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# FACTORS ASSOCIATED WITH URINARY INCONTINENCE AMONG ELDERLY OF RURAL AREA

# FATORES ASSSOCIADOS À INCONTINÊNCIA URINÁRIA ENTRE IDOSOS DA ZONA RURAL*

# LOS FACTORES ASOCIADOS CON URINARIAS, ENTRE MAYOR DE LA ZONA RURAL

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## ABSTRACT

**Objective**: The objective of this study was to describe socioeconomic characteristics of the elderly living in rural Uberaba-MG and to verify factors associated with UI. Participants were 96 elderly with UI and 754 without UI. Instruments: Brazilian Questionnaire on Multidimensional Functional Evaluation and the Geriatric Depression Scale. **Method**: Descriptive analysis was performed using percentage frequencies, bivariate analysis using the chi-square test for factors associated with the presence of UI, significant when p <0.10, as well as in the logistic regression model. **Results**: Among the elderly with UI: the highest percentage of women, age 60-70 years, married or living with a partner, 4 ├8 years of schooling, monthly income of 1 minimum salary and resided only with the spouse. As predictors for UI, and depression. This study had as a limiting factor the self-report of UI. **Conclusion**: The results can serve as a subsidy for the elderly to be evaluated by qualified professionals and for the planning of action strategies by the team.
**Keywords:** Elderly; Urinary incontinence; Rural population.

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## RESUMO

**Objetivo**: Objetivou-se descrever características socioeconômicas dos idosos residentes na zona rural de Uberaba- MG e verificar fatores associados à IU. Participaram 96 idosos com IU e 754 sem IU. Instrumentos: Questionário Brasileiro de Avaliação Funcional Multidimensional e a Escala de Depressão Geriátrica Abreviada. **Método**: Realizou-se análise descritiva por meio de frequências percentuais, análise bivariada através do teste qui-quadrado para fatores associados à presença de IU, significativo quando $p<0,10$, assim como no modelo de regressão logística. **Resultados**: Dentre os idosos com IU: maior percentual de mulheres, idade 60-70 anos, casados ou moravam com companheiro, 4 ├ 8 anos de estudo, renda mensal de 1 salário mínimo e residiam apenas com o cônjuge. Como preditores para IU, e a depressão. Este estudo teve como fator de limitação o autorrelato de IU. **Conclusão**: Os resultados podem servir como subsídio para que os idosos sejam avaliados por profissionais qualificados e para o planejamento de estratégias de ação pela equipe.

**Palavras chave:** Idoso; Incontinência Urinária; População Rural.

**RESUMEN**

**Objetivo**: Se objetivó describir características socioeconómicas de los ancianos residentes en la zona rural de Uberaba-MG y verificar factores asociados a la IU. Participaron 96 ancianos con IU y 754 sin IU. Instrumentos: Cuestionario Brasileño de Evaluación Funcional Multidimensional y la Escala de Depresión Geriátrica Abreviada. **Método**: Se realizó un análisis descriptivo por medio de frecuencias porcentuales, análisis bivariado a través del test qui-cuadrado para factores asociados a la presencia de IU, significativo cuando p <0,10, así como en el modelo de regresión logística. **Resultados**: Entre los ancianos con IU: mayor porcentaje de mujeres, edad 60-70 años, casados o vivían con compañeros, 4 a 8 años de estudio, ingreso mensual de 1 salario mínimo y residían sólo con el cónyuge. Como predictores para IU, y la depresión. Este estudio tuvo como factor de limitación el autorrelato de IU. **Conclusión**: Los resultados pueden servir como subsidio para que los ancianos sean evaluados por profesionales calificados y para la planificación de estrategias de acción por el equipo.

**Palabras clave:** Edad avanzada; Incontinencia urinaria; Población rural.

## INTRODUCTION

THE *International Continence Society* (ICS) defines urinary incontinence (UI) such as "complaint of any involuntary leakage of urine".[1] This problem often affects the elderly[2], more prevalently than any other age group.[3]

It should be mentioned that the UI can have a negative effect on the life of the elderly. The continuous loss of urine can produce pressure ulcers, urinary tract infections and sexual dysfunction, and also generate various forms of disability in the elderly, as well as affect their quality of life.[4] The UI is considered an indicator of

fragility and risk factor of institutionalization, falls, functional distress and mortality.

It exerts multiple effects on daily activities, social interactions and self-perceived health. The biggest problems are related to social and mental well-being, significantly affecting the quality of life (QOL) with psychological, physical, professional, sexual and social consequences.[5]

As regards the mechanism of the UI it is known that the urine is stored in the bladder is low pressures and so that urination occurs there is neuromuscular activation of pathways that lead to contraction of the detrusor muscle, resulting in relaxation of the urethral sphincter. The activity of the parasympathetic cholinergic system promotes medium bladder contractility and adrenergic pathways are responsible for bladder sphincter relaxation. Any change in this cycle caused by anatomical or physiological changes may result in disruption of normal cycles of bladder storage and emptying, causing UI.[6]

A study conducted in São Paulo showed that UI was a prevalent condition among older people with low income and the female and chronic health conditions such as hypertension, diabetes and obesity were associated with UI.[2]

In a survey performed with seniors in Selangor, Malaysia, it was found that males, aged 80 or over, depression, diabetes and functional dependence were associated with UI.[7]

Realizing that the rural context has not been constituted as a priority of research on the aging process, having information about the health status of this group is critical to plan actions in order to promote healthy aging of those who still live in rural areas.[8]

Thus, it is not well established how this issue occurs among countryside older people. It is believed that studies evaluating the characteristics and health conditions of elderly people, living in the countryside, will allow greater insight into the real needs of this population and may subsidize effective health actions in these locations.

The study aimed to describe the socioeconomic characteristics of the elderly living in the countryside of an interior of the municipality of Minas Gerais and to identify factors associated with UI among these seniors.

## METHODS

This research is part of a larger household survey, cross-sectional, observational and analytical study, which was developed in the rural municipality of Uberaba-MG. Data were collected from June 2010 to March 2011.

The rural area of municipality mentioned is divided into three health districts (HD). It features 100% coverage of areas covered, carried out by four teams of the Family Health Strategy (FHS). To make up the population of the countryside, in June 2010 it was obtained the number of elderly enrolled in the FHS, totaling 1,297 seniors. Of these, 117 have moved; 105 did not complete minimum score in cognitive assessment; 75 refused; 57 were not found after three visits; 11 died, 3 were hospitalized, and 79 were canceled for other reasons.

Inclusion criteria were: 60 years or older; live in the rural municipality of Uberaba-MG; obtain a minimum score of 13 points in cognitive assessment, agree to participate and self-report UI. Thus, there were 850 elderly participating: 96 self-reporting UI and 754 with no UI.

The elderly were interviewed at home, therefore, it was counted on the collaboration of the community health agents to the location of the residence. Authorization from the Municipal Health Department was obtained for this activity.

Before carrying out the interview a cognitive assessment was applied using the Mini Mental State Examination (MMSE), translated and validated in Brazil. The MMSE provides information on different cognitive parameters, containing questions grouped into seven categories: temporal and spatial orientation; record of three words; attention and calculation; recall of the three words, language and visual constructive capacity. The MMSE score ranges from zero to 30 points, with the cutting points: 13 for illiterates, 18 for education of 1 to 11 years and 26 to to higher education superior to 11 years.[9]

The Brazilian Multidimensional Functional Assessment Questionnaire[10] was used to characterize the socio-economic data. The socioeconomic variables were: gender; age group (in years); marital status; housing arrangement; education; individual income (in minimum wages).

Indication of depression was evaluated by the short version of the Geriatric Depression Scale (GDS-15), adapted in Brazil. This scale aims to screening for depression, and consists of 15 closed questions with objective answers

(yes or no), with a score that can range from zero to 11 points being considered indicative for depression when the score is greater than five points.[11]

An electronic database in Excel® program was built. Data from interviews, after reviewing and coding, were processed in a personal computer, by two people, with double entry. At the end of typing it was proceeded the consistency between the two databases. When there was inconsistent data, the original interview was verified and the correction was done.

A descriptive analysis by percentage frequencies was carried out. To verify the factors associated with UI a preliminary bivariate analysis was performed using the chi-square. Tests were considered significant when $p < 0.10$.

It was included in the logistic regression model, with reverse scheduling (Backward method), only the variables that met the criteria above ($p<0.10$). As a dependent variable it was considered the presence of UI and, as predictors the gender (male, female), age group (60-70, 70-80, 80 and over), self-reported obesity (yes, no), history of stroke (yes, no) indicative of depression (yes, no), diabetes mellitus (yes, no). Tests were considered significant when $p<0.05$.

This project was approved by the Ethics in Human Research Committee of the Federal University of Triangulo Mineiro, Protocol number 1477. Prior to signing the Informed Consent Form, the objectives of the research were presented to the elderly, offering the relevant information.

## RESULTS AND DISCUSSION

Table 1 below, shows the socioeconomic variables on the population studied.

**Table 1**. Frequency distribution of socioeconomic variables of the elderly, according to the presence or absence of UI. Uberaba, 2012.

| variables | | UI | | | |
|---|---|---|---|---|---|
| | | No | | Yes | |
| | | N | % | N | % |
| Sex | Male | 408 | 54.1 | 41 | 42.7 |
| | Female | 346 | 45.9 | 55 | 57.3 |
| Age group (In years) | 60 ├ 70 | 465 | 61.7 | 50 | 52.1 |
| | 70 ├ 80 | 228 | 30.2 | 33 | 34.4 |

| | | | | | |
|---|---|---|---|---|---|
| | 80 and more | 61 | 8.1 | 13 | 13.5 |
| Marital status | Married / living with a partner | 513 | 58.0 | 59 | 61.5 |
| | Separated / separated / divorced | 47 | 6.2 | 9 | 9.4 |
| | Widower | 141 | 18.7 | 20 | 20.8 |
| | Not married | 53 | 7.0 | 8 | 8.3 |
| Housing arrangement | Alone | 120 | 15.9 | 16 | 16.7 |
| | Spouse | 363 | 48.1 | 38 | 39.6 |
| | Others of his generation | 69 | 9.2 | 10 | 10.4 |
| | Children | 155 | 20.6 | 21 | 21.9 |
| | Grandchildren | 29 | 3.8 | 7 | 7.3 |
| | Other arrangements | 18 | 2.4 | 4 | 4.2 |
| Education | No schooling | 179 | 23.7 | 30 | 31.2 |
| (In years) | 1 ├ 4 | 231 | 30.6 | 25 | 26.0 |
| | 4 ├ 8 | 276 | 36.6 | 36 | 37.5 |
| | 8 | 26 | 3.4 | 3 | 3.1 |
| | 9 and more | 42 | 5.6 | 2 | 2.1 |
| Individual income | No income | 76 | 10.1 | 10 | 10.4 |
| (Minimum wages) * | <1 | 25 | 303 | 6 | 6.2 |
| | 1 | 356 | 47.3 | 53 | 55.2 |
| | 1┤ 3 | 238 | 31.6 | 21 | 21.9 |
| | 3┤ 5 | 43 | 5.7 | 3 | 3.1 |
| | > 5 | 15 | 2.0 | 3 | 3.1 |

* In June 2010 the minimum wage was R$ 510.00 and in March 2011, R$545.00 (DIEESE, 2011).

Among the elderly with UI there was higher percentage of women (57.3%) than among those with not UI (45.9%), Table 1. A study with rural elderly in the interior of Minas Gerais noted that 13.7% of women and 9.1% of men reported UI, corroborating the results found in this research with percentage lower than this survey.[13]

The highest prevalence of UI in women may be related to several factors, such as the natural aging of the muscle fibers of the pelvic floor, ovarian function decreased in postmenopausal, obesity and multiple vaginal births.[14]

Given this perspective, it is due to the nursing staff the early planning of intervention strategies in order to prevent UI through continuously health education, contributing to the reduction of injuries. It is noteworthy that in the countryside, actions in strategic locations throughout the community could be re-thought.

A study conducted in southern Brazil among the elderly with UI showed higher prevalence among those aged 80 and older (45.1%), diverging from what was found in this research[15], where most of the elderly with UI were aged between 60-70 years (52.1%), Table 1.

Nursing professionals can contribute by providing guidance on the association of the practice of specific exercises for the muscles, in order to strengthen them, as well as encourage behavioral therapy, which consists of a

combination of techniques, which have as a principle to stimulate habits and behavioral changes, and from there, develop strategies to minimize or eliminate UI.[16]

In both groups the majority were married or lived with a partner, being 61.5% among those who self-reported UI and 58% for those with no UI, Table 1. These data corroborate findings in a study among Chinese, in which 81,3% of the elderly with UI were married. Even with the difficulties that the disease brings, a study conducted with elderly couples in Europe has shown that having a partner is a positive factor in coping diseases.[17]

In this sense, nursing can contribute by entering the companion in care, in order to strengthen support in face of the UI.

Concerning the housing arrangement, elderly living only with their partner was predominant, being 39.6% among those who self-reported UI and 48.1% for those with no UI, Table 1.

With the process of urbanization, the housing arrangement in rural areas has undergone transformations, since the young have migrated to cities in search of improved financial and profissional resources.[18]

Health professionals should be prepared to advise on self care, the importance of collaboration and incentive of the partner in the treatment and prevention of UI.

Regarding education, the highest percentage referred having 4- 8 years of education, and 37.5% for those with UI and 36.6% with no UI, Table 1. A similar result was found in a study conducted in an urban area in Minas Gerais, in which 30% of the elderly with UI presented the same time of education.[12]

It is believed that the low education contributes to a late search for the health service, as the educational level is an important factor for understanding and information about the diseases, its treatment and prevention.[12] It is possible that the low education of the countryside elderly make the UI an experience as a natural consequence, resulting from aging, contributing to the delayed search for the health service.

In this sense it is up to the nurse, together with other health professionals, to plan educational activities that are consistent with the possibility of understanding by the users with clear and objective language.

The itinerant work by the health team could lead to the places with difficult access to information, in order to prevent diseases and provide health of the elderly in rural areas, thus preventing them from getting dependent on transport to get to the units.

To verify the factors associated to UI among the elderly, it was carried out, initially, a bivariate analysis ($p<0.10$). The variables that met the established criteria, being inserted in the multivariate model, were: gender ($\chi2=4.443$; $p=0.035$), age group ($\chi2=4.373$; $p=0.097$), obesity ($\chi2=26.054$; $p<0.001$ ), stroke ($\chi2=5.429$; $p=0.02$) and indicative of the depression ($\chi2=17.257$; $p<0.001$).

**Table 2**. Multivariate model of factors associated with UI among the elderly. Uberaba, 2012.

| variables | Initial model[1] | | | Final model[2] | | |
|---|---|---|---|---|---|---|
| | β * | CI (95%) | *P* | β * | CI (95%) | *P* |
| *Women* | 1.24 | 0.78 to 1.95 | 0.365 | - | - | - |
| *Age group* | | | | | | |
| 70 ├80 | 1.57 | 0.94 to 2.5 | 0.084 | - | - | - |
| 80 or more | 1.42 | 0.69 to 2.94 | 0.345 | - | - | - |
| *Obesity* | 3.26 | 1.94 to 5.46 | <0.001 | 3.06 | 1.86 to 5 | <0.001 |
| *Stroke* | 2.48 | 0.99 to 6.22 | 0.052 | - | - | - |
| *Indicative of depression* | 2.07 | 1.29 to 3.32 | 0.003 | 2.31 | 1.46 to 3.64 | <0.001 |

[1]$\chi2=43.325$; $p<0.001$
[2]$\chi2=33.38$; $p<0.001$
* β Exponential

In the multivariate model, it was noted that the obese elderly subjects were about three times more likely to have UI ($\beta=3.06$, $p<0.001$) Table 2.

Research conducted in the interior of São Paulo, showed results where the weight gain was associated with UI, which was also observed in this study.[19]

Overweight among elderly contributes to the increase in UI symptoms, showing that regular physical exercise is a protective factor against the IU because it prevents obesity.[14]

As obesity is a public health problem, guidance on the importance of a balanced diet, physical activity and weight

loss should be addressed by the health team, in order to reaffirm the importance of healthy habits.

The indication of depression contributed approximately twice with the chances of UI (β=2.31, p<0.001), Table 2. A study conducted in a community of Korean elderly, showed association between UI and depression (p<0.001).[20] A research developed in Florianópolis-RS found that older adults with UI had a higher percentage in the indication of depression (45.1%), when compared to older people who have IU[15]. Therefore, both works corroborate the results found in this study.

UI can have a negative impact leading to a depressive condition, since the individual has his emotional state impaired due to the embarrassment and fear of relating to your partner by presenting urinary losses. The incontinent elderly can move away from society for fear of presenting unpleasant odor resulting from urinary losses, which can lead him to constraint.[15]

Health services and its professionals must be prepared to diagnose, assess emotional changes among the elderly, as well as to investigate possible causes of isolation and behavioral changes, developing actions to reintegrate the elderly in order to prevent harm to health resulting from UI.

## CONCLUSION

The results of this study showed higher prevalence of UI in women, aged between 60-70 years, married, education 4-8 years of study, one minimum wage income. Obesity and the presence of indicative of depression were predictive factors for UI.

Knowing the factors that contribute to the prevention of UI, assess, address and detect incontinent elderly it is essential for health professionals to enable them to improve the quality of life of these seniors. It is due to the nursing staff to guide on the obesity harms in the case of UI, encouraging changes in eating habits, daily physical activity, so to make elderly aware and prevent health problems.

Encouraging the participation of community events, family support and strengthen of the bond with their spouse are also factors to better face the UI, as the disease leads to social isolation and, consequently, depression.

Special attention should be given the UI features in order to plan actions

aimed at preventing diseases, comorbidity identification and health promotion, contributing to the prevention of disease, as well as the factors associated with it.

It is noteworthy that this study has as a limiting factor the undiagnosed UI, only the self-reporte by the elderly participants. Nonetheless, it allowed to know the socioeconomic and health characteristics of these elderly, as well as to verify the possible factors associated with UI in this population. Thus, these results can serve as subsidy for the elderly who reported the presence of UI are evaluated by qualified professionals, to investigate the diagnosis of the disease and to plan action strategies by the team.

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