

# PREVALENCE OF URINARY INCONTINENCE AND ASSOCIATED FACTORS IN CLIMACTERIC WOMEN OF A PRIMARY HEALTH CARE UNIT

*Prevalência de incontinência urinária e fatores associados em mulheres no climatério em uma unidade de atenção primária à saúde*

*Prevalencia de incontinencia urinaria y los factores asociados en mujeres en el climaterio de una unidad de atención primaria a la salud*

Original Article

## ABSTRACT

**Objective:** To estimate the prevalence of urinary incontinence (UI) and investigate the associated factors. **Methods:** This is a quantitative, cross-sectional and analytical study with 233 women going through climacteric, in the age range of 40-65 years, seen in a Primary Health Care Unit (PHU), developed in the period from December 2014 to June 2015. Sociodemographic and clinical (obstetrical and gynecological) data, comorbidities and urinary profile were assessed. The software SPSS 19.0 and the chi-square test were employed to evaluate the association between the variables. The significance level of 5% was adopted. **Results:** Complaint about UI was present in 41.2% (n=96) of women. Higher prevalence was observed in the age group of 40-45 years with 36.5% (n=35) ( $p < 0.05$ ), brown-skinned with 21.9% (n=21) ( $p=0.002$ ), and low level of education (up to complete Junior High) with 39.6% (n=38) ( $p=0.627$ ). As for the self-reported comorbidities, 38.5% (n=37) of the incontinent women presented systemic arterial hypertension ( $p=0.96$ ), 17.7% (n=17) had diabetes ( $p=0.982$ ), and 28.1% (n=27), constipation ( $p=0.101$ ). Regarding the clinical characteristics, 41.7% (n=35) had only vaginal delivery ( $p=0.087$ ) and 53.1% (n=51) were going through menopause ( $p=0.113$ ). The stress urinary incontinence (SUI) was found in 85.4% (n=82) of the women. **Conclusion:** A high prevalence of urinary incontinence in climacteric women was found, emphasizing higher frequency among the younger, brown-skinned women.

**Descriptors:** Urinary Incontinence; Prevalence; Climacteric.

## RESUMO

**Objetivo:** Estimar a prevalência de incontinência urinária (IU) em mulheres no climatério e investigar os fatores associados. **Métodos:** Trata-se de um estudo quantitativo, do tipo transversal e analítico com 233 mulheres no climatério, na faixa etária de 40 a 65 anos, atendidas em uma Unidade de Atenção Primária a Saúde (UAPS), desenvolvido no período de dezembro de 2014 a junho de 2015. Coletaram-se os dados sociodemográficos, comorbidades, clínicos (obstétricos e ginecológicos) e perfil urinário. Utilizou-se o programa SPSS 19.0 e o teste de qui-quadrado para analisar associação entre as variáveis. Adotou-se nível de significância de 5%. **Resultados:** A queixa de IU esteve presente em 41,2% (n=96) das mulheres. Verificou-se maior prevalência na faixa etária de 40-45 anos com 36,5% (n=35) ( $p=0,05$ ), cor parda com 21,9% (n=21) ( $p=0,002$ ) e escolaridade baixa (até 1º ciclo fundamental completo) com 39,6% (n=38) ( $p=0,627$ ). Quanto às comorbidades autorreferidas, 38,5% (n=37) das mulheres incontinentes apresentaram hipertensão arterial sistêmica ( $p=0,96$ ), 17,7% (n=17) diabetes ( $p=0,982$ ) e 28,1% (n=27) constipação intestinal ( $p=0,101$ ). Sobre as características clínicas, 41,7% (n=35) tiveram apenas partos do tipo vaginal ( $p=0,087$ ) e 53,1% (n=51) estavam na menopausa ( $p=0,113$ ). Verificou-se a IU de esforço em 85,4% (n=82) das mulheres. **Conclusão:** Encontrou-se elevada prevalência de incontinência urinária em mulheres climatéricas, destacando maior ocorrência nas mais jovens e de cor parda.

**Descritores:** Incontinência Urinária; Prevalência; Climatério.

Ticiania Mesquita de Oliveira<sup>(1)</sup>  
Flávia Muniz Lelis Valdez<sup>(1)</sup>  
Karla Erica dos Santos Lima<sup>(1)</sup>  
Milena Sampaio Magalhães<sup>(1)</sup>  
Ana Paula Vasconcellos Abdon<sup>(1)</sup>  
Ilana Nogueira Bezerra<sup>(1)</sup>

1) University of Fortaleza (Universidade de Fortaleza - UNIFOR) - Fortaleza (CE) - Brazil

Received on: 11/28/2015

Revised on: 12/10/2015

Accepted on: 12/29/2015

## RESUMEN

**Objetivo:** Estimar la prevalencia de incontinencia urinaria (IU) en mujeres en el climaterio y investigar los factores asociados. **Métodos:** Se trata de un estudio cuantitativo del tipo transversal y analítico con 233 mujeres en el climaterio, en la franja de edad entre 40 y 65 años asistidas en la Unidad de Atención a la Salud (UAPS) desarrollado en el periodo de diciembre de 2014 a junio de 2015. Se recogieron datos sociodemográficos, de comorbidades, clínicos (obstétricos y ginecológicos) y del perfil urinario. Se utilizó el programa SPSS 19.0 y la prueba chi-cuadrado para analizar la asociación entre las variables. Se adoptó el nivel de significancia del 5%. **Resultados:** La queja de IU estuvo presente en el 41,2% (n=96) de las mujeres. Se verificó mayor prevalencia en la franja de edad entre 40-45 años en el 36,5% (n=35) (p=0,05), color pardo en el 21,9% (n=21) (p=0,002) y baja escolaridad (hasta el 1° ciclo fundamental completo) en el 39,6% (n=38) (p=0,627). Respecto las comorbidades autorreferidas, el 38,5% (n=37) de las mujeres con incontinencia presentaron hipertensión arterial sistémica (p=0,96), el 17,7% (n=17) diabetes (p=0,982) y el 28,1% (n=27) constipación intestinal (p=0,101). Sobre las características clínicas, el 41,7% (n=35) tuvieron solamente partos del tipo vaginal (p=0,087) y el 53,1% (n=51) estaban en la menopausia (p=0,113). Se verificó la IU de esfuerzo en el 85,4% (n=82) de las mujeres. **Conclusión:** Se encontró elevada prevalencia de IU en mujeres en el climaterio destacando mayor ocurrencia en las jóvenes de color pardo.

**Descriptores:** Incontinencia Urinaria; Prevalencia; Climaterio.

## INTRODUCTION

Climacteric is defined as a biological phase of life rather than a pathological process, and it comprises the transition from the reproductive (premenopausal) age to non-reproductive (senescence)<sup>(1)</sup>. This period of the woman's life, due to the progressive and rapid depletion of ovarian follicles, is characterized by the progressive decline in female hormones and the onset of serious diseases, such as osteoporosis, cardiovascular disease and urinary incontinence (UI)<sup>(2)</sup>.

Among the most prevalent diseases in the female population, urinary incontinence (UI) is estimated to affect more than 50 million people throughout the world, affecting approximately 25% of young women (14 to 21 years old), 44% to 57% of postmenopausal women (40 to 60), and 75% of elderly women<sup>(3)</sup>. In Brazil, around 11 to 23% of women present this disorder<sup>(4)</sup>.

The UI is defined by the International Continence Society (ICS) as the complaint of any involuntary loss of urine<sup>(5)</sup>, which can be classified into: stress urinary incontinence (SUI), urge urinary incontinence (UII) and mixed urinary incontinence (MUI)<sup>(6)</sup>.

Such prevalence, however, is believed to be underestimated, since many cases are not diagnosed, and due to the population's belief that the UI is a normal condition resulting from the aging process<sup>(7)</sup>. Moreover, some women are reluctant to mention it to health professionals<sup>(8)</sup>.

Studies have pointed that the climacteric period is deemed one of the responsible factors for the onset of UI, as in this period, a decrease in collagen and estrogen action takes place in the urological and gynecological structures, thus leading to atrophy of the region and, consequently, a decrease in the urethral closure pressure<sup>(9)</sup>.

Nevertheless, the etiology of urinary incontinence is multifactorial. Besides the climacteric, other factors are associated with the occurrence of UI in the female population, especially sociodemographic, obstetric and behavioral aspects, and comorbidities<sup>(10)</sup>.

Considering the scarcity of studies that relate these factors to urinary incontinence in the climacteric period, particularly in the state of Ceará, this study aimed at estimating the prevalence of urinary incontinence (UI) in climacteric women and investigating the associated factors.

## METHODS

This is a quantitative, observational, cross-sectional, and analytical study with women seen at a Primary Health Care Unit (PHU), developed in the period from December 2014 to June 2015.

The study comprised 274 women in the age range of 40 to 65 years, who were selected voluntarily and have authorized their participation by signing the free and informed consent term. However, 41 women were excluded from the study for not having the data collection instruments duly filled, thus totaling a sample of 233 women.

The study adopted as exclusion criteria: being pregnant, diagnosed with kidney, neurological or vascular disease, cancer, food allergy, or mental/psychological disorders liable to hinder the expression of an analytical reasoning about urinary loss.

Data collection was carried out in the waiting room of the PHU with average duration of 25 minutes. A questionnaire prepared by the researchers was applied, containing demographic data (age, marital status, race, education level, and family income), comorbidities (systemic arterial hypertension, Diabetes mellitus, and constipation), obstetric and gynecological data (number of pregnancies, number of children, type of delivery, and menopause), and urinary profile (urinary loss, amount of urine, UI classification), and presence of urinary incontinence.

For evaluation of urinary losses, the International Consultation on Incontinence Questionnaire - Short Form

(ICIQ-SF) was applied, which evaluates the impact of urinary incontinence on the quality of life and also qualifies the urinary loss. The ICIQ-SF translated and validated for the Portuguese language is an instrument composed of four questions that evaluate the frequency, severity and impact of urinary incontinence, in addition to a set of eight items addressing the causes of urinary incontinence or experienced events<sup>(11)</sup>. Women were considered incontinent (with UI) when the ICIQ-SF total score was higher than or equal to 3 points.

The software Epi Info 7.0 was used for data entry with quality control at data input in order to avoid failures in data amplitude and consistency. The data was later analyzed with use of SPSS 19.0, through descriptive and inferential statistics. In order to verify the relationship between the exposure variables (sociodemographic, comorbidities, obstetric and gynecological issues) and the outcome

variable (presence of UI), the chi-square test ( $\chi^2$ ) was used. The significance level was set at 5%.

This study followed the ethical and scientific standards established by Resolution 466/12 of the National Health Council/Ministry of Health on research involving human subjects and was approved by the Ethics Committee of the University of Fortaleza (opinion no. 520906).

## RESULTS

The sample consisted of 233 climacteric women, 41.2% (n=96) of which presented urinary incontinence complaints. The highest prevalence was observed in the age group of 40-45 years, with 36.5% (n=35) (p=0.05), in brown-skinned women, with 21.9% (n=21) (p=0.002), low education level (up to complete Junior High), with 39.6% (n=38) (p=0.627). As for the self-reported comorbidities, 38.5% (n=37) of

Table I - Sociodemographic profile and comorbidities according to the presence or absence of urinary incontinence. Fortaleza, CE, 2014-2015.

| Variables                                   | WITH UI |      | WITHOUT UI |      | p value |
|---|---------|------|------------|------|---------|
|   | n=96    | %    | n=137      | %    |         |
| <b>Age</b>                                  |         |      |            |      |         |
| 40-45                                       | 35      | 36.5 | 29         | 21.2 | 0.050*  |
| 46-50                                       | 25      | 26.0 | 32         | 23.4 |         |
| 51-55                                       | 14      | 14.6 | 33         | 24.1 |         |
| 56-60                                       | 12      | 12.5 | 27         | 19.7 |         |
| 61-65                                       | 10      | 10.4 | 16         | 11.7 |         |
| <b>Civil status</b>                         |         |      |            |      |         |
| Single                                      | 28      | 29.2 | 43         | 31.4 | 0.839   |
| Married                                     | 54      | 56.3 | 70         | 51.1 |         |
| Divorced                                    | 8       | 8.3  | 12         | 8.8  |         |
| Legally separated/separated                 | 6       | 6.3  | 12         | 8.8  |         |
| <b>Race</b>                                 |         |      |            |      |         |
| White                                       | 21      | 21.9 | 38         | 27.7 | 0.002*  |
| Black                                       | 28      | 29.2 | 12         | 8.8  |         |
| Yellow                                      | 2       | 2.1  | 2          | 1.5  |         |
| Brown                                       | 44      | 45.8 | 83         | 60.6 |         |
| Indian                                      | 1       | 1.0  | 2          | 1.5  |         |
| <b>Education level</b>                      |         |      |            |      |         |
| Illiterate/ incomplete Junior High          | 32      | 33.3 | 54         | 39.4 | 0.627   |
| Complete Junior High                        | 38      | 39.6 | 48         | 35.0 |         |
| Complete High School or above               | 26      | 27.1 | 35         | 25.5 |         |
| <b>Family income</b>                        |         |      |            |      |         |
| Up to 1 MW                                  | 45      | 46.9 | 70         | 51.1 | 0.526   |
| Above 1 MW                                  | 51      | 53.1 | 67         | 48.9 |         |
| <b>Systemic arterial hypertension (SAH)</b> |         |      |            |      |         |
| Yes   | 37      | 38.5 | 53         | 38.7 | 0.916   |
| No  | 59      | 61.5 | 84         | 61.3 |         |
| <b>Diabetes Mellitus (DM)</b>               |         |      |            |      |         |
| Yes   | 17      | 17.7 | 25         | 18.2 | 0.982   |
| No  | 79      | 82.3 | 112        | 81.8 |         |
| <b>Constipation</b>                         |         |      |            |      |         |
| Yes   | 27      | 28.1 | 26         | 19.0 | 0.101   |
| No  | 69      | 71.9 | 111        | 81.0 |         |

UI: urinary incontinence; MW: Minimum wage. \*p<0.05.

the incontinent women had systemic arterial hypertension ( $p=0.96$ ), 17.7% ( $n=17$ ) were diabetic patients ( $p=0.982$ ), and 28.1% ( $n=27$ ) had constipation ( $p=0.101$ ) (Table I).

It was found that the incontinent women had had 3.9 pregnancies on average ( $SD=2.28$ ), and 79.2% ( $n=76$ ) had up to 5 children. With regard to the type of delivery, 41.7% ( $n=35$ ) had only the vaginal one, and 53.1% ( $n=51$ ) were going through the menopause period (Table II).

Regarding the lifestyle, the incontinent women presented the highest percentage of physical activity practice (34.4%,  $n=33$ ), smoking habit (11.5%,  $n=11$ ) and alcohol consumption (21.9%,  $n=21$ ) (Figure 1).

On the clinical profile, 52.1% ( $n=50$ ) reported losing urine once a week or less, 75.0% ( $n=72$ ) reported losing a small amount, and 85.4% ( $n=82$ ) of women presented stress UI (Table III).

Table II - Obstetric and gynecological characteristics according to the presence or absence of urinary incontinence. Fortaleza, CE, 2014-2015.

| Variables                 | WITH UI          |      |      | WITHOUT UI       |       |      | p value |
|---------------------------|------------------|------|------|------------------|-------|------|---------|
|                           | Mean $\pm$ SD    | n=96 | %    | Mean $\pm$ SD    | n=137 | %    |         |
| Number of pregnancies     | 3.94 $\pm$ 2.287 |      |      | 3.78 $\pm$ 2.535 |       |      |         |
| <b>Number of children</b> |                  |      |      |                  |       |      |         |
| 1-5                       |                  | 76   | 79.2 |                  | 115   | 83.9 | 0.487   |
| 6-10                      |                  | 10   | 10.4 |                  | 13    | 9.5  |         |
| 16-20                     |                  | 0    | 0    |                  | 1     | 8.0  |         |
| <b>Type of delivery</b>   |                  |      |      |                  |       |      |         |
| Cesarian                  |                  | 19   | 22.6 |                  | 22    | 17.5 | 0.087   |
| Vaginal                   |                  | 35   | 41.7 |                  | 72    | 57.1 |         |
| Both types                |                  | 30   | 35.7 |                  | 32    | 25.4 |         |
| <b>Menopause</b>          |                  |      |      |                  |       |      |         |
| Yes                       |                  | 51   | 53.1 |                  | 87    | 63.5 | 0.113   |
| No                        |                  | 45   | 46.9 |                  | 50    | 36.5 |         |

UI: urinary incontinence; SD: standard deviation.

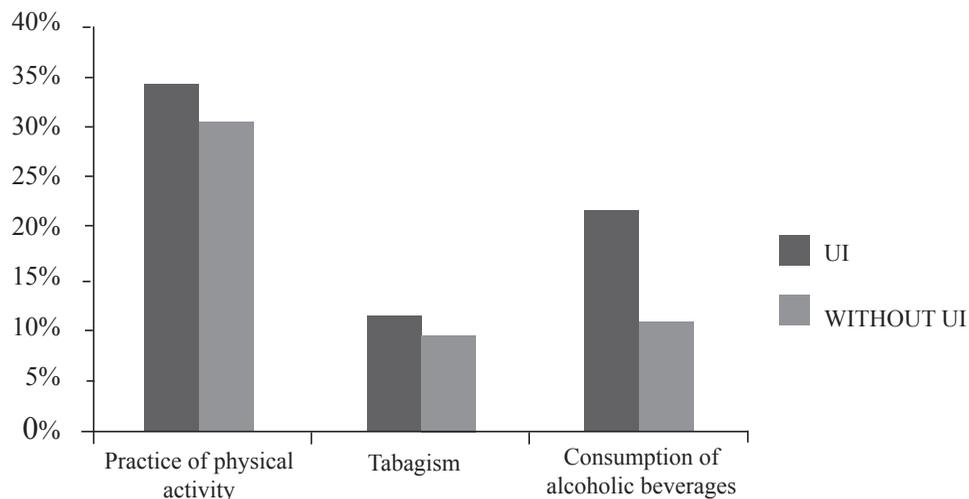


Figure 1 - Life habits according to the presence or not of urinary incontinence. Fortaleza, CE, 2014-2015.

UI: urinary incontinence.

Table III - Urinary profile of women with urinary incontinence. Fortaleza, CE, 2014-2015.

| Variables                   | Frequency | %    |
|-----------------------------|-----------|------|
| <b>Urinary loss</b>         |           |      |
| Once a week or less         | 50        | 52.1 |
| Twice or three times a week | 22        | 22.9 |
| Once a day                  | 5         | 5.2  |
| Many times a day            | 17        | 17.7 |
| All the time                | 2         | 2.1  |
| <b>Amount of urine</b>      |           |      |
| Little amount               | 72        | 75.0 |
| Moderate amount             | 14        | 14.6 |
| Great amount                | 10        | 10.4 |
| <b>UI classification</b>    |           |      |
| Stress                      | 82        | 85.4 |
| Urge                        | 32        | 33.3 |
| Mixed                       | 21        | 21.9 |

UI: urinary incontinence.

## DISCUSSION

In this study, the most prevalent age group for urinary loss was 40 to 45 years. Age is one of the factors for the occurrence of UI, mainly affecting women with advanced in age, in the period of climacteric and menopause<sup>(7)</sup>. These results are in line with other study<sup>(12)</sup>, where the prevalence varied according to the age group, with 81% of the incontinent women found between 40 and 59 years.

Corroborating this study, a survey of the sociodemographic and clinical profile of users of the public services of Belo Horizonte, MG, found that 62% of women were married, 19% single, and most had complete Junior High<sup>(13)</sup>. The low level of education appears to be a factor that limits the individuals' adherence to health care. The lack of education, besides social, cultural and economic factors, hampers the awareness of health care, adherence to appropriate treatment, and maintaining of a lifestyle free of exposure to risk factors<sup>(14)</sup>.

The UI is identified as most prevalent in white women<sup>(15)</sup>. Epidemiological study<sup>(16)</sup> conducted with 2,714 women aged 35 to 64 years in the state of Michigan, in the United States, found more events of urinary loss in white women (33.1%), compared to the black ones (14.6%). These findings are opposed to the present study, where there was a significance and prevalence of UI in brown women.

The urinary disorders are probably related to the treatment of systemic arterial hypertension, due to the use of antihypertensive drugs and diuretic medications, which would increase the urine output<sup>(17)</sup>. In this study, however, there was no association between this variable and the UI.

The results found in this study showed no significant association between UI and diabetes, disagreeing with the findings in the literature<sup>(18)</sup>, where women with DM

are more liable to refer symptoms of urinary loss, due to changes in vascularization of the pelvic-bladder floor and the hyperglycemia, which increase the urinary frequency, and changes in the neurophysiological mechanisms of the genitourinary system<sup>(19)</sup>.

Constipation affects the urological function, because the elongation of the rectum compresses the bladder, leading to urinary retention and, as a result of it, to urinary infection. Additionally, the force during evacuation causes pelvic muscle injury<sup>(7)</sup>. Although the current study did not demonstrate a significant association between constipation and the UI, it was observed that the incontinent women had this risk factor present in higher percentage.

Regarding the variables types of delivery, number of pregnancies, and number of children, this study evidenced no association with the UI. However, the vaginal type of delivery was more common in incontinent women, which is consistent with the study conducted with 253 women in Santo André, São Paulo State, that pointed vaginal delivery as a risk factor for the development of micturition disorders<sup>(20)</sup>.

Vaginal delivery is a risk factor for the occurrence of urinary incontinence due to neuromuscular trauma of the pelvic floor, caused by stretching or mechanical compression of the pelvic nerve<sup>(14)</sup> or, alternatively, in result of the pressure and distension of the pelvic floor caused by the passage of the newborn's head during the second stage of labor.

Studies are not conclusive as to the relationship between menopause and urinary loss, even though many women have reported the emergence of urinary incontinence in this period<sup>(14)</sup>, thus corroborating the results of the current research, where the majority of the incontinent women self-reported being in menopause.

Referring to the lifestyle, the influence of smoking habit and consumption of alcoholic beverages on the UI is still controversial but, as regards the smoking habit, the influence of nicotine on the contraction of the detrusor muscle, along with the occurrence of cough in smokers, could be causes of urinary losses<sup>(21)</sup>. In other research, however, the smoking habit was not significantly associated with the UI<sup>(22)</sup>, similarly to this research.

In the present study, the highest prevalence of alcoholic beverages consumption was found in the incontinent women group, corroborating another study involving 298 Japanese women, which showed higher alcohol intake in women with UI. Nevertheless, few studies have been performed demonstrating the relationship between alcohol intake and urinary incontinence<sup>(23)</sup>.

Finally, even though the objectives of this research have been achieved, it is suggested that, further studies be developed through this one, and that primary healthcare services be better qualified to take effective actions to prevent and treat the UI, investing in the health and quality of life of women.

## CONCLUSION

A high prevalence of urinary incontinence was found in climacteric women was found, emphasizing higher frequency among the younger, brown-skinned women.

## REFERENCES

1. Maron L, Leal A, Bandeira D, Macedo PS, Garcia SS, Silva EB. A assistência às mulheres no climatério: um estudo bibliográfico. *Revista Contexto & Saúde*. 2011;10(20):545-50.
2. Mishra GD, Cardozo L, Kuh D. Menopausal transition and the risk of urinary incontinence: results from a British prospective cohort. *BJU Int*. 2010;106(8):1170-5.
3. Thyssen HH, Clevin L, Olesen S, Lose G. Urinary incontinence in elite female athletes and dancers. *Int Urogynecol J Pelvic Floor Dysfunct*. 2002;13(1):15-7.
4. Torrealba FCM, Oliveira LDR. Incontinência urinária na população feminina de idosas. *Ensaio e Ciência*. 2010;14(1):159-175.
5. Haylen BT, Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. *Int Urogynecol J Pelvic Floor Dysfunct*. 2010;21(1):5-26.
6. Kruger AP, Luz SCT, Virtuoso JF. Home exercises for pelvic floor in continent women one year after physical therapy treatment for urinary incontinence: an observational study. *Braz J Phys Ther*. 2011;15(5):351-6.
7. Higa R, Lopes MHB, Reis MJ. Fatores de risco para incontinência urinária na mulher. *Rev Esc Enferm USP*. 2008;1(42):187-92.
8. Imamura M, Abrams P, Bain C, Buckley B, Cardozo L, Cody, et al. Systematic review and economic modelling of the effectiveness and cost-effectiveness of non-surgical treatments for women with stress urinary incontinence. *Health Technol Assess*. 2010;14(40):1-118.
9. Sievert KD, Amend B, Toomey PA, Robinson D, Milsom I, Koelbl H, et al. Can we prevent incontinence? ICI-RS 2011. *Neurourol Urodyn*. 2012;31(3):390-9.
10. Sacomori C, Negri NB, Cardoso FL. Incontinência urinária em mulheres que buscam exame preventivo de câncer de colo uterino: fatores sociodemográficos e comportamentais. *Cad Saúde Pública*. 2013;29(6):1251-9.
11. Tamanini JTN, Dambros M, D'Ancona CAL, Palma PCR, Netto Jr NR. Validação para o português do "International Consultation on Incontinence Questionnaire – Short Form" (ISIQ-SF). *Rev Saúde Pública*. 2004;38(3):438-44.
12. Oliveira E, Takano CC, Sartori JP, Araújo MP, Pimentel SHC, Sartori MGF, et al. Trato urinário, assoalho pélvico e ciclo gravídico-puerperal. *Femina*. 2007;35(2):89-94.
13. Figueiredo EM, Lara JO, Cruz MC, Quintão DMG, Monteiro MVC. Perfil sociodemográfico e clínico de usuárias de Serviço de Fisioterapia Uroginecológica da rede pública. *Rev Bras Fisioter*. 2008;12(2):136-42.
14. Berlezi EM, Dal Bem A, Antonello C, Leite MT, Bertolo EM. Incontinência urinária em mulheres no período pós-menopausa: um problema de saúde pública. *Rev Bras Geriatr Gerontol*. 2009;12(2):159-73.
15. Leroy LS, Lopes MHB, Shimo AKK. A incontinência urinária em mulheres e os aspectos raciais: uma revisão de literatura. *Texto & Contexto Enferm*. 2012;21(3):692-701.
16. Fenner DE, Trowbridge ER, Patel DL, Fultz NH, Miller JM, Howard D, et al. Establishing the prevalence of incontinence study: racial differences in women's patterns of urinary incontinences. *J Urol*. 2008;179(4):1455-60.

17. Jardim ADI, Mazzo A, Girão FB, Sonobe HM, Souza MC. Hipertensão arterial e incontinência urinária no idoso: revisão integrativa da literatura. *Rev Cuid.* 2011;5(1):38-43.
18. Cavalcante KVM, Silva MIGC, Bernardo ASF, Souza DE, Lima TCGC, Magalhães AG. Prevalência e fatores associados à incontinência urinária em mulheres idosas. *Rev Bras Promoç Saúde.* 2014;27(2):216-23.
19. Danforth KN, Townsend MK, Curhan GC, Resnick NM, Grodstein F. Type 2 diabetes mellitus and risk of stress, urge, and mixed urinary incontinence. *J Urol.* 2009;181(1):193-7.
20. Oliveira E, Zuliani LMM, Ishicava J, Silva SV, Albuquerque SSR, Souza AMB, et al. Avaliação dos fatores relacionados à ocorrência da incontinência urinária feminina. *Rev Assoc Med Bras.* 2010;56(6):688-90.
21. Locks MOH. Incontinência urinária na mulher idosa hospitalizada: desafios para assistência de enfermagem [tese]. Santa Catarina: Universidade Federal de Santa Catarina, Centro de Ciências da Saúde, Programa de Pós-Graduação em Enfermagem; 2013.
22. Gomes GV, Silva GD. Incontinência urinária de esforço em mulheres pertencentes ao Programa de Saúde da Família de Dourados-MS. *Rev Assoc Med Bras.* 2010;56(6):649-54.
23. Lee AH, Hirayama F. Alcohol consumption and female urinary incontinence: a community-based study in Japan. *Int J Urol.* 2012;19(2):143-8.

**First author's address:**

Ticiana Mesquita de Oliveira  
Universidade de Fortaleza - UNIFOR  
Av. Washington Soares, 1321  
Bairro: Edson Queiroz  
CEP 60.811-905 - Fortaleza - CE - Brasil  
E-mail: ticimesquita@unifor.br

**Mailing address:**

Ilana Nogueira Bezerra  
Programa de Pós-Graduação em Saúde Coletiva  
Universidade de Fortaleza - UNIFOR  
Av. Washington Soares, 1321, Bloco S  
Bairro: Edson Queiroz  
CEP 60.811-905 - Fortaleza - CE - Brasil  
E-mail: ilana.bezerra@yahoo.com.br