

PREVALENCE AND FACTORS ASSOCIATED WITH URINARY INCONTINENCE IN ELDERLY WOMEN

Prevalência e fatores associados à incontinência urinária em mulheres idosas

Prevalencia y factores asociados a la incontinencia urinaria de mujeres mayores

Original Article

ABSTRACT

Objective: To verify the prevalence of urinary incontinence (UI) complaints and associated factors among elderly women in the municipality of Petrolina / PE. **Methods:** Exploratory cross-sectional study conducted in 2009 with 172 elderly women who were assessed regarding sociodemographic, socioeconomic and lifestyle characteristics. UI was assessed using The International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) in addition to questions on obstetrics and comorbidities. Data were computed with a 95% confidence interval using STATA 9.0. **Results:** The urinary incontinence was present in 81 (47.1%) elderly women. The age group older than 75 years was associated with UI (PR 1.57 CI 95% 1.57 - 11.09). Regarding the association with occupation, it was verified that both the retired elders (PR 4.64 CI 95% 0.98 - 21.98) and housewives (PR 6.25 CI 95% 1.14 - 34.12) were more likely to report UI, but only the association with the housewife condition was significant. With regard to diabetes, elderly women who had the disease (PR 1.57 CI 95% 1.16 - 2.13) were more likely to report urinary incontinence when compared to elderly women without diabetes. **Conclusion:** There was a high prevalence of urinary incontinence among elderly women, which accounted for almost half of the women assessed and was associated with older age, housewives and diabetes.

Descriptors: Urinary Incontinence; Women's Health; Aging.

RESUMO

Objetivo: Verificar a prevalência da queixa de Incontinência Urinária (IU) e os fatores associados em idosas no município de Petrolina/PE. **Métodos:** Estudo transversal e exploratório realizado em 2009 com 172 idosas nas quais se avaliaram características sociodemográficas, socioeconômicas e estilo de vida. Para investigar a IU utilizou-se o "International Consultation on Incontinence Questionnaire – Short Form" (ICIQ-SF) acrescido de questões obstétricas e de comorbidades. Dados trabalhados com intervalo de confiança a 95% utilizando o STATA® 9.0. **Resultados:** A queixa de IU esteve presente em 81 (47,1%) idosas. A faixa etária maior que 75 anos de idade estava associada à IU (RP 1,57 IC95% 1,57-11,09). Na associação com ocupação notou-se que tanto as idosas aposentadas (RP 4,64 IC95% 0,98-21,98) quanto as donas de casa (RP 6,25 IC95% 1,14-34,12) tinham maior ocorrência de referir IU, mas apenas a associação com a condição dona de casa foi significativa. Quanto ao diabetes, idosas que tinham a doença (RP 1,57 IC95% 1,16-2,13) tinham maior frequência de referir queixa de IU quando comparadas às idosas sem diabetes. **Conclusão:** Encontrou-se uma elevada prevalência de Incontinência Urinária em idosas, correspondendo a quase metade das mulheres investigadas, estando associada às idosas de maior idade, donas de casa e diabéticas.

Descritores: Incontinência Urinária; Saúde da Mulher; Envelhecimento.

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RESUMEN

Objetivo: Verificar la prevalencia de queja de Incontinencia Urinaria (IU) y los factores asociados en mujeres mayores Del municipio de Petrolina/PE. **Métodos:** Estudio transversal y exploratorio realizado en 2009 con 172 mujeres mayores en las cuales se evaluaron las características socio demográficas, sócio económicas y el estilo de vida. Para investigar la IU se utilizo del International Consultation on Incontinence Questionnaire – Short Form” (ICIQ-SF) y otras preguntas sobre obstetricia y comorbilidades. Los datos fueron evaluados con intervalo de confianza del 95% utilizando el STATA® 9.0. **Resultados:** La queja de IU se presentó en 81 (47,1%) mujeres mayores. La franja de edad de mujeres mayores de 75 años estuvo asociada a la IU (RP 1,57 IC95% 1,57-11,09). Al asociar la IU y la ocupación se noto que las mujeres mayores jubiladas (RP 4,64 IC95% 0,98-21,98) y las amas de casa (RP 6,25 IC95% 1,14-34,12) refirieron más IU, sin embargo, solamente la asociación de la condición de ama de casa fue significativa. Respecto a la diabetes, las mujeres mayores que tenían la enfermedad (RP 1,57 IC95% 1,16-2,13) presentaron mayor frecuencia de queja de IU al comparar con aquellas sin diabetes. **Conclusión:** Se encontró una elevada prevalencia de IU en mujeres mayores que corresponde casi a la mitad de las mujeres investigadas con asociación entre las que tienen más edad, las amas de casa y diabéticas.

Descriptor: Incontinencia Urinaria; Salud de la Mujer; Envejecimiento.

INTRODUCTION

The control of micturition evolves from a reflex mechanism found in early childhood to the voluntary control in adult life through neurophysiological, volitive and reflexive processes that control bladder emptying and sphincter control⁽¹⁾. The lower urinary tract presents alterations associated with aging in both genders; however, as an isolated phenomenon, it is not a cause for this disorder, although it induces functional and structural alterations in the urinary system that predispose to the problem⁽²⁾. Nevertheless, certain conditions like histological alterations, traumas, and several comorbidities can affect the control of micturition⁽³⁾.

The International Continence Society – ICS has defined Urinary Incontinence (UI) as an “involuntary loss of urine”⁽⁴⁾. Although UI is not part of the physiological aging process, its prevalence has increased among older people⁽⁵⁾. UI is a multifactorial condition and a significant health concern in modern society, affecting more than 50 million people worldwide, mostly women⁽⁵⁾, in a proportion of 2-5 women to one man⁽⁶⁾.

Although the prevalence rates of UI may vary according to the definition and characteristics of the study and target population⁽⁷⁾, 39% of female population over 60 years old is estimated to present incontinence symptoms^(6,8,9). In Brazil, there are few current studies on the prevalence of urinary incontinence, and they estimate that 20%-30% of women aged 50-75 years are affected by this problem⁽¹⁰⁾.

Considering its etiology and physiopathology, the UI can be classified as Stress Urinary Incontinence (SUI), Urge Urinary Incontinence (UII) or Mixed Urinary Incontinence (MUI). Its etiology is multifactorial and it can compromise bladder filling and/or emptying, or be triggered by neuromuscular diseases, deficiency function of the support system, pregnancy, hormonal alterations, cancer and symptoms of occurrence of other diseases. However, the role of each of these conditions and the real cause of UI is still something that requires research⁽¹¹⁾.

The US government is estimated to spend circa 10-16 billion dollars per year on the problem of urinary incontinence in women^(12,13). In Brazil, there is no information on the annual costs of this problem. However, studies suggest that UI may have a negative impact on people’s quality of life^(12,14), directly interfering with the daily activities of elders, which generates a vicious cycle of anxiety and suffering – in addition to a feeling of shame – that leads them to an important psychological disturbance and different degrees of social isolation⁽¹⁴⁾. Furthermore, as a condition that affects the general state of health of patients, it is possible that UI can also affect self-reported health (SRH), which is largely used measure of the health status that has a strong capacity to predict morbidity and mortality⁽¹⁵⁻¹⁷⁾. The SRH incorporates multiple aspects of physical and social health of subjects and has presented a significant association with several aging-related outcomes⁽¹⁸⁾, like the UI.

Despite the importance of UI, women report several reasons for not seeking medical care, like the undervaluation of symptoms, as if the loss of urine was a natural occurrence of the aging process⁽¹³⁾, which reveals a lack of knowledge of the real dimension of the problem.

In this sense, considering the negative perception of health is a predictor of seeking medical care and that urinary incontinence is a neglected health problem surrounded by prejudice, the aim of this study is to verify the prevalence of complaints of Urinary Incontinence (UI) and associated factors in elderly women of the municipality of Petrolina/PE. Thus, this study may be able to contribute to the understanding of this phenomenon and hence help in the orientation and reorientation of public health policies aiming at the health promotion and quality of life of this population.

METHOD

This is an exploratory community-based cross-sectional study conducted in the period from September to December 2009.

The study included 172 elderly women aged 60 years and older attending Family Health Care Units, participating in community groups of elders and living in communities located in the neighborhoods of the municipality of Petrolina – PE. Additionally, they should not present any cognitive deficits. Elderly women who presented cognitive deficits were excluded from the study.

In all, four Family Health Care Units were drawn from the *Cadastro Nacional de Estabelecimentos de Saúde - CNES/DATASUS* (National Database of Health Care Facilities), accounting for 10% of all the unit of the municipality. Concerning the communities, four neighborhoods were drawn, corresponding to 10% of all the communities in the municipality. For each neighborhood, two census sectors were drawn from the maps and sectors database of the *Instituto Brasileiro de Geografia e Estatística – IBGE* (Brazilian Institute of Geography and Statistics). However, the two senior centers were chosen based on convenience due to the lack of information about the quantity and location of this type of organization in the municipality.

The interviews were determined based on drawings that took place in the Health Care Units and the Senior Centers on each visit. The neighborhoods were visited in a counter-clockwise direction with data collection occurring in alternate households. If there were no elderly women in the households drawn, the household was closed or the person refused to participate, the questionnaire was applied in the next household where there was an elderly woman aged 60 or older.

Data were collected using a questionnaire on socio-demographic characteristics (age, marital status, and education), socioeconomic characteristics (income and occupation) and lifestyle (alcohol, smoking and regular physical activity). The UI was assessed using the International Consultation on Incontinence Questionnaire – Short Form (ICIQ-SF) translated and validated into Portuguese⁽¹⁹⁾. Each item of these domains had its answer checked on a Likert-type scale with five choices. Added to this instrument were questions about the type of birth and type of care received during birth and also one question about the presence of diabetes.

The presence of urinary incontinence (UI) was determined when the elderly woman reported loss of urine at least once a week – even in small quantities – interfering or not with her life⁽³⁾.

Regarding reproductive characteristics and self-reported morbidity the variable *children* was grouped into two categories: yes and no, respectively, concerning the presence or lack of children. *Number of children* was grouped into three categories: none, 1-5 children, and more than five children. *Type of birth* was categorized into three: no children, natural childbirth and Cesarean childbirth. With regard to the *type of care received during childbirth*, it was grouped into the following categories: no children, public hospital, private hospital, midwife or home birth. Regarding the reported morbidity, the *presence of diabetes* was classified in yes and no according to its occurrence, just like the variable *urinary incontinence*.

Data were analyzed using the statistical package STATA® 9.0, which calculated absolute and relative frequencies of categorical variables and the mean and standard deviation of continuous variables. It also calculated the prevalence, the prevalence ratio (PR) and the respective confidence interval set at 95% (CI 95%).

The procedures for the approach, collection and analysis of data are in accordance with Resolution No. 196/96 of the National Health Council and were approved by the Research Ethics Committee of the *Universidade de Pernambuco* (University of Pernambuco) under Opinion No. 124/2009.

RESULTS

Of the 172 elderly women assessed in the municipality of Petrolina/PE, the majority (n = 90; 52.4%) was between 65 and 75 years old, 109 (63.5%) were separated/widowed/divorced and had attended school for 1-4 years (n = 74; 43.1%). Regarding income, most women received up to one minimum wage per month (n= 144; 83.7%) and were retired (n= 133; 77.4%). Of the 172 elders, 125 (72.7%) were the head of the family. With regard to lifestyle, most elders did not practice regular physical activity 119 (69.1%), did not

drink alcohol 168 (97.7%) and did not smoke 148 (86.1%) (Table I).

Table I - Socio-demographic, socioeconomic and lifestyle characteristics of elderly women. Petrolina-PE, 2009.

Variables	n	%
Age		
≤ 65 years	48	27.9
66-75 years	90	52.4
> 75 years	34	19.7
Marital Status		
Single	17	9.9
Married or Common-law marriage	46	26.7
Separated/widowed/divorced	109	63.4
Years at school		
None	73	42.4
1-4 years	74	43.1
Five years or more	25	14.5
Income (minimum wages)		
≤ 1	144	83.7
> 1	28	16.3
Occupation		
Formal job	12	6.9
Retired	133	77.4
Housewife	27	15.7
Position in the family		
Head of the family	125	72.7
Member of the family	47	27.3
Weekly physical activity		
Never	119	69.1
Up to three times	40	23.3
More than three times	13	7.6
Alcohol Consumption		
No	168	97.7
Yes	4	2.3
Smoking		
No	148	86.1
Yes	24	13.9

Concerning reproductive characteristics, 156 elders (90.7%) had children. Of these, 118 (75.2%) had more than four children. Most women had natural childbirth (n=147; 93.6%) with the help of a midwife or at home (n=89; 56.7%). Regarding self-reported morbidity, it is important to highlight that 45 women reported having diabetes, pointing to a prevalence of 26.2%. As to urinary

incontinence, there was a higher prevalence whereas 47.1% (n=81) of the women reported having this condition as it can be observed in Table II.

Table II - Reproductive characteristics and self-reported morbidity of elderly women. Petrolina-PE, 2009.

Variables	n	%
Children		
Yes	156	90.7
No	16	9.3
Number of children		
1-4 children	39	24.8
> 4 children	118	75.2
Type of birth		
Natural	147	93.6
Cesarean	10	6.4
Type of care received during birth		
Public hospital	66	42.0
Private hospital	2	1.3
Midwife or home birth	89	56.7
Self-reported diabetes		
Yes	45	26.2
No	127	73.8
Urinary incontinence complaint		
Yes	81	47.1
No	91	52.9

Table III shows the analysis factors associated with urinary incontinence (UI). Being over the age of 75 was associated with UI (PR 1.57; CI95% 1.57-11.09). When compared to single elders, elderly women who were married or had a common-law marriage presented a lower frequency of UI complaints (PR 0.79; CI95% 0.26-2.42) while separated/widowed/divorced elderly women were more likely to present UI (PR 1.10; CI95% 0.39-3.07). Significant differences were observed.

Regarding education, the elders who had spent 1-4 years at school and those who had spent more than five years at school were more likely to report UI (PR 1.28; CI95% 0.67-2.45 and PR 1.18; CI95% 0.47-2.94, respectively). However, there was no significant association with both levels of education. Additionally, income was not significantly associated with UI (PR 1.07; CI95% 0.71-1.62) (Table III).

When checking for association with occupation, it was observed that the retired elders (PR 4.64; CI95% 0.98-21.98) and elderly housewives (PR 6.25; CI95% 1.14-34.12) were more likely to report UI; however, only the association with housewives presented statistical significance. Regarding the role of the position in the family in relation to UI complaint,

Table III - Prevalence and crude prevalence ratio (CI95%) of urinary incontinence according to the covariates of interest in elderly women. Petrolina/PE, 2009.

Variables	n	Prevalence of UI	PR	CI(95%)
Age				
≤ 65 years	48	43.7	1.00	-
66-75 years	90	37.8	0.78	(0.38 - 1.59)
> 75 years	34	76.5	4.18	(1.57 - 11.09)
Marital status				
Single	17	47.1	1.00	-
Married or Common-law marriage	46	41.3	0.79	(0.26 - 2.42)
Separated/ Widowed/Divorced	109	49.5	1.10	(0.39 - 3.07)
Years spent at school				
None	73	43.8	1.00	-
1-4 years	74	50.0	1.28	(0.67 - 2.45)
Five years or more	25	48.0	1.18	(0.47 - 2.94)
Income (MW)				
≤ 1	144	46.5	1.00	-
> 1	28	50.0	1.07	(0.71 - 1.62)
Occupation				
Formal job	12	16.7	1.00	-
Retired	133	48.1	4.64	(0.98 - 21.98)
Housewife	27	55.6	6.25	(1.14-34.12)
Position in the family				
Head of the family	125	44.0	1.00	-
Member of the family	47	55.3	1.26	(0.91-1.74)
Weekly physical activity				
Never	119	50.4	1.00	-
Up to three times	40	37.5	0.59	(0.28-1.23)
More than three times	13	46.1	0.84	(0.27-2.66)
Smoking				
No	148	47.3	1.00	-
Yes	24	45.8	0.97	(0.61-1.54)
Children				
Yes	156	37.5	1.00	-
No	16	48.1	1.28	(0.67-2.46)
Number of children				
1-4 children	39	35.9	1.00	-
More than 4 children	118	52.5	1.46	(0.93-2.30)
Type of birth				
Normal	147	51.0	1.00	-
Cesarean	10	60.0	0.82	(0.37-1.77)
Type of care				
Public hospital	66	46.9	1.00	-
Private hospital	2	50.0	1.13	(0.07-18.8)
Midwife or home birth	89	49.4	1.10	(0.58-2.09)
Diabetes (self-reported)				
No	127	40.9	1.00	-
Yes	45	64.4	1.57	(1.16-2.13)

UI=Urinary Incontinence; n=sample size; PR=prevalence ratio; CI=confidence interval; MW=minimum wage.

there was no statistically significant difference between the variables *head of the family* or *family member* and reporting UI (PR 1.26; CI95% 0.91-1.71) (Table III).

Regarding weekly physical activity, elderly women who exercised up to three times a week (PR 0.59 CI95% 0.28-1.23) and elderly women who exercised more than three times a week (PR 0.84 CI95% 0.27-2.66) were less likely to present UI complaint when compared to elders who did not practice physical activity; however, this association was not statistically significant. Smoking was also not statistically significantly associated with UI complaint (PR 0.97; CI95% 0.61-1.54).

When assessing the reproductive characteristics, it was observed that the elderly women who had no children were more likely to report UI complaint with a PR 1.18 (CI95% 0.67-2.46), just like the elderly women who had more than four children, with PR 1.46 (CI95% 0.93-2.30); however, there was no statistical difference. Still about the reproductive characteristics, elderly women who had cesarean births were less likely to report UI complaint (OR 0.8; CI 95% 0.37-1.77) when compared to elderly women who had normal births, but the differences were not statistically different.

Finally, another relevant datum refers to the significant association between self-reported diabetes and UI complaint, i.e., elderly women who reported having diabetes were more likely to report UI complaint if compared to healthy elderly women with PR 1.57 (CI95% 1.16-2.13).

DISCUSSION

The present study identified a high prevalence of UI among elderly women (47.1%) who were mostly aged over 65 years, lived without a partner (separated/widowed/divorced), had a low education level, low income, received a retirement benefit of up to one minimum wage, and were the head of the family. They were sedentary women; however, they did not consume alcohol and did not smoke. Considering the risk factors assessed, the statistically significant association between self-reported diabetes and UI complaint stood out.

Based on scientific studies developed worldwide, the UI has a high prevalence⁽¹⁰⁾, mainly among women^(9, 20); however, there is a large variation between the percentage values of the different studies^(8,9,10,20). The methodological divergences, the type and interval between studies are factors that should be taken into account in order to explain the large variation found, which figures from 74%⁽⁹⁾ to 39% in adult women aged over 60 years^(6,8). The present study corroborates the findings in literature, presenting a prevalence of 47.1% (n=81) of UI complaint among women, i.e., nearly half of the studied elderly women presented loss

of urine, which indicates a high prevalence just like that found in the literature.

Scientific evidence points to an unfavorable socioeconomic profile of elderly women^(9,20). A study conducted in the urban area of Pouso Alegre/MG analyzed the general population and found a prevalence of 65.9% of women (40-59 years old) with a low education level (84%), high illiteracy rate or only primary education (61.8%), and who performed unpaid job/activity (50.7%)⁽⁹⁾. Furthermore, a study⁽²⁰⁾ conducted in Campinas/SP has also identified in the elderly population a high prevalence of women with UI (74%) aged over 70 years (78%) who had no partners (59%), lived with family (75%), were retired (71%) and had a low education level (49%)⁽²⁰⁾.

The present study, conducted in Petrolina/PE, also identified unfavorable socioeconomic conditions regarding marital status, education and monthly income. Circa 63.4% of elderly women were separated/widowed/divorced, 43.1% had spent only 1-4 years at school, and 83.7% had a low income (up to one minimum wage per month).

Unfavorable conditions like the aforementioned ones can aggravate certain health conditions like UI due to the reduced access to goods and services, which can result in a disengagement in health education programs, narrowing the search for specialized care. Additionally, elderly women believe that the loss of urine is a normal condition of the aging process⁽²¹⁾.

In the present study, being a housewife was the main occupation that presented a significant association with UI complaints among elderly women. Additionally, most of the women were sedentary (69.1%). However, practicing physical activity three times a week or more than three times a week seemed to lower women's chances of presenting UI complaints if compared to sedentary elderly women. Nevertheless, the association of the results was not significant.

Notably, research on physical activity programs showed that although they foster social relationships and promote better Quality of Life, most of the elderly female interviewees presented a negative perception of health⁽²¹⁾. Furthermore, a review on the practice of physical activity and UI shows that women who practice physical activity, especially more vigorous activities, are more likely to have involuntary loss of urine, which is a common reason for quitting physical activity. However, the review also suggests the use of alternatives like physical barrier (absorbent pads) and the reduced intake of liquids as a strategy for keeping up physical exercises⁽²²⁾.

Regarding smoking habits, 14% of the elderly female smokers did not present significant association with UI complaint in the present study, although literature shows that smoking and alcohol consumption are associated with pelvic floor dysfunctions and relevant risk factors for UI⁽²³⁾.

Obstetric characteristics like the number of children and type of birth were not significantly associated with UI complaints in the present study, although 75.2% of interviewees reported having more than four children. These results differ from the results of other studies^(24,25) that suggest that both vaginal birth and number of children are associated with UI. These results may not have been found in the present study because 56.7% of the elderly women reported giving birth with the help of a midwife or at home, a context in which it is uncommon the use of procedures like episiotomy and forceps. The use of forceps in childbirth is associated with UI⁽²⁵⁾, and routine episiotomy is a factor that negatively affects the strength of pelvic floor muscles and can cause UI⁽²⁶⁾.

Elderly women with diabetes were more likely to report UI complaint if compared to the elders who had no diabetes in the present study. These results are in accordance with another study⁽²⁷⁾ that observed that women with diabetes were more likely to report UI than women without diabetes. Furthermore, women with diabetes rarely reported this condition to the doctor and believed that UI was a rare condition⁽²⁷⁾. Aspects like microvascular alterations that affect the bladder-pelvic floor complex and increased urinary frequency due to hyperglycemia, associated with changes in the neurophysiological mechanisms of the genitourinary system, can contribute to an increased rate of UI complaint among people with diabetes⁽²⁸⁾.

In the present study, the chances of reporting UI increased with age. In the general population, the several alterations caused by the aging process and the high prevalence of comorbidities are important factors associated with UI⁽³⁾. However, there is a higher proportion of women with UI than men. The prevalence of UI among women is nearly five times higher than that among men⁽⁹⁾. This can be explained by the fact that organic alterations during senescence may be potentialized by female features, like the reproductive history, which exposes the genitourinary tract to larger traumas, and by menopause-related hormonal changes⁽²⁹⁾.

The results of the present research should be carefully analyzed because the associations found presented a wide confidence interval and may be related to the measure used to define UI. Besides that, it is a cross-sectional study that prevents one from drawing major conclusions about the studied phenomena. Also, no specific tests for the diagnosis or confirmation of UI have been performed, assuming this condition based on the complaints of the elderly interviewees only. However, the present study points to the need for further research using clinical assessment and specific tests to assess the function and dysfunction of the urinary tract, like the urodynamic testing^(30, 31), in order to clarify obscure aspects about the determinants of UI.

CONCLUSION

A high prevalence of Urinary Incontinence has been found among elderly women, accounting for nearly half of the women assessed and being associated with older women, housewives, and diabetes. However, further studies with larger samples are needed in order to show the reality of elderly women of the municipality of Petrolina/PE better

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