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Impact of urinary incontinence types on women's quality of life

Impacto dos tipos de incontinência urinária na qualidade de vida de mulheres

Impacto de los tipos de incontinencia urinaria en la calidad de vida de mujeres

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ABSTRACT

Objective: To identify the most frequent type of urinary incontinence in women assisted in two outpatient clinics of urogynecology, and to compare general and specific quality of life among the different types of incontinence measured through validated questionnaires. **Method:** Cross-sectional study conducted at the urogynecology outpatient clinic. The following questionnaires were used for quality of life assessment: Medical Outcomes Study 36-item Short-Form Health Survey (SF-36), International Consultation Incontinence Questionnaire Short-Form (ICIQ-SF), King's Health Questionnaire (KHQ), and Pelvic Organ Prolapse Incontinence Sexual Questionnaire (PISQ-12). **Results:** The study included 556 women. Mixed Urinary Incontinence was the most frequent type (n=348/62.6%), followed by Stress Urinary Incontinence (n=173/31.1%) and Urge Urinary Incontinence (n=35/6.3%). Women with mixed urinary incontinence had greater impact on the general (SF-36) and specific quality of life (KHQ and ICIQ-SF) compared to the others ($p<0.05$). In the evaluation of sexual function (PISQ-12), there was no difference between groups ($p=0.28$). **Conclusion:** All types of urinary incontinence interfere both in the general and specific quality of life, but women with mixed urinary incontinence are the most affected.

DESCRIPTORS

Pelvic Floor Disorders; Urinary Incontinence; Women's Health; Quality of Life; Health Promotion.

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INTRODUCTION

Urinary Incontinence (UI) is a storage symptom defined as the complaint of any involuntary urine loss[1]. It is classified as Stress Urinary Incontinence (SUI) when there is involuntary urine loss during exertion or physical activity; Urge Urinary Incontinence (UUI) when there is involuntary urine loss associated with immediate urge to urinate; and Mixed Urinary Incontinence (MUI) when there is a complaint of urine loss associated with urgency and stress[1].

Incontinence is a stigmatizing condition in many populations[2], which causes difficulties in obtaining consistent epidemiological data. Perhaps because of stigma, this condition is associated with low rates of health care seeking[2]. In spite of that, studies show that approximately 12.4% of young women[3], 45% of middle-aged and post-menopausal women[4], and 75% of older women experience some involuntary urine loss[5]. In the United States, annual costs with routine care for UI management are estimated at US$ 50-1,000 per person[6].

The correct diagnosis is important for the evaluation and treatment of women with UI and the assessment of effects on their Quality of Life (QoL)[1]. Many incontinent women are more depressed, psychologically stressed, socially isolated, and have emotional disturbances[7].

In view of this, the International Continence Society (ICS) recommends the incorporation of QoL assessment measures into clinical practice, thus enhancing patients' perception of their state of health[1]. The application of QoL assessment questionnaires has become frequent in the last decades with the emergence of generic and specific instruments for certain pathologies[8].

In Brazil, some recent publications address the impact of UI on QoL, but these are studies with reduced samples and/or using only one of the QoL assessment questionnaires[9-10]. The objective of this study was to identify the most frequent UI type among women attended in specialized urogynecology services, considering a representative sample, and to compare the impact of different UI types on the general and specific QoL of these women using the main questionnaires validated for Brazilian Portuguese.

METHOD

This is a cross-sectional study conducted at urogynecology outpatient clinics of the Hospital Geral de Fortaleza (Portuguese acronym: HGF) and the Hospital Geral César Cals (Portuguese acronym: HGCC). Both are reference services in pelvic floor dysfunctions in the city of Fortaleza, state of Ceará, have specialized care with multiprofessional teams (physician, nurse and physiotherapist), and routinely perform QoL assessment of women with UI complaints.

All patients attended at both outpatient clinics initially undergo a detailed anamnesis involving sociodemographic, obstetrical and gynecological data, and urinary symptoms, as recommended by the International Continence Society[1]. In addition, all patients undergo urogynecologic physical examination and complementary examinations when necessary to support the diagnosis of urinary incontinence and its subtype. Prior to any treatment, patients' quality of life is assessed using the following validated questionnaires: Medical Outcomes Study 36-item Short-Form Health Survey (SF-36), International Consultation Incontinence Questionnaire Short-Form (ICIQ-SF), King's Health Questionnaire (KHQ) and Pelvic Organ Prolapse Incontinence Sexual Questionnaire (PISQ-12).

Of the 685 women attended in both services, were included in the study all women aged over 18 years with diagnosis of UI and seen between January 2011 (month of service implementation) and May 2016. In total, the sample included 556 women, of which 343 were from the HGF and 213 from the HGCC. Data were collected in the office by researchers of the care team as part of the first appointment.

Participants were divided into three groups according to the medical diagnosis (SUI, UUI and MUI). The exclusion criteria were the presence of neuro and osteodegenerative changes, delirium, other causes of dementia, pregnancy, and apparent disorder of language or senses that made data collection impossible.

The Medical Outcomes Study 36-item Short Form Health Survey (SF-36) is a generic QoL assessment questionnaire that was translated and validated into Portuguese in 1999. It has 36 multidimensional items divided into eight domains (General Health Perceptions, Physical Functioning, Role Limitation/Physical Health, Role Limitation/Emotional Problems, Social Functioning, Bodily Pain, Vitality and Mental Health), and a final score ranging from 0 to 100. The higher the final score the better the overall quality of life[11].

The International Consultation Incontinence Questionnaire – Short Form (ICIQ-SF) is a specific and brief questionnaire that was translated and validated for Portuguese in 2004. It has four questions that rapidly assess the impact of UI and qualify the urinary losses of analyzed patients in terms of frequency and severity, and eight self-diagnostic items related to causes or situations of UI experienced by patients[8]. The questionnaire has a 0-10 numerical scale for assessment of the UI impact. Zero indicates little interference of UI in the interviewee's daily life, and 10 represents a lot of interference. The total score is obtained by summing the questions related to frequency, quantity and impact on daily life, and can vary from 0 to 21[8].

The King's Health Questionnaire (KHQ) is also a specific questionnaire that was validated for Portuguese in 2003. It has 21 questions with the aim to assess the impact of UI on eight domains (General Health Perceptions, Incontinece Impact, Role limitations, Physical limitations, Social limitations, Personal relationships, Emotions, Sleep/energy). The KHQ is scored by its domains individually. The higher the score obtained in each domain the greater the impact of UI on the quality of life[12].

The Pelvic Organ Prolapse Incontinence Sexual Questionnaire (PISQ-12) is an instrument with accessible language that was validated for Portuguese in 2012.

It has 12 questions investigating the effect of urinary loss and/or prolapse of pelvic organs on the sexual function. It has three subscales assessing behavioral and emotional factors (questions 1-4), physical factors (questions 5-9), and factors related to the partner (questions 10-12). The Likert scale is used to rank the answers ranging from 'never' to 'always' with a 0-4 score. For items 1-4, is used the inverse score. The maximum possible score is 48, and higher scores indicate better sexual function[13].

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0 for Windows. First, the normality of distribution of interval data was evaluated by the Kolmogorov-Smirnov (KS) test. Data were analyzed descriptively with absolute and relative frequency, and the scores of each instrument were analyzed by the median and 25th and 75th quartiles. The Pearson's Chi-square test was used for comparison of categorical variables. The non-parametric Kruskal-Wallis test was used for comparison between the continuous variables between the three groups with asymmetric distribution. When there was a difference between the three groups, the Mann-Whitney U test was used to evaluate which groups were different from each other, and $p<0.05$ was considered significant.

The study respected the formal requirements of national and international standards regulating research involving human beings, and was approved by the Research Ethics Committee (Protocol number 751.351-14).

RESULTS

A total of 556 women participated in the study. Among women with involuntary urine loss who sought specialized care in the public tertiary service of Fortaleza, MUI was the most prevalent (N=348/62.6%), followed by SUI (N=173/31.1%) and UUI (N=35/6.3%).

The age of participants ranged from 22 to 89 years. Women with SUI were the youngest (Md:49.0), and those with urge incontinence were the oldest (Md:66.0). Incontinent women had similar educational level and income. Unlike most women with SUI and MUI, most women with UUI did not have a partner (Table 1).

In relation to gynecological-obstetric history, the UUI and MUI groups had higher number of pregnancies and deliveries (UUI=MUI>SUI/$p<0.05$ – Mann-Whitney U test). Vaginal delivery was the most frequent type of delivery in all groups, with higher median in the group of women with UUI and MUI (UUI=MUI>SUI/$p<0.05$ – Mann-Whitney U test). The urge incontinence group had the highest percentages of menopausal women (Table 1).

Table 1 – Distribution of types of urinary incontinence in relation to sociodemographic and gynecological characteristics of the sample – Fortaleza, Ceará, Brazil, 2011-2016.

Variables	SUI (n=173/31.1%) Md* (P25-P75)	UUI (n=35/6.3%) Md* (P25-P75)	MUI (n=348/62.6%) Md* (P25-P75)	p
Age (years)	49.0 (43.7-56.2)	66.0 (54.5-75.0)	52.0 (45.5-63.0)	**0.01**‡
Schooling (years)	9.0 (5.0-12.0)	7.5 (3.0-12.0)	6.0 (3.0-10.0)	0.07‡
Family income (R$)	1,000.00 (678.00-1,448.00)	1,328.00 (626.50-1,950.00)	1,076.50 (678.00-1,400.00)	0.34‡
Marital status (N/%)				**0.02**§
Without partner	64 (39.3)	18 (56.3)	126 (37,8)	
With partner	99 (60.7)	14 (43.8)	207 (62,2)	
Menopause (Yes)	71 (43.0)	30 (85.7)	184 (54,3)	**0.01**§
Comorbidities (Yes)	118 (69.4)	21 (61.8)	249 (73,0)	0.31§
BMI€ (Kg/m²)	28.3 (25.9-32.2)	26.7 (24.5-29.8)	28.8 (25.6-32.3)	0.24‡
No. of daytime urinations	5.0 (4.0-8.0)	5.0 (4.0-10.0)	8.0 (5.0-10.0)	**0.01**‡
No. of night urinations	2.0 (1.0-2.7)	2.0 (1.0-3.0)	3.0 (2.0-4.0)	**0.01**‡
No. of pregnancies	3.0 (2.0-5.0)	5.0 (3.0-7.0)	4.0 (3.0-6.0)	0.01‡
No. of deliveries	3.0 (2.0-5.0)	4.0 (2.0-7.0)	3.0 (2.0-5.0)	**0.04**‡
No. of vaginal deliveries	3.0 (1.0-4.0)	4.0 (2.0-7.0)	3.0 (2.0-5.0)	**0.03**‡
No. of cesarean deliveries	0.0 (0.0-1.0)	0.0 (0.0-1.0)	0.0 (0.0-1.0)	0.44‡
Newborn's weightµ (g)	3,700.00 (3,300.00-4,200.00)	4,000.00 (3,000.00-4,700.00)	3,900.00 (3,500.00-4,460.00)	0.08‡

*Md = median €BMI = Body Mass Index µ Newborn ‡Kruskal-Wallis §Pearson's chi-square

Women with MUI reported higher number of urinations, both in the day and at night (p=0.01). Women in the groups did not differ in relation to Body Mass Index (p=0.24), and presented similar percentages of comorbidities (p=0.31).

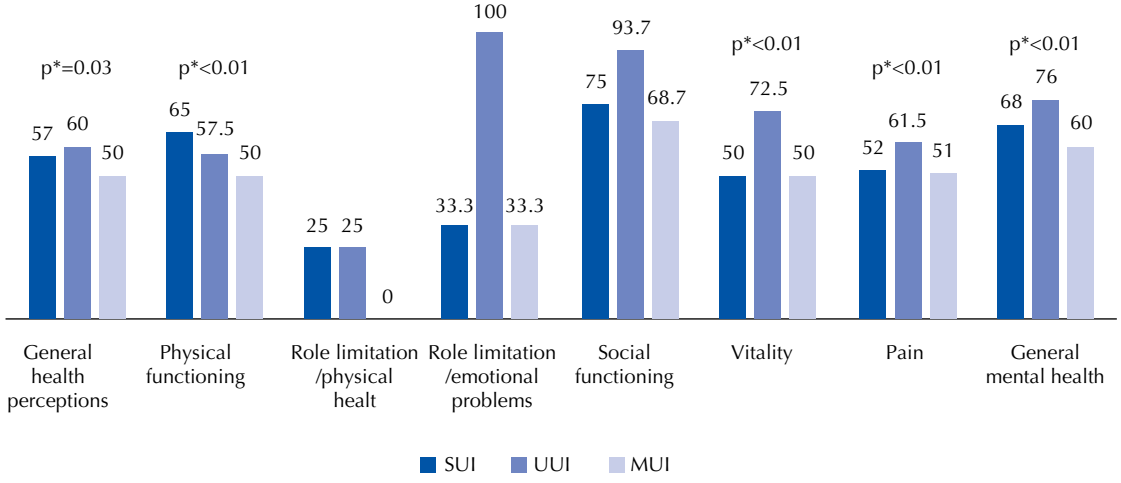
In relation to the general assessment of QoL using the SF-36 that has domains with scores ranging from 0-100, there were differences between groups in five out of the eight domains of the questionnaire (General Health Perceptions, Physical Functioning, Vitality, Bodily Pain and Mental Health) (p<0.05). In the domains of General Health Perceptions, Vitality, Bodily Pain and Mental Health, women with MUI presented worse scores compared to women with UUI and SUI (p<0.05). However, in the Physical Functioning domain, women with MUI differ only from women with SUI (Figure 1).

When questioned about the frequency of urinary loss (ICIQ-SF), women with SUI and UUI concentrate the frequency of losses from once a week or less until once a day at 50.9% and 57.6%, respectively. On the other hand, women with MUI concentrated the frequency of urinary losses between several times a day and all the time (70.2%/ p<0.01).

In relation to the amount of urine loss evaluated by the ICIQ-SF, reports of small losses were the most common by women in all groups. There was no difference between the number of urinary losses between the groups (p>0.05/χ^2 test) (Figure 2).

Women with MUI reported a greater impact of UI on daily life evaluated by the ICIQ-SF, and presented higher values in the total score compared to women with SUI (Table 2).

In the specific QoL assessment, groups differed in eight out of the nine KHQ domains, and MUI showed a worse quality of life, while UUI and SUI presented similar scores (p<0.05). Only in relation to the domain 'severity measure', all groups were different from each other, and MUI had the worst score (Figure 3).



*Kruskal-Wallis

Figure 1 – Comparison of median scores of the SF-36 domains among the types of urinary incontinence – Fortaleza, Ceará, Brazil, 2011-2016.

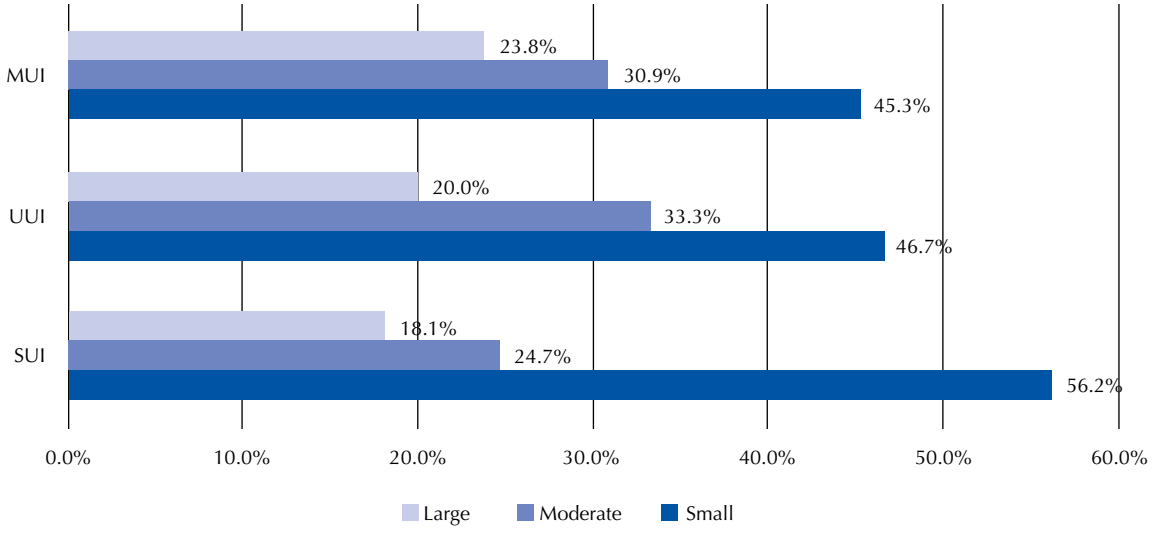
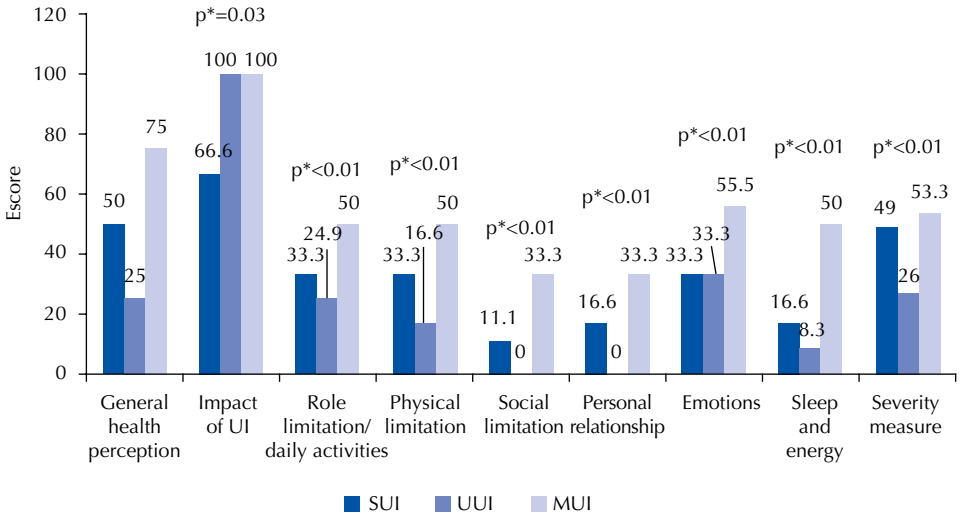


Figure 2 – Comparison of the amount of urinary losses by UI type using the ICIQ-SF – Fortaleza, Ceará, Brazil, 2011-2016.

Table 2 – Comparison of the median of scores of Impact on Daily Life and the Total Score of ICIQ-SF in relation to UI types – Fortaleza, Ceará, Brazil, 2011-2016.

Variables	SUI (n=173/31.1%) Md (P25-P75)	UUI (n=35/6.3%) Md (P25-P75)	MUI (n=348/62.6%) Md (P25-P75)	p*
Impact on Daily Life	8.00 (5.00-10.00)	8.50 (5.25-10.00)	9.00 (7.00-10.00)	**<0.01**
Total score	15.00 (10.00-15.00)	14.00 (9.50-17.00)	16.00 (13.00-18.00)	**<0.01**

* Kruskal-Wallis.



*Kruskal-Wallis

Figure 3 – Comparison of the median of scores of KHQ domains in relation to urinary incontinence type – Fortaleza, Ceará, Brazil, 2011-2016.

In the evaluation of sexual function (PISQ-12), the median of the total scores of women with SUI was 30 (P25: 23.2-P75: 35.0), of those with UUI was 31 (P25: 21.0-P75: 38.0), and of women with MUI was 28 (P25: 21.2-P75: 34.0), with no difference between groups (p=0.28/Kruskal-Wallis).

DISCUSSION

The sociodemographic and gynecological-obstetric characteristics of participants are similar to those found in other studies conducted in specialized services[9-10]. In general, women with MUI tend to be slightly older than women with other types of UI[14]. A large Norwegian survey of 27,936 women found that SUI was more prevalent among younger women[15], corroborating the data presented here.

Although the relationship between obstetric factors and development of incontinence is clear[1], a limited number of authors associate them with types of UI[16-17]. A meta-analysis associated vaginal delivery with a nearly double increase in SUI and approximately 3% increase in UUI risk[16]. However, a study of 656 incontinent women showed a less significant association of UUI and MUI with vaginal delivery[17].

Some prevalent diseases in individuals of middle-age have been related to UI. A large population study indicates Diabetes Mellitus (DM) as a risk factor and still suggests that women with this comorbidity have a reduced probability of UI remission[17]. Thus, studies evaluating UI risk factors point to DM and SAH (Systemic Arterial Hypertension) as important factors[10,18-19].

Regarding the type of UI, MUI was the most prevalent in some studies[10,16,18-19]. However, data from other studies were in disagreement, and found SUI was more prevalent[14,20-21]. These different results found in the literature may be related to variations in the characteristics of the included populations and in the forms of UI diagnoses (urinary complaints or urodynamic study). However, in specialized services where the population spontaneously seeks specific medical care for urinary problems, MUI seems to be the most prevalent[9-10,18].

Recent scientific publications assessing QoL through generic instruments are scarce[7]. This fact may be related to the ICS incentive for using specific questionnaires for QoL assessment in individuals with UI. However, the use of both questionnaires allows the evaluation of the impact of symptoms on general well-being as well[7].

Despite the difficult comparison of data found in the literature because of methodological differences and the wide variety of questionnaires used, it is possible to observe the impact of UI on several domains of QoL, especially in areas

concerning physical, mental, sexual and social health[7,20]. The EuroQoL-5 Dimension (EQ-5D) was applied in a study with continent and incontinent women. A significant association was found between UI and the following subscales of EQ-5: mobility, usual activities, pain/discomfort and anxiety/depression[22]. When applying the Beck Anxiety Inventory, other authors found that women with SUI are more anxious compared to women with UUI and MUI, who, in turn, showed a similar level of anxiety[20].

Evaluation of UI types using the ICIQ-SF has been the subject of several studies that indicated MUI as a condition with greater impact on QoL[7,14,23-24]. An Arab study found that women with MUI lost urine more times, in greater quantity and with greater impact on daily life, reaching the worst scores of the questionnaire compared to women with other UI subtypes[25]. However, some studies highlight the severity of symptoms (amount of urine loss and frequency of loss), rather than the UI subtype as the most important predictive factor for a poorer QoL[26-27].

In a large population study with 1,203 incontinent women in four European countries with no differentiation of UI type, women with higher volumes of urinary loss reported several episodes of incontinence per day, a more negative impact on all aspects of QoL assessed by the Health-Related Quality of Life (HRQOL), and harm to mental well-being[26].

In a study, was made an association of self-reported severity of UI using the KHQ and UI types. It was found that women with MUI were 2.8 times more likely to report moderate to severe impact on QoL compared to women with SUI[10]. By using the Incontinence Impact Questionnaire (IIQ-7), other authors found similar results and indicated a higher impact of UI on the QoL of women with MUI compared to women with SUI and UUI[20]. The same authors did not find differences between the SUI and UUI groups[20].

When using the Incontinence Quality of Life Questionnaire in 787 Turkish women, the authors found that MUI and SUI had a greater effect on QoL compared to UUI[28]. Other authors emphasize that the presence of MUI has resulted in worse scores in most investigated domains[7,10,12,29], and this same result was found in the present study.

The association of urgency and stress symptoms can lead to more limitations in daily life compared to isolated symptoms, which may explain that women with MUI present the worst scores in QoL assessment[10]. Women with SUI symptoms tend to lose urine in predictable situations that can most often be avoided, and this may be related to the best scores in QoL assessment[30].

Women with UI develop adaptive strategies in face of uncomfortable situations, which can mean restricting their presence in certain activities such as long walks or trips, more demanding activities from the physical point of view or that imply a closer social contact, and in general, these facts contribute to their decreased QoL[2].

The present study stands out for its sample size and the use of the main specific questionnaires validated for the Portuguese language in the main UI subtypes. Our findings are consistent with studies conducted in reference centers, limiting generalizations to the rest of the population. The study demonstrates the impact of UI on women's QoL, especially those with MUI. Such a finding may direct care with emphasis on health promotion and the use of interventions to improve the coping styles adopted by these clients.

CONCLUSION

The study concluded that MUI was the most prevalent UI type in the studied sample. Regarding QoL assessment, regardless of the classification received by the incontinent woman, all had their general and specific quality of life negatively affected. However, women diagnosed with MUI showed worse results in all instruments used.

RESUMO

Objetivo: Identificar o tipo de incontinência urinária mais frequente em mulheres assistidas em dois ambulatórios de uroginecologia e comparar a qualidade de vida geral e específica entre os diferentes tipos de incontinência, mensurada por meio de questionários validados. **Método:** Estudo transversal, realizado no ambulatório de uroginecologia. A avaliação da qualidade de vida foi obtida através dos questionários *Medical Outcomes Study 36-item Short-Form Health Survey* (SF-36), *International Consultation Incontinence Questionnaire Short-Form* (ICIQ-SF), *King's Health Questionnaire* (KHQ) e *Pelvic Organ Prolapse Incontinence Sexual Questionnaire* (PISQ-12). **Resultados:** Participaram do estudo 556 mulheres. Identificou-se a Incontinência Urinária Mista como a mais frequente (n=348/62,6%), seguida pela Incontinência Urinária de Esforço (n=173/31,1%) e de Urgência (n=35/6,3%). As mulheres com incontinência urinária mista apresentaram maior impacto na qualidade de vida geral (SF-36) e específica (KHQ e ICIQ-SF) quando comparadas às demais (p<0,05). Na avaliação da função sexual (PISQ-12), não houve diferença entre os grupos (p=0,28). **Conclusão:** Todos os tipos de incontinência urinária interferem tanto na qualidade de vida geral como na específica, contudo as mulheres com incontinência urinária mista são as mais afetadas.

DESCRITORES

Distúrbios do Assoalho Pélvico; Incontinência Urinária; Saúde da Mulher; Qualidade de Vida; Promoção da Saúde.

RESUMEN

Objetivo: Identificar el tipo de incontinencia urinaria más frecuente en mujeres asistidas en dos ambulatorios de uroginecología y comparar la calidad de vida general y específica entre los diferentes tipos de incontinencia, medida por medio de cuestionarios validados. Método: Estudio transversal realizado en el ambulatorio de uroginecología. La evaluación de la calidad de vida se obtuvo mediante los cuestionarios *Medical Outcomes Study 36-item Short-Form Health Survey* (SF-36), *International Consultation Incontinence Questionnaire Short-Form* (ICIQ-SF), *King's Health Questionnaire* (KHQ) y *Pelvic Organ Prolapse Incontinence Sexual Questionnaire* (PISQ-12). **Resultados:** Participaron en el estudio 556 mujeres. Se identificó la Incontinencia Urinaria Mixta como la más frecuente (n=348/62,6%), seguida de la Incontinencia Urinaria de Esfuerzo (n=173/31,1%) y de Urgencia (n=35/6,3%). Las mujeres con incontinencia urinaria

mixta presentaron mayor impacto en la calidad de vida general (SF-36) y específica (KHQ y ICIQ-SF) cuando comparadas con las demás (p<0,05). En la evaluación de la función sexual (PISQ-12), no hubo diferencia entre los grupos (p=0,28). **Conclusión:** Todos los tipos de incontinencia urinaria interfieren tanto en la calidad de vida general como en la específica, sin embargo las mujeres con incontinencia urinaria mixta son las más afectadas.

DESCRIPTORES

Trastornos del Suelo Pélvico; Incontinencia Urinaria; Salud de la Mujer; Calidad de Vida; Promoción de la Salud.

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