brazilian women cared for in a unit for investigation and treatment of UI. Knorst et al.,[4] Manonai et al.,[11] Nygaard et al.,[12] Siddiqui et al.,[13] and Türkcü e Kukulu[14] also found a prevalence of MUI in their studies, although their analyses were conducted with perspectives other than identifying the UI subtype, and a diversified population.

The characteristics related to education show a lower level of education, including elementary education and illiteracy distributed among the women in the three UI subtypes (65.1% MUI, 58.3% UI, 52.9% SUI). The findings corroborate the study conducted by Knorst et al.,[4] who found 59.7% of their sample with a similar level of education, and Sacomori et al.,[15] who found 59.7% of their sample with a similar level of education, and verified that the presence of UI in women with low education (complete/incomplete elementary school) is 1.59 times higher than in women with higher education.

The predominant occupation of these women was household care (59.1% MUI, 75% UUI, 70.6% SUI), data that are in line with the findings of Kaşıkçı et al.[16] and Manonai et al.,[11] corresponding to 98.3% and 53.8%, respectively. These characteristics involving lower educational level and informal occupation indicate that the approach by the healthcare professional needs to be appropriate, as treatment for UI often involves behavioral therapy, guidance, and care that must be followed in the course of daily activities. Its effectiveness depends on proper understanding and interpretation of information on how to deal with symptoms that are associated with this dysfunction.

Studies demonstrate that obstetric history is closely related to the development of UI, and this is widely mentioned in the literature.[16-19,3,20-23] In the present study, multiparity, evidenced by two or more pregnancies, was present in 202 of 227 incontinent women. Masenga et al.[24] found a strong association between the increase in parity and the chances of developing any type of UI. Women who had a higher number of deliveries increased their chances of developing UI by 2.74 times. Treister-Goltzman e Peleg[22] also reported in their study that women who had a higher number of deliveries and more pregnancies had more severe UI than those with a lower number of pregnancies.

Vaginal delivery was experienced by 26 (11.5%) of the participants in the study at least once, and 162 (71.4%) women had vaginal deliveries two or more times. A positive association between UI and vaginal deliveries was observed in the study of Pedersen et al.,[19] in which the risk remained around 1.5 times higher regardless of the number of vaginal deliveries. Vaginal delivery is recognized in the literature as a risk factor predisposing to UI when compared to cesarean sections.[18] MacArthur et al.[25] investigated the persistence of UI over a 12-year period after delivery and found that it persisted in approximately three quarters of the women whose delivery route was vaginal. Özdemir et al.[26] found that pelvic floor muscle strength decreased as the number of vaginal deliveries increased. A meta-analysis by Tähtinen et al.[27] showed that vaginal delivery doubled the probability of SUI occurrence, as well as increasing risk of UI by approximately 3%.

Surgical delivery, or cesarean section, was performed once in 72 women and two or more times in 33 study participants; 46.3% of all incontinent women experienced this type of delivery. Comparative data can be found in the literature mentioning that this method of delivery is less harmful to the pelvic floor muscles, preserving their strength, as it does not cause perineal trauma, and thereby reduces the impact on development of UI.[5,28,29]

In this study, 41.9% of the participants had undergone abortion, and 12.3% of them had two or more experiences. A literature review performed by Seshan et al.[20] pointed out that the number of abortions is considered a risk factor for UI. Kaşıkçı et al.[16] also found a statistically significant correlation between the number of abortions and the prevalence of UI.

The literature describes improperly or not carefully performed episiotomy as a cause of perineal trauma,

which can compromise pelvic floor muscle strength and predispose to UI. However, it also mentioned that this is a modifiable factor when delivery is properly conducted, to prevent or minimize obstetric complications and long-term sequelae.[3,5,17,30] A high rate of this procedure was found in this study, with 146 women reporting episiotomies, which is in line with the study by Silva et al.,[3] in which 80% of incontinent women experienced this procedure. Ardila found that 213 of the 289 women analyzed underwent episiotomy, and found that episiotomy increased by 1.78 times the probability of developing SUI.[17]

The pelvic floor suffers too much stress in several situations during a woman's life. With each pregnancy, the physiology and biomechanics of the female organism is altered. In addition, weight gain as the fetus grows and vaginal delivery can also bring consequences and future sequelae, due to trauma and perineal lesions. It is important to remember, however, that a well-conducted and appropriate natural birth is beneficial for both mother and baby. As the years go by, natural aging, the climacteric period, and accumulated injuries in the pelvic region may aggravate the existence of UI or predispose one to it. UI is a dysfunction of multifactorial cause, which involves losses that range from the execution of daily life activities to the decline of the general physical condition. It causes considerable reduction in quality of life, therefore its approach and diagnosis are associated with several factors that must be widely investigated and detailed for the treatment proposal to be assertive, and the costs and possible aggravations minimized.

Conclusion

Mixed urinary incontinence was the prevalent subtype, appearing in 87.2% of the participants. Factors such as increased age, higher number of pregnancies, vaginal delivery, and episiotomy were also found to be relevant within the population that presented MUI. This profile could support some actions, such as:

a. Mandatory inclusion of UI occurrence records in healthcare appointments, particularly in the women's health area, so that the occurrence of UI can be monitored, regardless of the complaint reported.

b. Development of prevention strategies, such as orientation booklets or self-care manuals, for prevention and management of UI, considering the social indicators of these women (education, age group, occupation, daily routine, knowledge about UI and its implications, among other factors).

Therefore, considering the high prevalence of UI found, studies that address the topic in more vulnerable populations are recommended for a more comprehensive understanding of UI. Moreover, it is important to identify the subtypes of UI, providing new possibilities in the areas of health education, planning, and intervention for this condition, which proves to be a phenomenon that affects women of different age groups and that evolves chronically, contributing to a significant decrease in women's health.

Authors' contribution

NVN and BIT participated in data collection and adjustment of the article to the journal's standards. LPP was responsible for statistical review. ADLM participated in the design of the topic, supervision of data collection, and review of the final manuscript.

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