

# Symptoms of the lower urinary tract in pregnant women in prenatal care.

Sintomas do trato urinário inferior em gestantes em acompanhamento pré-natal.

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## Abstract

**Introduction:** During pregnancy, hormonal and mechanical factors responsible for the development and fetal growth causes changes in the genital and urinary tract of women. It is observed the appearance of urinary symptoms in pregnant women previously continents up to 74%. Evaluate urinary symptoms and knowledge of the perineal region in this period is important because they impact negatively on the quality of pregnant women's life. **Objective:** To evaluate the presence of urinary symptoms and knowledge of PFM in pregnant women. **Method:** This is a descriptive cross-sectional study that evaluated pregnant women in care at the Basic Health Unit of Sao Paulo/SP. The characterization of women was taken by the assessment form, to measure urinary symptoms was used *the International Consultation on Incontinence Questionnaire - Short Form (ICIQ - SF)*. On the other hand, the knowledge of PFM was evaluated by a specific questionnaire. **Results:** We evaluated 37 pregnant women with a mean age of 26.3 (14 and 37) years, body mass index of 28.5 (20.8 and 45.8) kg/m<sup>2</sup> and gestational age of 24.8 (5 e 40) weeks. We observed the presence of UI in 81.1% of pregnant women, with a mean severity of 9.9 points for the ICIQ - SF. And about 54% of them knew of the existence of PFM and only 20% could locate the muscles. **Conclusion:** It was observed a high prevalence of urinary symptoms in women with moderate severity. Half of the women reported knowing the PFM, but only one fifth of them were able to locate them.

**Keywords:** Pregnant women; Pelvic floor; Urinary Incontinence.

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## Resumo

**Introdução:** Durante o período gestacional, fatores mecânicos e hormonais responsáveis pelo desenvolvimento e crescimento fetal provocam mudanças no trato genital e urinário da mulher. Observa-se o surgimento de sintomas urinários em gestantes previamente continentas de até 74%. Avaliar os sintomas urinários e o conhecimento da região perineal neste período é importante, uma vez que eles impactam de forma negativa na qualidade de vida das gestantes.

**Objetivo:** Avaliar a presença de sintomas urinários e do conhecimento perineal em gestantes. **Método:** Trata-se de um estudo descritivo transversal que avaliou gestantes em atendimento pré-natal em uma Unidade Básica de Saúde de São Paulo/SP. A caracterização das gestantes foi feita por meio de ficha de avaliação. Para avaliar os sintomas urinários utilizou-se o *International Consultation on Incontinence Questionnaire – Short Form* (ICIQ-SF). Já o conhecimento perineal foi avaliado por um questionário específico. **Resultados:** Avaliou-se 37 gestantes, com idade média de 26,3 (14 e 37) anos, índice de massa corporal de 28,5 (20,8 e 45,8) Kg/m<sup>2</sup> e idade gestacional de 24,8 (5 e 40) semanas. Observou-se a presença de IU em 81,1% das gestantes, com severidade média de 9,9 pontos pelo ICIQ-SF. Cerca de 54% delas conheciam os músculos do assoalho pélvico (MAP) e apenas 20% soube localizá-los. **Conclusão:** Observamos uma alta prevalência de sintomas urinários em gestantes com severidade moderada. Metade das gestantes relataram conhecer os MAP, entretanto apenas um quinto delas soube localizá-los.

**Palavras-chave:** Gestantes; Diafragma pélvico. Incontinência urinária.

## INTRODUCTION

During pregnancy, maternal body undergoes anatomical, physiological and biomechanical changes to support the development and fetal growth. Such changes affect the genital and urinary tract.<sup>(1)</sup> The head of the pelvic support tissue undergoes a developmental stretch, allowing excessive mobility of the bladder neck and proximal urethra.<sup>(2)</sup> The pregnant uterus provides a greater burden to the pelvic floor and, combined with hormonal interference, promote the biomechanics of the pelvis changes, together with changes of tone and muscle strength.<sup>(3)</sup>

The occurrence of urinary symptoms have been associated with anatomical abnormalities and neurological damage from obstetric trauma, which can lead to significant loss of support of the bladder neck and proximal urethra.<sup>(4)</sup> In contrast, studies have reported urinary incontinence rates (UI) in previously continent pregnant women up to 74%<sup>(5-7)</sup> suggesting that the symptoms are not only related to the traumatic vaginal delivery.<sup>(8)</sup>

Urinary incontinence (UI) is defined as any involuntary loss of urine that results social and hygienic problem for the patient.<sup>(9)</sup> The UI can be classified into stress urinary incontinence (SUI), in which loss of urine occurs during effort activities such as coughing, sneezing and exercise, affecting approximately 80% of women between 25 and 60 years of age; in urge urinary incontinence (UUI), which is described as the involuntary loss of complaint accompanied or preceded urgency of urine, or sudden desire to urinate and hardly deferrable and is prevalent in 11% of cases of female incontinence; and mixed urinary incontinence (MUI), characterized by symptoms of SUI and UUI, affecting about 36% of incontinent women.<sup>(9,10)</sup>

The development of health promotion programs becomes paramount, including yourself, in this perspective, the inclusion of prevention and treatment of disorders that occur during pregnancy. However, for a better approach is made necessary the knowledge of these disorders,

which justifies the completion of this study, which aims to assess the presence of urinary symptoms and the knowledge of the pelvic floor muscles (PFM) by pregnant women in monitoring prenatal care.

## METHODS

This cross-sectional descriptive study evaluating pregnant women in prenatal medical care attended the Basic Health Unit (BHU) Padre Manoel da Nobrega, the city of São Paulo/SP. The study was approved by the Research Ethics Committee of the Universidade de Mogi das Cruzes (UMC) - CEP No. 278,330/13 and the Secretaria Municipal de Saúde of São Paulo (SMS / SP) - CEP No. 311,314/13.

All pregnant women who used antenatal service of UBS Padre Manoel da Nobrega in the period from August / 2013 to October / 2013 and agreed to participate in the study by signing the Instrument of Consent were included. The criteria for inclusion were not pregnant women who do not fit the requirements mentioned above. The characterization of pregnant women was carried out by age, education, gestational age, pregnant weight and number of pregnancies.

## Tools and data collect

The volunteers responded to an interview conducted by a Physical Therapy Assessment Form, consisting of interview, in which was performed to characterize them by factors such as age, education, gestational age, pregnant weight and number of pregnancies.

The presence of urinary incontinence, as well as the impact of urinary symptoms on quality of life of pregnant women, and the severity of symptoms were evaluated using the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF).<sup>(11)</sup>

After, we assessed the knowledge of PFM, which was done by using a specific questionnaire. In this, the

patients were located the urethra in a figure that had the perineal region; were asked if they knew of the existence of PFM, and, if the answer was positive, it was asked to indicate its location on a human figure in anatomical position. They were also asked if they knew what the correct movement of the contraction of PFM to maintain continence (tighten the vagina and the anus simultaneously is the correct way to hold urine), and knew the exercises for strengthening the PFM.

The patients with urinary symptoms were asked about the desire to receive guidance about the exercises to prevent and treat UI, and when the answer was positive, appropriate guidelines were performed by physiotherapist.

**Data analysis**

The collected data were stored in a database in Microsoft Office® Excel 2007 program. The average was calculated and minimum and maximum values of age, body mass index (BMI) and gestational age, and the frequency of the level of education, issues of correct answers in the perineal knowledge questionnaire and situations of urinary loss and types of UI. The severity of UI was graded according to ICIQ-SF questionnaire, ie the sum of the scores of the responses.

**RESULTS**

A total of 37 women were interviews. Of these, 13 (35.1%) were primiparous and 24 (64.8%) were multiparous. The average number of pregnancies among multiparous was 2.3 (2 to 4 pregnancies), the average number of normal births was 1.3 (between 1 and 2 births) and the average weight of the drink was increased 3.1 kg (between 2.0 and 4.1 kg). The epidemiological profile of pregnant women is in Table 1 and the level of education is in Table 2.

**Table 1.** Epidemiological profile of pregnant women interviewed.

Variables (n=37)	Mean (Minimum-Maximum)
Age (years)	26.3 (14-37)
BMI (kg/m <sup>2</sup> )	28.5 (20.8-45.8)
Gestational Age (weeks)	24.8 (5-40)

Subtitle: n=sample; BMI=Body Mass Index.

**Table 2.** Level of education of the pregnant women.

Escolaridade (n=37)	(%)
Graduation	8.1
Incomplete graduation	2.7
High School	56.8
Incomplete High School	10.8
Primary School	10.8
Inclomplete primary school	10.8

Subtitle: n=sample.

For the evaluation of urinary incontinence used the ICIQ-SF, which evaluates the frequency, severity and impact of urinary incontinence. There was loss of urine in 30 (81.1%) of the 37 interviewed pregnant women. The mean questionnaire score was 9.8 (range 3 to 17 points). This score discloses a urinary incontinence classified as moderate (6 to 12 points).<sup>(11)</sup>

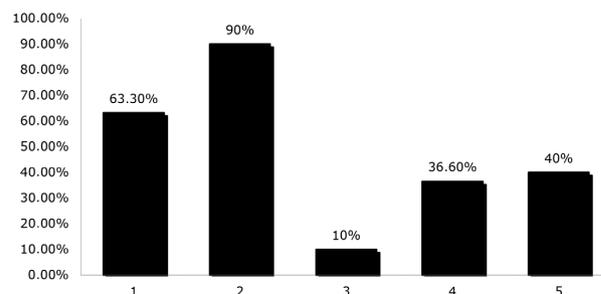
Of these 30 pregnant women with UI, 9 (30%) are primiparous. The average ICIQ-SF score among these was 9.6 (between 5 and 15 points). 21 (70%) are multiparous, and the average of the ICIQ-SF score was 9.9 (range 3 to 17 points).

The ICIQ-SF questionnaire also assesses the situations in which there is urine leakage. These can be seen in Figure 1.

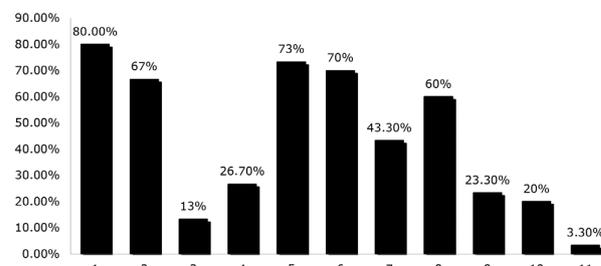
The 30 women who reported the loss of urine in the ICIQ-SF questionnaire were also asked about other situations that present urinary loss. The results are shown in Figure 2.

In the evaluation of the perineal region of knowledge held by means of a questionnaire answered the 37 pregnant women surveyed and the results are shown in Table 3.

All 37 women interviewed were asked about the desire to receive information and guidance about urinary symptoms. Of these, 29 (78.4%) reported wanting to receive guidance and information about the UI, as well as exercises for the perineum. They received instructions and guidance by the principal investigator.



**Figure 1.** Assessment of situations of stress urinary incontinence according to the International Consultation on Incontinence Questionnaire - Short Form ICIQ-SF.



**Figure 2.** Situations in which there is urine leakage.

**Table 3.** Frequency of correct answers in the evaluation questionnaire questions of knowledge of the perineal region.

Evaluation of the knowledge of the perineal region
94.6% selected the location of the urethra.
54% knew of the existence of the pelvic floor muscles.
20% could find the perineal region.
32.4% reported knowing the correct movement of the contraction of the pelvic floor muscles (tighten the vagina and the anus simultaneously is the correct way to hold urine).
13.5% reported knowing the exercises to strengthen the pelvic floor muscles.

## DISCUSSION

This study aimed to evaluate the presence of urinary symptoms in pregnant women who were in prenatal care. The evaluation was made through the ICIQ-SF questionnaire, which was used individually. The results show that about 81.1% of the 37 interviewed patients presented symptoms of UI.

Two factors are critical to the prevalence of urinary dysfunctions during pregnancy: uterine growth and hormonal changes. The hormone relaxin in combination with estrogen acts on the metabolism of connective tissue during pregnancy, which induces remodeling of collagen, contributing to an increase in distensibility of the birth canal tissues, and greater flexibility in all joints. Estrogen is a potent alpha-adrenergic and has favorable effect on continence. In contrast, progesterone enhances the beta-adrenergic receptors, which antagonize the effect of estrogen. High levels of progesterone lead to hypotonicity of the pelvic floor structures, which can cause urinary symptoms early in pregnancy.<sup>(2)</sup>

The pelvic floor (PF) dysfunction are caused by structural and functional damage to muscles, nerves, ligaments and fascia or may adversely affect the quality of life of women.<sup>(12)</sup> These changes can generate a wide range of symptoms such as urgency and increased urinary frequency, pelvic organ prolapse and UI.<sup>(13)</sup> Several factors may be associated with such disorders.<sup>(13,14)</sup> However, it is stated that the greatest impact would be of gestation and type of delivery, which would jeopardize the PF by different mechanisms.<sup>(15,16)</sup>

Some studies show that the UI is common during pregnancy. Sharma et al.<sup>(17)</sup> evaluated 240 primiparae through the same questionnaire used in this study found the presence of urinary symptoms in about 48% of the women studied in the third quarter. In the present study it was found that about 81% of the patients presented urinary dysfunctions, as they were early in the third trimester of pregnancy. In a more recent study, Bø et al.<sup>(18)</sup> evaluated 761 pregnant women and found that 71% had SUI, and about 41% were in the third quarter (28 weeks) and 95% were multiparas. Scarpa et al.<sup>(19)</sup> evaluated 340 women and showed a prevalence of urinary symptoms in about 94% of pregnant women, which were in the third trimester of pregnancy.

The assessment of the severity of urinary symptoms becomes important. In this study, patients were asked about the type of urinary incontinence, presented loss in droplets, by jet, or streaming. It was observed that 76.7% of women reported urinary drip loss. Martins et al.,<sup>(20)</sup> to describe the prevalence and UI risk factors in 500 pregnant Brazilian women, found that about 63% had urinary symptoms and that about 50% of pregnant women who were in the third quarter reported loss of urine drip.

Adaji et al.<sup>(21)</sup> evaluated 204 pregnant women through the ICIQ-SF questionnaire and found a smaller percentage: about 21% had urinary drip loss, however, even with a lower percentage compared to other studies, the authors ruled out the importance of UI be seen to its full severity. Wesnes et al.<sup>(22)</sup> reported that the prevalence of incontinence is greater in multiparous women (35% and 67%) than in nulliparous women (15% and 48%). In their study, most women reported losing urine noticeable drip.

Regarding the type of UI, it is observed that the situations in which the women reported losing urine were cough in 80%, sneezing in 66% and laughter in 73%, which characterizes the SUI. These data come from meeting with the literature, which states that SUI during pregnancy is related to changes in connective tissue metabolism and, as mentioned, decreased collagen production, accompanied by weakness of the urogenital tract support elements, as well as increased mobility and downward rotation of the bladder neck and proximal part of the urethra.<sup>(23)</sup>

Also observed the symptoms of urinary urgency in about 60% of pregnant women, and 23.3% had the symptom of urge incontinence. Scarpa et al.<sup>(19)</sup> found the urgency in about 47% of pregnant women were multiparous and 39% of gilts. Urge incontinence was present in 19% of multiparous and 22% of gilts. The third trimester of pregnancy triggers the progressive increase in symptoms of increased frequency and urgency, as the bladder moves and becomes compressed the pregnant uterus, the amending urethrovesical angle and increases intra-abdominal pressure, leading to progressive and continuous decrease in bladder capacity,<sup>(24)</sup> a fact which corroborates the findings of this study in which pregnant women were at the end the second quarter and the third quarter beginning.

One aspect that has received attention in health in recent decades is the patient's subjective perception regarding their health condition. This review has been carried out through structured questionnaires. When choosing a research tool it must, in addition to the translation in the target language, have psychometric properties such as validity, reliability and responsiveness tested.<sup>(25)</sup> The ICIQ-SF is a self-administered questionnaire that evaluates the impact of urinary incontinence on quality of life and classifies the urinary losses of the patients analyzed. The Portuguese version for the ICIQ-SF was successfully translated and validated, with satisfactory reliability and validity.<sup>(11)</sup>

This study utilized the ICIQ-SF as a tool for assessing the impact of urinary incontinence on quality of life of pregnant women incontinent. This ranks the severity of symptoms in four categories: Mild (1-5 points), moderate (6-12), severe (13-18), and severe (19-21).<sup>(11)</sup> In this study the overall average ICIQ-SF score was 9.9 points. Among the primiparous average was 9.6 points and 9.9 among multiparous women. In both, the ICIQ-SF score indicates moderate severity. This result affects negatively the quality of life of pregnant women according to some authors.<sup>(26)</sup> Authors evaluated 393 pregnant women using the ICIQ-SF as a tool to assess the quality of life of incontinent pregnant women, and they had one in their findings mean score of 9.9 points.<sup>(27)</sup> Another study, which evaluated 746 women of different ethnicities pregnant women, observed similar results, ie, the ICIQ-SF score ranged from 5.4 to 8.6 points.<sup>(18)</sup> The findings of these studies are similar to this, although the sample size to be different.

The International Continence Society (ICS) recommends that physical therapy is the first choice of treatment for SUI, being a non-invasive, inexpensive and without side effects.<sup>(9)</sup> However, for these to benefit from a program treatment with perineal exercises, it can omit the step of knowledge and awareness of these muscles.<sup>(28)</sup>

In the present study evaluated the knowledge of the perineal muscles and it was observed that 54% of the study population knew of the existence of PFM, however only 20% of the evaluated knew locate these muscles before the figure. Bø et al.<sup>(29)</sup> report that about 37% of women are unable to contract the PFM, even after a session with directions made by physiotherapists. In the latest study, Talasz et al.<sup>(30)</sup> found another index, corresponding to 45% of 343 women evaluated in Austria.

To Glisoi and Girelli,<sup>(31)</sup> contract the PFM alone is a challenge for many women, since unaware that region or have body awareness specific to your contração. Researchers, when evaluating the body satisfaction of pregnant women through a questionnaire, and PFM strength by digital palpation, found that women who were more satisfied with the body presented a more effective

contraction of these muscles. According to the authors, this reflects that improved muscle function is positively correlated with body perception.<sup>(32)</sup> In this study, the lack of knowledge of the location of PFM can be aggravating the high prevalence of urinary symptoms observed, since they do not know locate due muscles, women do not know contracting them voluntarily or involuntarily to prevent urine leakage.

This study has limitations that should be considered, such as the small number of the pregnant women and the fact of not having a homogeneous number of multiparous and primiparous women, which could affect the results.

## CONCLUSION

In this study there was a high prevalence of urinary symptoms in pregnant women who were in prenatal care. In severity classification, they come up moderately. Regarding knowledge of PFM, although half of them reporting know this muscle group, a small percentage of them knew locate them and what the correct movement of the contraction to hold urine. In addition, a smaller percentage still reports to know the exercises for strengthening the PFM. Studies with larger samples are necessary to better estimate the presence of urinary tract symptoms in this population.

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