

Prevalence and impact of urinary symptoms on quality of life during the last month of pregnancy

Prevalência e impacto de sintomas urinários na qualidade de vida durante o último mês de gestação

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Abstract

Introduction: Adaptations of the maternal organism can adversely affect the lower urinary tract, leading to urinary symptoms with impact in quality of life (QoL).

Objective: To determine the prevalence of urinary symptoms and the impact of urinary incontinence (UI) on QoL during the last month of pregnancy. **Methods:** Retrospective cross-sectional study, involving 96 women in the immediate postpartum period personally interviewed about urinary symptoms and QoL during their last four weeks of gestation. Women were divided into two groups according to the number of pregnancies: G1 = 1 pregnancy (n = 41) and G2 = ≥ 2 pregnancies (n = 55). Those who reported the presence of stress urinary incontinence (SUI) and/or urge incontinence (UUI) were also administered the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF).

Results: The most common symptoms were nocturia (90.6%), urgency (82.3%), urinary frequency (71.9%) feeling of incomplete emptying (62.5%) and SUI and/or UUI (53.1%) with no differences between groups. Only the complaint of SUI in cough was significantly higher in G2 (p = 0.04). There was no difference on QoL between groups based on ICIQ-SF scores among those with UI (53.1%), however G1 reported serious impact and G2 very serious impact. **Conclusion:** Almost all women reported some type of urinary symptom and the most prevalent were nocturia, urgency, pollakiuria, feeling of incomplete emptying and SUI and/or UUI. SUI was more prevalent among women with two or more pregnancies and during cough were significantly higher. Regardless of the number of pregnancies, the presence any type of UI had a negative impact on QoL.

Keywords: Lower urinary tract symptoms. Pregnancy. Prevalence. Quality of life. Urinary incontinence.

Resumo

Introdução: As adaptações do organismo materno podem afetar negativamente o trato urinário inferior, levando a sintomas urinários e impacto na qualidade de vida (QV). **Objetivo:** Determinar a prevalência de sintomas urinários e o impacto da incontinência urinária (IU) na QV durante o último mês de gestação. **Métodos:** Estudo transversal retrospectivo envolvendo 96 mulheres no puerpério imediato, entrevistadas pessoalmente sobre sintomas urinários e QV durante as últimas quatro semanas de gestação. A amostra foi dividida em dois grupos, de acordo com o número de gestações: G1 = 1 gestação (n = 41) e G2 = ≥ 2 gestações (n = 55). Aquelas que relataram a presença de IU de esforço e/ou urge-incontinência responderam o International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF). **Resultados:** Os sintomas mais comuns foram noctúria (90,6%), urgência (82,3%), frequência urinária (71,9%), sensação de esvaziamento incompleto (62,5%) e IU de esforço e/ou urge-incontinência (53,1%), sem diferença entre os grupos. Apenas a queixa de IU de esforço ao tossir foi significativamente maior no G2 (p = 0,04). Não houve diferença na QV entre os grupos baseando-se nos escores do ICIQ-SF, porém o G1 relatou impacto grave e o G2, impacto muito grave. **Conclusão:** A maioria das mulheres referiu algum sintoma urinário, sendo mais prevalentes: noctúria, urgência, frequência urinária, sensação de esvaziamento incompleto e IU de esforço e/ou urge-incontinência. Entre aquelas com mais de duas gestações, a IU de esforço foi significativamente maior durante a tosse. Independente do número de gestações, a presença de algum sintoma de IU provocou impacto negativo na QV.

Palavras-chave: Sintomas do trato urinário inferior. Gravidez. Prevalência. Qualidade de vida. Incontinência urinária.

Introduction

Adaptations of the gestational period, including hormonal and mechanical changes, can adversely affect the lower urinary tract, leading to the appearance of urinary symptoms and urinary incontinence (UI) in women of childbearing age.¹⁻³ Several factors can intensify such symptoms, as advanced maternal age, smoking, number of pregnancies and births, mode of delivery, obesity, constipation, mechanical bladder compression, increased of relaxin hormone, reduced urethral resistance, pelvic floor muscle dysfunction, among others.⁴⁻⁸

During pregnancy, the prevalence of UI ranges from 18.6 to 75.0% and increases over the course of pregnancy,^{9,5} particularly from the second trimester onwards. Stress UI (SUI) is the most common type, affecting about 31% of nulliparas and 42% of multiparas.¹⁰ In addition to UI, other urinary symptoms are common, such as: nocturia, pollakiuria, urge incontinence (UII), dysuria and feeling of incomplete emptying. Pregnancy is identified as one of the main risk factors for the development of these symptoms, and women may present more complaints of SUI, nocturia and pollakiuria, when compared to nulliparus.⁹

The presence of UI and other urinary symptoms affect negatively the quality of life (QoL), with social, psychological, functional, physical, economic, and public health implications.^{6,11,12} According to the World Health Organization,¹³ QoL is a multidimensional concept that encompasses social, physical, and psychological aspects, being defined as the subjective perception that the individual has in relation to their health, disease process and treatment. In the national literature, it is observed that the presence of unintentional voiding symptoms can negatively affect the QoL of pregnant women.¹¹ Specifically, 81.1% of pregnant women who reported UI, also resulted in a moderate impact on the QoL.¹⁴

A more comprehensive and humanized care for women is needed during the pregnancy-intrapartum-postpartum cycle, where the complaint of urinary symptoms is rarely explored, and often mistaken as urinary tract infections. Greater clarification and awareness of these symptoms are important for health professionals and patients alike. Therefore, such information can be useful to outline strategies for promotion, prevention, and in the rehabilitation of voiding dysfunctions during gestation and in the postpartum period. Thus, the aim of this study was to verify the prevalence of urinary symptoms and the impact of UI on QoL in the last month of gestation.

Methods

This is a cross-sectional observational study approved by the Human Research Ethics Committee of the Universidade Federal de Sergipe (No. 76308-2012). Sample was for convenience. Written informed consent form was obtained by all participants, and data were collected retroactively.

Participants

Participants were approached in the immediate postpartum period, after delivery from the Municipal Public Maternity Hospital São José, located in the municipality of Itabaiana, Brazil, from October 2015 to January 2016, and were asked about any urinary symptoms and impact on QoL in the last four gestational weeks.

Women who had a history of only one pregnancy and two or more pregnancies, regardless of mode of delivery, were included. Those with a history of lower urinary tract infection in the last gestational month, high-risk pregnancy, kidney disease, heart disease, diabetes mellitus, gestational hypertension, chronic obstructive pulmonary disease, urogynecological surgeries, premature birth (gestational age < 37 weeks) and puerperal infection were excluded.

Data sources and measurement

Data collection was performed by a single researcher in person through interview and questionnaire. The women were approached 6 to 8 hours after delivery, and each interview lasted about 30 minutes. Afterwards, each woman received guidance on the anatomy and function of the pelvic floor, with the aim of raising awareness and preventing dysfunction of this musculature, as well as urinary symptoms.

Personal data and obstetric history were obtained by reading medical records. The urogynecological anamnesis, referring to voiding symptoms, was collected through an interview, and transferred to an evaluation form, as proposed by Scarpa.¹⁵ The mothers were asked about the presence of urinary symptoms in the last four gestational weeks. Lower urinary tract symptoms were divided into groups and defined according to the Standardization Committee of the International Continence Society (ICS)¹⁶: UI, bladder storage, sensory and urination and post-voiding symptoms.

The prevalence of urinary symptoms was compared according to the number of pregnancies: groups G1 (one pregnancy) and G2 (≥ 2 pregnancies). Within these two groups, only postpartum women complaining of SUI and/or UUI in the last four gestational weeks were asked to answer the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF),¹⁷ consisting of three questions regarding the frequency, severity and impact of UI on QoL.

The overall QoL score ranged from 0 to 21, with the higher the score indicating a worsening QoL. The result was categorized as 0 = no impact; 1 to 3 = light impact; 4 to 6 = moderate impact; 7 to 9 = severe impact; and above 10 = very severe impact.¹⁷

Statistical analyses

Data were analyzed using the BioEstat 5.0 program and reported in absolute frequencies, percentages, means, and standard deviations. To compare proportions between groups, the chi-square or Fisher's exact test was used. Following the normal distribution, an independent Student's t test was used to compare means between groups. The significance level of $p < 0.05$ was adopted in all analyses.

Results

From 105 postpartum women, 96 were selected for the study, and nine were excluded due to urinary tract infection in the last gestational month ($n = 6$), high-risk pregnancy ($n = 2$) and preterm delivery ($n = 1$).

Age, body mass index (BMI) and number of vaginal deliveries in G2 were significantly higher than in G1. Most women were in stable relationships, only 15.9% declared themselves white and 37.5% did not complete elementary school (Table 1).

Almost all postpartum women reported some urinary symptom in the last four gestational weeks, regardless of parity. In the total sample, the most common symptoms were nocturia (90.6%), urgency (82.3%), pollakiuria (71.9%), feeling of incomplete emptying (62.5%) and SUI and/or UUI (53.1%), but no differences between groups. From 51 (53.1%) women that reported any type of UI: 38 (39.5%) reported SUI and 13 (13.5%) reported UUI. The complaint of SUI during cough was significantly higher in G2 ($p = 0.04$) (Table 2). Additionally, when asked about discomfort related to urinary symptoms, 61.0% of G1 and 58.2% of G2 reported discomfort.

Among those 51 women who complained of some urinary incontinence, 20 (48.8%) from G1 and 31 (56.4%) women from G2 reported SUI and/or UUI. According to the ICIQ-SF general score category, G1 had a severe impact (9.56 ± 2.57) and G2 had a very severe impact (10.65 ± 4.33), however, no difference was not found between groups (Figure 1).

Table 1 - Personal characteristics of the sample according to the number of pregnancies

Variables	G1 n (%)	G2 n (%)	p
Age (years)*	22.12 ± 5.17	26.78 ± 6.23	0.002
BMI (kg/m ²)*	27.09 ± 4.05	29.17 ± 4.41	0.019
Type of delivery			
Vaginal	22 (53.7)	43 (78.2)	0.020
Caesarean	19 (46.3)	12 (21.8)	
Marital status			
Single	5 (12.2)	6 (10.9)	0.203
Married	5 (12.2)	10 (18.2)	
Stable union	28 (68.3)	39 (70.9)	
Divorced	3 (7.3)	0 (0.0)	
Schooling			
Incomplete EL	17 (41.5)	19 (34.5)	0.916
Complete EL	3 (7.3)	8 (14.5)	
Incomplete HS	7 (17.1)	10 (18.2)	
Complete HS	12 (29.3)	16 (29.1)	
Incomplete HE	1 (2.4)	1 (1.8)	
Complete HE	1 (2.4)	1 (1.8)	
Skin color			
White	4 (9.8)	7 (12.7)	0.646
Brown	31 (75.6)	36 (65.5)	
Black	6 (14.6)	11 (20.0)	
Yellow	0 (0)	1 (1.8)	

Note: G1 = one pregnancy (n = 41); G2 = ≥ two pregnancies (n = 55); BMI = body mass index; EL = elementary; HS = high school; HE = higher education. *Values expressed in mean ± standard deviation. Values in bold mean p < 0.05.

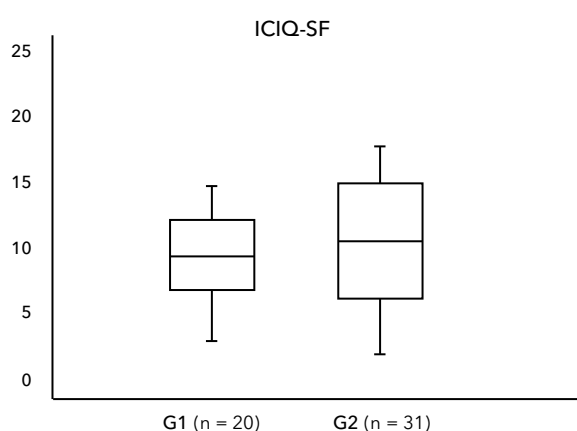


Figure 1 - Comparison of the overall score of quality of life among women complaining of urge and/or stress urinary incontinence by the ICIQ-SF

Note: G1 = 1 pregnancy; G2 = ≥ 2 pregnancies. Values expressed in mean ± standard deviation. Independent Student's test (p < 0.05). ICIQ-SF = International Consultation on Incontinence Questionnaire - Short Form.

Table 2 - Comparison of urinary symptoms according to the number of pregnancies

Urinary symptoms	G1 n (%)	G2 n (%)	p
Stress urinary incontinence	14 (34.1)	24 (43.6)	0.346
Cough	5 (12.2)	16 (29.1)	0.040
Sneeze	7 (17.1)	15 (27.3)	0.239
Change of position	3(7.1)	8 (14.5)	0.274
Laugh	3 (7.1)	7 (12.7)	0.217
Carry weight	0 (0.0)	1 (1.8)	0.385
Other efforts	3 (7.1)	2 (3.6)	0.422
Coital incontinence	0 (0.0)	2 (3.6)	0.217
Urgency	31(75.6)	48 (87.3)	0.138
Urge incontinence	6 (14.6)	7 (12.7)	0.814
Nocturia	37 (90.2)	50 (90.9)	0.911
Increased daytime urinary frequency	29 (70.7)	40 (72.7)	0.829
Nocturnal enuresis	0 (0.0)	1 (1.8)	0.385
Voiding hesitation	11 (26.8)	9 (16.4)	0.211
Dysuria	10 (24.4)	13 (23.6)	0.931
Post-voiding drip	17 (41.5)	20 (36.4)	0.611
Feeling of incomplete emptying	28 (68.3)	32 (58.2)	0.311
Intermittent flow	8 (19.5)	13 (23.6)	0.628

Note: G1 = one pregnancy (n = 41); G2 = ≥ two pregnancies (n = 55). Chi-square test and Fisher's exact. Values in bold mean p < 0.05.

Discussion

Almost all women investigated in this study reported some urinary symptoms in the last four gestational weeks, regardless of the number of previous pregnancies. The most common symptoms reported within both groups were nocturia, urgency, pollakiuria and feeling of incomplete emptying. The presence of voiding symptoms is a common complaint among pregnant women, which increases over gestation and may vary due to several factors.^{2,10,11} In a study by Lin et al.,⁹ the most reported symptoms were pollakiuria (77%), nocturia (75.6%), SUI (51.1%), and incomplete emptying (43.7%), which are more common among multiparus women when compared to nulliparus women, which is consistent with the findings in the present study.

Although no significant difference was noted between the groups, those with ≥ two pregnancies, in general, reported more irritative symptoms and urinary loss. Scarpa et al.¹⁸ discovered similar outcomes when investigating lower tract urinary symptoms three years after childbirth and concluded that pregnancy, more than childbirth, was most responsible for SUI

and nocturia. Only SUI through cough was the most prevalent in G2 ($p = 0.04$). Literature suggests that SUI is quite common during the gestational period, especially in the last trimester, ranging from 18 to 60% in this group.^{2,3,10,19} These symptoms are due to several changes occurring during the gestational period and are associated with reduction of the vesical angle and increased mobility of the bladder neck, the descent of pelvic organs, decreased strength of the levator ani and urethral resistance,^{2,20} which negatively interfere with the strength of the pelvic floor muscles, contributing to a deficient continence mechanism.^{5,21}

A study carried out by Sacomori et al.⁷ found that multiparous women have a higher prevalence of UI compared to primiparous women, particularly in the third trimester where 59.4% reported it during coughing or sneezing compared to 40.5%, respectively. The literature also suggests that women with more than two deliveries have a predictive factor for the onset of UI.^{4,9} The moment of urinary loss most reported by postpartum women was during coughing which is attributed to the increase in intra-abdominal pressure and, consequently, increases bladder pressure.¹⁰

When examining the mode of delivery, women in G2 had a significantly higher history of vaginal birth ($p = 0.020$) compared to G1. Oliveira et al.²² observed a direct association of UI with parity ($p < 0.001$) and vaginal delivery ($p < 0.001$), as women with more than two children were 2.5 times more likely to have urinary loss compared to nulliparous women. Other studies also show the relationship between vaginal births and the development of UI.^{11,23}

When exploring the repercussions associated with pregnancy five years after delivery, Liang et al.²³ observed that vaginal delivery and SUI in the first pregnancy are predictive factors for UI over time. These findings corroborate the present results, as most women who reported some form of urinary loss had more pregnancies and previous vaginal deliveries.

Women with two or more pregnancies had a significantly higher age and BMI, which is expected, since women with a higher number of pregnancies may be older and probably have a higher BMI as well. Though a significant or negative correlation with the overall ICIQ-SF score was not observed, overweight during pregnancy and advanced age is a known contributor to the appearance and worsening of urinary symptoms.^{5,22} In his research, Ferreira²⁴ observed a positive linear

relationship between BMI and number of pregnancies, and a similar trend was detected with advancing age among women with more than two children compared to nulliparous women ($p < 0.010$). Similarly, Ugwuja et al.²⁵ found a positive correlation between greater maternal parity and increased BMI, being more evident in multiparous individuals.

Despite urinary symptoms, both irritating and urinary loss, being common in pregnancy, can negatively impact QoL in pregnant women, as they generate hygienic discomfort, restriction in daily activities, work activities and change sleep.^{6,11} Among those who had some type of UI, no significant difference was observed in the UI impact category and in the overall ICIQ-SF score between the groups. However, it is noteworthy that both reported considerable impact of UI on QoL, with G1 having a severe impact and G2 having a very severe impact. This report demonstrates how uncomfortable urinary loss is in daily life, and these findings are supported in the literature by Martins et al.⁶

Considering pregnant women in the second and third trimesters, Moccellini et al.¹¹ evaluated the repercussions of urinary symptoms on QoL in pregnant women aged 18 to 40 years and observed a negative impact on the QoL in those who complained of urinary loss when compared to continent individuals, with worsening in the general perception of health and impact of UI, especially at the end of pregnancy. Sacomori et al.⁷ also assessed urinary loss and its impact on QoL among incontinent women in the third trimester, and discovered that 25.7% reported no impact, while 41% stated that this condition interfered moderately to very severely in QoL. Thus, it is evident that UI can interfere with well-being and, thus, with QoL.

When comparing the impact of UI with the ICIQ-SF scores between the first and third trimesters, Franco et al.²⁶ found a mild to moderate impact on QoL. Although UI did not significantly interfere with the QoL, it did affect the physical, mental and social domains verified with the SF-36 in pregnant subjects across both trimesters. These findings are contrary to the present findings, which report the impact as severe to very severe. These findings may be attributed to the lack of knowledge around pelvic floor health and function or the social expectation that urinary loss is a common consequence of pregnancy.

Knowledge about the pelvic floor muscles and their functions is frequent lacking in women, as it is estimated that around 40% of women do not have sufficient knowledge about this region; therefore, these women

are not able to contract the muscles correctly, leading to an impairment of their functions.²⁷ Since pregnancy is a risk factor for pelvic floor disorders, understanding of this subject is imparitive, yet the literature is insufficient at present. Hill et al.²⁸ reported that 41% of women believed that the loss of urine during pregnancy was normal, and only 11% performed the training of the pelvic floor muscles in this phase. This demonstrates a gap in health services regarding the promotion of pelvic floor exercises in pregnant women during routine care.²⁹

This study was limited by evaluating urinary symptoms and the impact of UI in only one moment of pregnancy (last month), and also because data collection was carried out in the immediate postpartum period. As prenatal care was carried out in several health units and woman were from different locations and cities, participants were approached in the maternity ward and data were collected retroactively for operational reasons, thus the timing and form of data collection may be questionable. In addition, a relatively small sample was approached, making new inferences impossible. Future research should seek to carry out cohort studies considering the pre-pregnancy state to the postpartum period, with strict control of clinical, obstetric and personal variables.

Urinary loss is a common problem during the gestational period and a multidisciplinary approach is needed, from prenatal care to the puerperium. With the perspective of preventing dysfunctions and promoting a better QoL, all information related to this period, such as balanced nutrition, physical exercise, knowledge and muscle training of the pelvic floor should be addressed.

Prenatal care is an opportune time to clarify voiding functions and pelvic floor muscles. In addition to preventing and treating symptoms, training these muscles is important to prevent laceration, prolapse, dyspareunia and other female sexual dysfunctions.³⁰ Collaborative actions for individually-tailored health education, risk factors and repercussions on QoL are essential for the promotion of women's integral health.

Conclusion

Almost all women reported some type of urinary symptom and the most prevalent were: nocturia, urgency, pollakiuria, feeling of incomplete emptying and SUI and/or UUI. SUI was more prevalent among women with two or more pregnancies and during cough

were significantly higher. Regardless of the number of pregnancies, the presence any type of UI had a negative impact on QoL.

Authors' contributions

MTR was responsible for the conception and, along with ATA, for the design and analyses. JMS collected the data, and MTR, SAP, MCS, EANL and RBSG interpreted it. MTR, JMS and MCS wrote the manuscript, while SAP, MCS, EANL, RBSG and ATA were responsible for the revising and intellectual criticism. All authors approved the final version.

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