Original Article

Clinical profile of women with stress urinary incontinence in a reference center

Perfil clínico de mulheres com incontinência urinária de esforço em centro de referência

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ABSTRACT | INTRODUCTION: Urinary incontinence is defined as any involuntary loss of urine. It is a serious public health problem, and women are the most affected and present aging as risk factors, more than two pregnancies, vaginal delivery with episiotomy, among others. Although UI is not a threatening life condition, it can lead to social and personal repercussions, influencing the quality of life. **OBJECTIVE:** Describe the frequency of SUI in a specialized center in the city of Salvador, as well as point out the clinical characteristics, risk factors, and comorbidities associated with female SUI. **MATERIALS AND METHODS:** Descriptive cross-sectional study, based on data analysis of medical records of women with stress urinary incontinence, including sociodemographic data, risk factors, associated comorbidities, clinical complaints, and objective data from Pad Test and Diary Diary. **RESULTS:** Twenty-eight women with an average age of 48.9 years (± 7.7), brown race (46.2%), complete high school (40%), married (52%), housewives (32.2%), mean BMI 26.2 (± 4.9). The most prevalent associated comorbidity was obesity (28.6%); the dominant risk factor was coffee consumption (70%). The most prevalent clinical complaint was cough loss (96.3%). When analyzed Pad test noted a higher prevalence of mild loss (57.14%), followed by (39.29%) moderate loss and severe loss (3.57%). **CONCLUSION:** Middle-aged, mulatto, menopausal, obese, hypertensive, multiparous women who had a vaginal delivery with episiotomy, constipation, and caffeine intake are more likely to develop stress urinary incontinence. There was a higher prevalence of mild urinary incontinence.

KEYWORDS: Stress urinary incontinence. Women. Urinary disorders.

RESUMO | INTRODUÇÃO: A incontinência urinária é definida como qualquer perda involuntária de urina. É um sério problema de saúde pública e as mulheres são as mais afetadas e apresentam como fatores de risco o envelhecimento, mais de duas gestações, parto vaginal com episiotomia, entre outros. Embora a IU não seja uma condição de vida ameaçadora, pode levar a situações com repercussões a nível social e pessoal, com influência na qualidade de vida. **OBJETIVO:** Descrever a frequência da IUE em um centro especializado na cidade de Salvador, assim como apontar as características clínicas, fatores de risco e comorbidades associadas à IUE feminina. **MATERIAIS E MÉTODOS:** Estudo transversal descritivo, a partir da análise de dados de prontuários de mulheres portadoras de incontinência urinária de esforço, incluídos dados sociodemográficos, fatores de risco, comorbidades associadas, queixas clínicas e dados objetivos de Pad Test e Diário Miccional. **RESULTADOS:** Foram incluídas 28 mulheres com idade média de 48,9 anos (±7,7), de raça parda (46,2%), com ensino médio completo (40%), casadas (52%), trabalhadoras do lar (32,2%), IMC médio 26,2 (±4,9). A comorbidade associada mais predominante foi obesidade (28,6%), o fator de risco dominante foi o consumo de café (70%). A queixa clínica mais prevalente foi perda ao tossir (96,3%). Quando analisado Pad test, notado maior prevalência de perda leve (57,14%), seguido por (39,29%) de perda moderada e perda grave (3,57%). **CONCLUSÃO:** Mulheres de meia idade, pardas, menopausadas, obesas, hipertensas, multíparas, que realizaram parto vaginal com episiotomia, constipadas e que ingerem cafeína são mais propensas a desenvolver a incontinência urinária de esforço. Houve uma maior prevalência de incontinência urinária leve.

PALAVRAS-CHAVE: Incontinência urinária de esforço. Mulheres. Transtornos urinários.

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Introduction

The *International Continence Society* (ICS) defines urinary incontinence (UI) as any involuntary loss of urine that presents itself in a very diverse way, from very rapid and occasional losses to more serious and regular losses, in the absence of urinary tract infection (UTI) or other pathology that was related to this symptom.[1] It is a serious public health problem.[1] Moreover, women are the most affected.[2] The three most common types of UI are stress incontinence (SUI), urge incontinence (UUI), and mixed incontinence (MUI).[2]

Epidemiological data on UI are not easily found, perhaps due to negative stereotype that makes it challenging to adhere to treatment of dysfunction.[3] However, stress urinary incontinence is reported to be the most prevalent.[3-5] Although UI is not a threatening life condition, it can lead to situations with repercussions on a social and personal level, influencing the quality of life, leading to the marginalization of social life, psychosocial frustrations, early institutionalization.[6-8] Studies demonstrate a negative impact on the self-esteem of women with UI, who often need to make continuous use of tampons, making it difficult to carry out daily life activities, impairing the quality of life, and experiencing embarrassing situations before society.[9]

The risk factors for SUI presented in the literature are aging, more than two pregnancies, vaginal delivery with episiotomy, ethnic heritage, smoking, obesity, caffeine intake, constipation, and menopause.[10,11] The main symptoms reported by women with SUI are urinary loss when coughing, sneezing, walking, exercising, jumping, performing an action that requires some effort.[6,12] This occurs when pressure on the bladder and pelvic floor muscles is weakened, unable to keep the sphincter closed.[6,12]

Knowledge of risk factors and clinical data obtained through a detailed anamnesis and objective data from tests such as Pad Test and voiding diary is important to determine a diagnosis and choose early intervention by health team.[13,14] The literature presents a scarcity of studies describing profile and frequent complaints in women with SUI; therefore, this study aims to describe the frequency of SUI in a specialized center in the city of Salvador, as well as to point out the clinical characteristics, risk factors, and comorbidities associated with female SUI.

Materials and methods

A cross-sectional descriptive study was carried out at the Pelvic Floor Care Center, belonging to the Bahiana School of Medicine and Public Health, in Salvador, Brazil. The Research Ethics Committee approved this research of the institution (CAAE - 35038914.3.0000.5544), all participants signed the Informed Consent Form.

Women with the clinical diagnosis of stress urinary incontinence, aged between 18 years and 65, followed by the service between 2014 to 2018, were included. Those who reported psychiatric and/or neurological disease, prolapses, urinary loss due to urgency, and pregnant women were excluded.

After participants' consent, a questionnaire of sociodemographic data and clinical characteristics was applied, specially developed for this purpose, with sociodemographic data (age, race/color, education, religion, marital status, profession, BMI), associated comorbidities (obesity, hypertension, diabetes mellitus, vascular diseases, constipation, enuresis in childhood), physical activity, risk factors (pregnancy, childbirth, abortion, type of delivery, irritating foods, types of food). In addition to data such as clinical symptoms, dysuria, urgency, a feeling of waste, enuresis, menopause, type of effort, frequency of loss on effort, daytime and nighttime voiding frequency, and fluid intake.

Participants were instructed to perform a voiding diary (VD) at home for three days to record fluid intake, average urinary volume, frequency and voiding interval, and several incontinence episodes.

Figure 1. Model of voiding diary used in 28 participants with clinical complaint of stress urinary incontinence. Salvador, 2018

Centro de Atenção ao Assoalho Pélvico

VOIDING DIARY

instituto PATRICIA LORDELO

PATIENT: _____ DATE: __/___/____

TIME	HOW MUCH DID YOU DRINK?

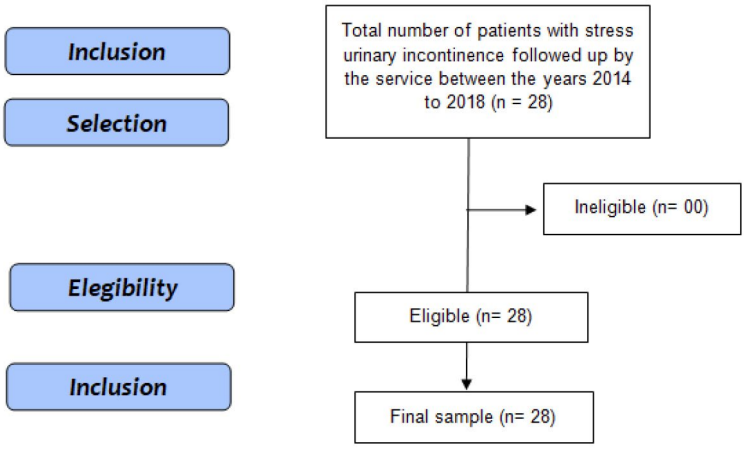
TIME	URINARY VOLUME	DID YOU WET THE PANTIES?	COMMENTS

After performing VD, participants took the one-hour Pad Test to quantify the urinary loss in grams. Initially, absorbent was placed in a closed plastic bag and weighed on a precision electronic scale (Denver Instrument®). Then, the participant was instructed to place the absorbent, ingest 500 ml of water for a maximum of 15 minutes, and remain at rest for another 15 minutes. This phase represents 30 minutes of the test. In the other half of an hour, it was asked to perform certain standardized activities simulating activities of daily living (going up and down a ladder, sitting and getting up ten times, coughing ten times, picking up objects on the floor five times, running in the same place for a minute and wash your hands under running water for a minute). The urinary loss was categorized as absence <1, mild 1-10, moderate 10-50, and severe> 50.[15]

For elaborating the database and analysis, the software Statistical Package for Social Sciences (SPSS) version 14.0 for Windows was used. The normality of the numerical variables was verified using the Kolmogorov-Smirnov test, descriptive statistics, and graphical analysis. The results were presented using tables and graphics. Categorical variables were expressed in absolute and percentage values - n (%). Continuous variables with normal distribution were expressed as mean and standard deviation (SD) and those with asymmetric distribution, like the median and interquartile range (IQ).

Results

Figure 2. Research flowchart. Salvador, 2018



Twenty-eight women with SUI were analyzed. As for sociodemographic data, a higher prevalence was found in middle-aged women 48.9 years (± 7.7), of mixed race (46.2%), with complete high school (40%), married (52%), Catholics (60%), houseworkers (32.2%), with a mean BMI of 26.2 (± 4.9). The most prevalent associated comorbidity was obesity (28.6%), followed by childhood enuresis (25.9%), arterial hypertension (23.8%), and constipation (23.8%), as shown in Table 1.

Table 1. Description of sociodemographic variables of 28 participants with clinical complaints of stress urinary incontinence. Salvador, 2018 (to be continued)

Variables	Results
Age*	48,9±7,7
BMI*	26,2±4,9
Marital status	**n(%)**
Married	13 (52,0)
Single	08 (32,0)
Widow	04 (16,0)
Education graduated	
Graduated	04 (16,0)
Incomplete higher	02 (8,0)
Complete high school	10 (40,0)
Incomplete high school	02 (8,0)
Complete elementary school	06 (24,0)
Incomplete elementary school	01 (4,0)
Occupation	
Retired	03 (10,7)
Clerk	01 (3,6)
Self-employed	01 (3,6)
Financial AID	01 (3,6)
Service Assistant	01 (3,6)
Dressmaker	01 (3,6)
Unemployed	01 (3,6)
Housekeeper	03 (10,7)
Housewife	06 (21,5)
Student	02 (7,1)
Manager	01 (3,6)
Fisherwoman	01 (3,6)
Nutritionist	01 (3,6)
Teacher	01 (3,6)
Seller	01 (3,6)
Religion	
Catholic	15 (60,0)
Evangelical	05 (20,0)
No religion defined	04 (16,0)
Adventist	01 (4,0)

Table 1. Description of sociodemographic variables of 28 participants with clinical complaints of stress urinary incontinence. Salvador, 2018 (conclusion)

Variables	Results
Race	
Brown race	12 (46,2)
Black	09 (34,6)
Caucasian	05 (19,2)
Comorbities	
Obesity	06 (28,6)
Arterial hypertension	05 (23,8)
Diabetes mellitus	01 (4,8)
Vascular diseases	04 (19,0)
Constipation	05 (23,8)
Enuresis in childhood	07 (25,9)
Physical activity	12 (57,1)

***Media±SD**

The risk factor presented as dominant was the consumption of irritating foods (90%), with coffee (70%) being the most prevalent, followed by citrus foods (55%) and spicy foods (30%). Other risk factors stood out, such as normal delivery (60%) with episiotomy (65%), cesarean section (30%), and history of pregnancies, with a median of 2.0 (1.0-3.5), data shown in Table 2.

Table 2. Description of the risk factors associated with UI in 28 participants with clinical complaints of stress urinary incontinence. Salvador, 2018

Variables	Results
Pregnancy*	2,0 (1,0 – 3,5)
Delivery*	2,0 (1,0 – 3,0)
Abortion *	0,0 (0,0 – 1,0)
Type of delivery	**n(%)**
Normal birth	12 (60,0)
Cesarian	06 (30,0)
Mixed	02 (10,0)
Episiotomy	13 (65,0)
Irritating food	
Yes	18 (90,0)
No	02 (10,0)
Types of food	
Coffee	14 (70,0)
Citric food	11 (55,0)
Black tea	02 (10,0)
Carbonated	05 (25,0)
Spicy	06 (30,0)
Chocolate	05 (25,0)

continua

***Median (interquartile range)**

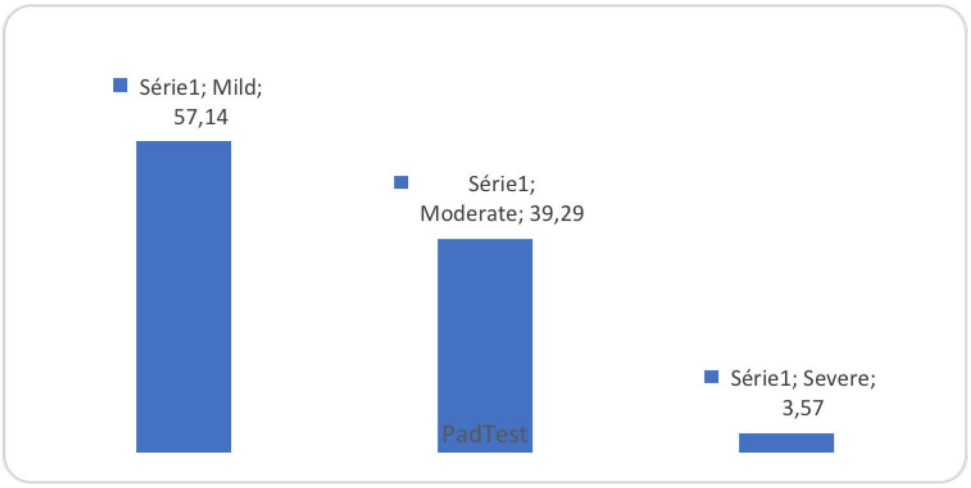
The most prevalent clinical complaints were: loss when coughing (96.3%) and sneezing (92.6%), followed by a feeling of residue (81.5%) and loss when performing physical activity (70.4%). Loss on exertion was reported as "always" in 57.1% of cases. The use of the lining was reported by 60% of women, and menopause was reported by 52.4% (Table 3).

Table 3. Description of the clinical symptoms of 28 women with SUI. Salvador, 2018

Variables	Results
Symptoms	**n(%)**
Dysuria	01 (4,8)
Feeling of residue	22 (81,5)
Post-voiding desire	15 (55,6)
Vaginal flatus	13 (61,9)
Loss on effort	27 (100,0)
Frequency of loss when making effort	
Always	12 (57,1)
Sometimes	07 (25,0)
Rarely	02 (9,5)
Moment of loss	
Cough	26 (96,3)
Sneeze	25 (92,6)
During Physical Activity	19 (70,4)
Laughter	17 (63,0)
Running	14 (51,9)
Walking	11 (40,7)
Sexual intercourse	10 (37,0)
Use tampon	12 (60,0)
Menopause	11 (52,4)
Hormone replacement	04 (19,0)
Sensation of vaginal weight	05 (23,8)
Previous ginecological surgery	08 (38,1)

Surgeries reported were: 01 clearing of tubes (3.6%), 01 perineoplasty (3.6%), 04 hysterectomies (14.3%), 01 vaginal plastic surgery (3.6%). The Pad Test had a higher prevalence of mild loss (57.1%), followed by moderate loss (39.3%) and severe loss (3.6%), as in Graph 1.

Graph 1. Pad Test of 28 participants with clinical complaint of SUI. Salvador, 2018



Variables obtained through the voiding diary had a median voiding frequency of 7.0 (5.9 - 6.2), maximum urine capacity 300.0 (200.0 - 428.5), water intake 1,584 (1,347 - 2330) and urinary loss 2.3 (0.7 - 4.0), shown in Table 4.

Table 4. Description of variables obtained through the voiding diary of 28 participants with clinical complaint of stress urinary incontinence. Salvador, 2018

Variables	Median (interquartil range)
Symptom time	36,0 (6,0 – 60,0)
Voiding frequency	7,0 (5,9 – 9,2)
Maximum capacity	300,0 (200,0 – 428,5)
Average capacity	224,0 (174,0 -282,0)
Voiding interval	156,0 (123,5 – 195,5)
Water intake	1.584 (1.347 – 2.330)
Urinary loss	2,3 (0,7 - 4,0)

Discussion

The analysis of urinary incontinence and the associated factors is relevant not only for considering it as a serious public health problem but also for the negative impact on the lives of women who have SUI.[6-8] In the present study, a higher prevalence was found in middle-aged women, which corroborates with other studies which affirm that women affected by SUI have a more prevalent age range above 40 years, and the prevalence remains increasing.[15,16]

Risk factors for SUI were caffeine intake, citrus foods, spicy foods, normal delivery with episiotomy, and cesarean section. Normal delivery can present a more significant amount of trauma to the pelvic floor, increasing the risk for SUI.[17] Although caffeine intake is related to UUI, due to the instability that caffeine causes in the detrusor muscle, we realized that it was also prevalent in this study, even in patients with SUI.[18] This data may reflect the presence of women with mixed urinary incontinence who were not excluded from the study.

The symptom reported as the most prevalent was the sensation of residue and the moments of urinary loss were more frequent when performing important physical efforts such as coughing, sneezing, or practicing physical activity. As it is SUI, participants were expected to report the urinary loss at the time of increased abdominal pressure, justified by the physiopathology of SUI. There can be two explanations regarding the sensation of residues, a limitation of not assessing whether the participants had bladder instability or even a reporting bias since the post-voiding residue USG was not performed. In the literature, we find that the main complaints related to SUI are consistent with the study addressed.[15]

The most prevalent associated comorbidities were obesity, hypertension, constipation, and menopause, many of which have already been reported in the literature.[19] Studies show that high BMI increases the risk of SUI due to greater pressure on the pelvic musculature, impairing muscle functionality.[20] Menopause may be related to SUI due to hormonal changes that affect the pelvic muscles.[21] Hypertensive women are more prone to SUI, probably due to the use of diuretics. This finding is important, as it could guide a therapeutic change to improve the quality of life of symptomatic women.[22] Constipation may be related to SUI due to the constant pressure placed on the pelvic muscles to inhibit urinary loss cause defecation difficulties.[23]

As for the Pad Test, a higher prevalence of mild urinary incontinence (57.14%) was found, followed by moderate (39.29%). According to the literature, the prevalence of mild SUI is higher, reaching 75%, followed by moderate (20%).[26] The data found in the Pad Test were compatible with the participants' complaints, as they presented a prevalence of losses with significant effort, common in light losses. There was no report of loss with light efforts, such as a change in decubitus, which would be expected in severe incontinence.

The median found in the voiding diary of the average voiding capacity was 224 (174-282), the voiding frequency 7 (5.9 - 9.2), maximum capacity eliminated 300 (200 - 428.5), urinary loss 2.3 (0.7 - 4.0). In the literature, the average presented as normal of the average voiding capacity is between 230-250, the voiding frequency 5.7-7.3, maximum capacity eliminated 1272-1350.[25] Given the results, the participants presented dysfunction of storage and emptying of the bladder, which may cause urinary incontinence.[26] The urinary loss found in the voiding diary confirms the urinary incontinence reported by the study participants.

The present study had as limitations a small sample size that makes statistical analysis and results' extrapolation difficult. It is suggested, for a more reliable description, the performance of multicenter studies with a larger number of participants.

Conclusion

Among the women with stress urinary incontinence evaluated during the study period, the most frequent factors were advanced age, menopausal status, obesity, hypertension, multiparous women, and those who underwent vaginal delivery with episiotomy, constipation, and those who ingest caffeine. There was a higher prevalence of mild urinary incontinence.

Authors contribution

Lordelo P contributed to the study design. Brasil C and Lemos A performed data analysis. Machado M and Moura T contributed to the collection and interpretation of the data. Alves R drafted the manuscript. All authors participated in the approval of the final version of the manuscript.

Competing interests

No financial, legal, or political conflicts involving third parties (government, companies and private foundations, etc.) have been declared for any aspect of the submitted work (including, but not limited to grants and funding, participation in advisory council, study design, preparation manuscript, statistical analysis, etc.).

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