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KNOWLEDGE, ATTITUDE, AND PRACTICE OF PREGNANT WOMEN ABOUT URINARY INCONTINENCE: OBSERVATIONAL STUDY

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ABSTRACT

Objectives: To assess the knowledge, attitude and practice (KAP) of pregnant women about urinary incontinence (UI), identify the prevalence of UI, assess its impact on quality of life (QoL) and identify factors associated with inadequate KAP in relation to UI. **Methodology:** Observational study carried out from May to November 2019 in the city of Fortaleza, Ceará, Brazil. Two instruments were used for data collection: one for sociodemographic, obstetric and urinary loss assessment and another for KAP assessment on UI. **Results:** 237 pregnant women participated. The prevalence of UI was 49.3% and a low impact on QoL was observed. Most had knowledge (89.6%) and inadequate practice both to prevent (89.2%) and to treat (78.8%). Low percentages of correct answers were identified related to knowledge about risk factors (46.8%), prevention (43.8%) and treatment of UI (42.8%). Despite this, the attitude was considered adequate for most women (98.5%). Absence of guidance on preparation of the perineum for childbirth during prenatal care ($p = 0.019$), low education ($p < 0.001$), milder cases of UI ($p = 0.027$) and high-risk pregnancy ($p = 0.004$) were associated with inappropriate practice. **Conclusions:** knowledge about the causes, prevention and treatment of UI is insufficient and interferes with the management of this condition.

DESCRIPTORS: Urinary incontinence. Knowledge, Attitude and Practice in Health. Enterostomal Therapy.

CONHECIMENTO, ATITUDE E PRÁTICA DE GESTANTES SOBRE INCONTINÊNCIA URINÁRIA: ESTUDO OBSERVACIONAL

RESUMO

Objetivo: avaliar o conhecimento, a atitude e a prática (CAP) de gestantes sobre incontinência urinária (IU), identificar a prevalência de IU durante a gestação, avaliar seu impacto na qualidade de vida (QV) e identificar os fatores associados ao CAP inadequados em relação à IU. **Metodologia:** Estudo observacional realizado de maio a novembro de 2019 na cidade de Fortaleza, Ceará. Utilizaram-se dois instrumentos para coleta de dados: um para avaliação sociodemográfica, obstétrica e de perdas urinárias e outro para avaliação do CAP sobre IU. **Resultados:** Participaram 237 gestantes. A prevalência de IU foi de 49,3% e observou-se baixo impacto na QV. A maioria apresentou conhecimento (89,6%) e prática inadequados tanto para prevenir (89,2%) quanto para tratar (78,8%) a IU. Identificaram-se baixos percentuais de acerto relacionados ao conhecimento sobre fatores

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de risco (46,8%), prevenção (43,8%) e tratamento da IU (42,8%). Apesar disso, a atitude foi considerada adequada para a maioria das mulheres (98,5%). Ausência de orientação sobre o preparo do períneo para o parto durante o pré-natal (p = 0,019), baixa escolaridade (p < 0,001), casos mais leves de IU (p = 0,027) e gestação de alto risco (p = 0,004) associaram-se a prática inadequada. **Conclusão:** o conhecimento sobre causas, prevenção e tratamento da IU é insuficiente e interfere no manejo dessa condição.

DESCRITORES: Incontinência Urinária. Conhecimentos, Atitudes e Prática em Saúde. Estomaterapia.

CONOCIMIENTO, ACTITUD Y PRÁCTICA DE GESTANTES SOBRE LA INCONTINENCIA URINARIA: ESTUDIO OBSERVACIONAL

RESUMEN

Objetivos: evaluar el conocimiento, la actitud y la práctica (CAP) de las gestantes sobre la incontinencia urinaria (IU), identificar la prevalencia de la IU, evaluar su impacto en la calidad de vida (CV) e identificar los factores asociados a una PAC inadecuada en relación con la IU. **Metodología:** estudio observacional realizado de mayo a noviembre de 2019 en la ciudad de Fortaleza/CE. Se utilizaron dos instrumentos para la recolección de datos: uno para la evaluación sociodemográfica, obstétrica y de pérdidas urinarias y otro para la evaluación del CAP en la IU. **Resultados:** Participaron 237 gestantes. La prevalencia de IU fue del 49,3% y se observó un bajo impacto en la CV. La mayoría tenía conocimiento (89,6%) y práctica inadecuada tanto para prevenir (89,2%) como para tratar (78,8%). Se identificaron bajos porcentajes de aciertos relacionados con el conocimiento sobre factores de riesgo (46,8%), prevención (43,8%) y tratamiento de la IU (42,8%). A pesar de ello, la actitud fue considerada adecuada por la mayoría de las mujeres (98,5%). La ausencia de orientación sobre la preparación del perineo para el parto durante el control prenatal (p = 0,019), la baja escolaridad (p < 0,001), los casos más leves de IU (p = 0,027) y el embarazo de alto riesgo (p = 0,004) se asociaron con una atención inadecuada. práctica. **Conclusión:** el conocimiento sobre las causas, la prevención y el tratamiento de la IU es insuficiente e interfiere con el manejo de esta condición.

DESCRIPTORES: Incontinencia Urinaria. Conocimientos, Actitudes y Prácticas en Salud. Estomaterapia.

INTRODUCTION

Urinary incontinence (UI), defined as the involuntary loss of urine in any amount, is a prevalent symptom during pregnancy. Depending on preexisting risk factors and the gestational trimester investigated, its occurrence can vary from 41% to 75%. In addition, it is shown as a condition that negatively impacts the quality of life (QoL)[1-3].

Its occurrence is related to anatomical and hormonal changes that occur in the maternal organism and when associated with the presence of other factors — such as high body mass index (BMI), maternal age (> 35 years), constipation, multiparity, comorbidities before childbirth (such as diabetes and urinary tract infection) — is at increased risk and severity during pregnancy and even after delivery[1,4].

UI is a condition with great preventive potential. Thus, measures supported by scientific evidence should be implemented to reduce women's susceptibility to UI during pregnancy. Primary prevention actions can be carried out, highlighting the encouragement of weight loss and carrying out pelvic floor muscle training (PFMT)[5,6]. In addition, professional intervention can be focused on the early search for symptoms (secondary prevention) during consultations[6].

Despite the high prevalence, economic costs and substantial impact on QoL, studies indicate that there needs to be more information about UI[7-9]. Considering this, the following questions arose: what is the knowledge of pregnant women about UI? Can they recognize the cause and ways to prevent and treat this condition? What factors are associated with inadequate Knowledge, Attitude and Practice (KAP) in the face of UI?

The KAP survey is a methodology used to study human behavior in the face of a problem or illness. It aims to identify what the population knows about a health/disease problem (Knowledge), it is a way of acting and beliefs in the face of it (Attitude) and which preventive behaviors they adopt to protect themselves (Practice). It is important to

emphasize that these three constructs are interrelated and that Knowledge and Attitude directly influence practice[9]. For this assessment to be adequate, professionals must use valid and reliable instruments adapted to the culture of the studied population.

In Brazil, studies still need to be developed regarding the presented theme, showing gaps that need to be filled to improve the assistance provided during the pregnancy-puerperal period. Thus, the objectives of this study were: (a) to evaluate the KAP of pregnant women regarding UI; (b) to identify the prevalence and risk factors associated with the complaint of UI during pregnancy and its impact on QoL and (c) identify the factors associated with inadequate KAP of pregnant women concerning UI.

MATERIALS AND METHODS

For the presentation and description of the data presented here, the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) initiative were used[10].

Study design and data collection

The present is an observational, cross-sectional study. The investigation occurred in two public institutions linked to the Federal University of Ceará (Universidade Federal do Ceará), Brazil. The first provides usual-risk prenatal care; the second is a reference institution with a maternal-fetal outpatient clinic aimed at high-risk pregnancies.

Data collection was carried out from May to November 2019, and, considering the average of monthly prenatal care visits and the period intended for data collection, the sample was calculated based on the formula for calculating finite populations adopting a confidence coefficient of 95% and maximum allowed sampling error of 5%, accounting for a sample size of 237 pregnant women. Pregnant women aged 18 years or older at any gestational age were selected. Women diagnosed with urinary tract infections at the time of data collection were excluded.

The participants were selected for convenience and approached while waiting for the prenatal consultation. After evaluating the eligibility criteria, they were invited to participate in the study, and after accepting and signing the consent form, the research began. The data collection instruments, in electronic format, were applied through individualized interviews, in a reserved environment, by a team composed of three trained researchers.

Two instruments were applied. The first contained three sections, namely: socio-demographic variables (section I), obstetric variables (section II) and assessment of urinary complaints and pelvic organ prolapse (POP) (section III). The evaluation of urinary complaints was performed using the International Consultation Incontinence Questionnaire –Short Form (ICIQ-SF), a translated and validated version for Portuguese that assesses the impact of UI and qualifies urinary losses in terms of frequency and severity, plus eight self-diagnosis items, related to the causes or situations of UI experienced by the patients. The questionnaire score is performed through the arithmetic sum of the questions, with variations from 0 to 21. The higher the score, the more severe the symptoms[11]. The symptoms of "lump in the vagina" and vaginal looseness were evaluated through the participant's self-perception.

After completing the first instrument, the KAP Scale of Pregnant Women on UI was applied. This scale consists of 23 items, divided into three subscales. The Knowledge subscale has ten questions that encompass symptoms, risk factors, UI severity, and ways to prevent and treat UI. The second, which assesses Attitude, comprises eight questions (items 11 to 18) and seeks to identify the perception of seeking care. Items related to this subscale assess coping attitudes and seeking support for ways to prevent or treat UI. The last subscale, which evaluates the Practice construct, is related to prevention and treatment measures; consists of five questions (items 19 to 23). For this subscale, questions about prevention are directed at women without complaints of urinary loss. The items on treatment are aimed at women with UI. Each subscale allows classifying the KAP as adequate and inadequate, depending on the answers given by the participants, according to the criteria below[12]:

- **Knowledge:** to be considered with adequate knowledge, the participant must at least: have heard about UI, know that there is something to prevent UI and mention some correct way to avoid it, know that there is a treatment for UI and say some proper way to treat it.
- **Attitude:** to be considered with an appropriate attitude, the participant must at least: state that if the woman has a significant loss of urine, she should seek professional help to treat it.
- **Practice**: to be considered with good Practice, the participant:
  - *Without UI complaints (I) must, at a minimum: have asked a health professional what to do to avoid UI or practice something correct to avoid it.*
  - *Complaining of UI (II) must, at a minimum: have sought help to treat the loss of urine with a health professional.*

Data analysis

Data were analyzed using IBM SPSS Statistics version 20.0 for Windows.

The prevalence of UI complaints was calculated from the first question of the ICIQ-SF — How often do you leak urine? — the response "never" is considered absent UI, and the others as present UI. The third question of the ICIQ-SF was used to assess the impact of UI on QoL — *In general, how much does losing urine interfere with your daily life?*[11]

Women were subdivided into groups to identify factors associated with inadequate KAP concerning UI: adequate/inadequate knowledge, adequate/inadequate Attitude and adequate/inappropriate Practice, and socio-demographic and obstetric variables and presence/absence of UI were compared between the groups.

As defined by the KAP-UI Scale, requirements were used to classify each KAP element as adequate or inadequate[12]. Dichotomous variables were described in their frequencies and percentages and compared using the chi-square test. Interval variables were expressed as mean ± standard deviation (Md ± SD) and median (p25-p75) and compared using Student's t-test.

The study was submitted and approved by the Ethics Committee under number 3.284.173/2019.

RESULTS

Socio-demographic and obstetric characteristics and urinary symptoms

The study was conducted with 237 pregnant women, with a mean age of 28.94 ± 6.14 years, more than nine years of study, most living with a partner and a mean income of R$ 1,497.19 ± 903.04 (Table 1). Most pregnant women started prenatal care in the first trimester of pregnancy (66.7%) and were, at the time of the interview, at the end of the second trimester (Md: 26.2 ± 7.6 weeks); most were second-digest (83/35.0%) and primiparous (Md: 1.11 ± 1.18) with previous vaginal delivery (Md: 0.6 ± 1.1). The mean BMI was 75.35 ± 15.93 (kg/m^2). Only 19 (8.0%) reported practicing some physical activity, with walking/running being the most reported activity (11/57.8%).

Of the 237 pregnant women, 114 (49.3%) had UI. Regarding POP symptoms, 45 (19.4%) women reported a sensation of a lump in the vagina; among those who were sexually active, 14 (16%) complained of vaginal looseness.

Pregnant women with UI reported that UI happens mainly "before reaching the bathroom" (37/32.4%) or "when coughing or sneezing" (90/78.9%). More than half (79/70.1%) related the beginning of the complaint to the current pregnancy. For others, this complaint has lasted since pregnancy (21/19.2%) or a previous delivery (2/2.6%).

Regarding the frequency of urinary loss, half of the pregnant women reported a minimum frequency of 2 to 3 times/week, most of the time, in small amounts (96/84.2%) and with a low impact on QoL (Md: 4. 0 ± 3.6 points), assessed by the ICIQ-SF.

Socio-demographic and obstetric data are described in Tables 1 and 2, respectively. It is noteworthy that there was no difference regarding the socio-demographic profile of pregnant women with and without UI complaints; however,

regarding the obstetric profile, pregnant women with UI had a more significant number of pregnancies (p = 0.022), deliveries (p = 0.008), mainly vaginally (p = 0.002) and instrumental deliveries (p = 0.045).

Table 1. Distribution of socio-demographic data of the general sample (237) and by group (with and without UI complaints), 2020.

Variable	Total sample (237)		No UI (123/50.7%)		With UI (114/49.3%)		p
	N (%)	Md ± SD	N (%)	Md ± SD	N (%)	Md ± SD	
Age		28.94 ± 6.14		28.28 ± 5.97		29.66 ± 6.26	0.084*
18 – 20	19 (8.0)		13(10.6)		06 (5.3)		
21 – 29	110 (46.4)		59 (48.0)		51 (44.7)		
30 – 39	91(38.4)		45 (36.6)		46 (40.4)		
40 – 43	17(7.2)		06 (4.9)		11 (9.6)		
Education (years of study)		11.27 ± 3.69		11.45 ± 4.37		11.08 ± 2.78	0.445*
Up to 9 years	50 (21.1)		26 (21.2)		24 (21.1)		
> 9 years	187 (78.9)		97 (78.8)		90 (78.9)		
Income (R$)+		1497.19 ± 903.04		1559.50 ± 844.38		1429.97 ± 961.56	0.271*
≤ 998,00	133 (56.1)		62 (50.4)		71 (62.3)		
> 998,00	104 (43.9)		61 (49.6)		43 (37.7)		
Marital status							0.281**
Married/stable union	204 (86.1)		103 (83.7)		101 (88.6)		
Single/widowed/ divorced	33 (13.9)		20 (16.3)		13 (11.4)		
Religion							0.146**
Yes	204 (81.6)		102 (82.9)		102 (89.5)		
No	33 (13.9)		21 (17.1)		12 (10.5)		

+Monthly income considering the 2019 minimum wage of BRL 998. *T-test **Pearson's chi-square. UI: urinary incontinence; Md: mean; SD: standard deviation. Source: Prepared by the authors.

Table 2. Clinical and obstetric profile by total sample (237) and group (with or without UI complaints), 2020.

Variable	Total Sample (237)		No UI (123/50.7%)		With IU (114/49.3%)		p
	N (%)	Md ± SD (p25-p75)	N (%)	Md ± SD (p25-p75)	N (%)	Md ± SD (p25-p75)	
Start of prenatal care	158 (66.7)		76 (61.8)		82 (71.9)		0.223**
1st trimester	62 (26.2)		36 (29.6)		26 (22.8)		
2nd trimester	17 (7.2)		11 (8.9)		06 (5.3)		
3rd trimester		26.2 ± 7.6 (20-33)		25.7 ± 8.1 (19-33)		26.8 ± 7.0 (21-32)	
Gestational age (wk.)							0.307*
Did you receive guidance on how to prepare the perineum for childbirth?	17 (7.2)		05 (4.1)		12 (10.5)		0.054**
Yes	220 (92.8)		118 (95.9)		102 (89.5)		
No							

continue...

Table 2. Continuation...

Variable	Total Sample (237)		No UI (123/50.7%)		With IU (114/49.3%)		p
	N (%)	Md ± SD (p25-p75)	N (%)	Md ± SD (p25-p75)	N (%)	Md ± SD (p25-p75)	
Physical activity (pregnancy)	218 (92.0)		114 (92.7)		104 (91.2)		0.680**
No	19 (8.0)		09 (7.3)		10 (8.8)		
Yes							
If yes, which one? (19)	11 (57.8)		06 (66.6)		05 (50)		
walk/run	03 (15.8)		02 (22.2)		01 (10)		0.857**
Bodybuilding	01 (5.3)		00 (0.0)		01 (10)		0.606**
Zumba	01 (5.3)		00 (0.0)		01 (10)		0.298**
Pilates	03 (15.8)		01 (11.2)		02 (20)		0.298**
Others		5.28 ± 2.94 (3-7)		4.93 ± 2.79 (2-7)		5.66 ± 3.05 (4-7)	0.517**
Number of appointments		2.53 ± 1.41 (1-3)		2.33 ± 1.27 (1-3)		2.75 ± 1.53 (2-4)	0.058*
Pregnancy		1.11 ± 1.18 (0-2)		0.91 ± 1.04 (0-1)		1.32 ± 1.28 (0-2)	0.022*
Delivery		0.43 ± 0.71 (0-1)		0.46 ± 0.77 (0-1)		0.39 ± 0.65 (0-1)	0.008*
C-Section		0.64 ± 1.11 (0-1)		0.42 ± 0.81 (0-1)		0.88 ± 1.31 (0-1)	0.408*
Vaginal		0.02 ± 0.12 (0-1)		0		0.04 ± 0.18 (0-0)	0.002*
Instrumental delivery		75.3 ± 15.9 (64.5-83.6)		75.1 ± 15.0 (64.8-83.0)		75.5 ± 16.9 (63.8-85.4)	0.045*
BMI (kg/m²)		3270.9 ± 755.3 (2847.5-3775)		3398.29 ± 586.95 (3150-1787)		3174.97 ± 852.52 (2722-3750)	0.870*
NB weight							0.091*
Previous perineal trauma (88)	28 (31.8)		09 (27.3)		19 (34.5)		0.478*
Intact perineum	60 (68.2)		24 (72.7)		36 (65.5)		
Laceration/episiotomy							

*T test **Pearson chi-square. UI: urinary incontinence; Md: mean; SD: standard deviation; BMI: body mass index. Numbers in bold: p < 0.05. Source: Prepared by the authors.

KAP over UI

According to previously established criteria, the KAP-UI Scale should only be applied to women who have heard about UI. Therefore, those who answered yes to the first question of the instrument: *Have you ever heard that some women lose pee when they don't feel like it (cough or sneeze) or because they can't get to the bathroom in time?*

Thus, although 237 pregnant women were approached, 36 (15.2%) reported never having heard about UI, and only 201 (84.8%) were assessed for KAP. In this study, the initial recommendation of the principal author of the scale was followed, although this recommendation was later modified[12].

Knowledge about UI

Most participants (111/55.2%) recognized UI as a health problem and stated that UI is more prevalent in the female population (183/91%) and may occur at some stage of life. However, the majority (115/57.2%) considered urinary loss during pregnancy to be expected.

More than half (112/55.7%) could not cite any risk factor for UI. Among those who mentioned one, pregnancy/delivery/instrumental delivery was the most mentioned (47/23.4%). Only 10 (5.0%) pregnant women recognized pelvic floor muscle weakness/lack of perineum preparation as a risk factor. Most believe that there are ways to prevent (150/74.6%) and treat (182/90.5%) UI, but more than half could not cite any form of prevention (111/55.2%) or treatment (115/57.2%). Performing pelvic floor strengthening exercises (27/13.4%) and surgery (53/26.4%) were the most frequent responses to prevent and treat UI.

Only 21 (10.4%) pregnant women had the knowledge listed in this study as a minimum to be considered adequate.

UI related Attitude

Unlike knowledge, the Attitude of pregnant women related to UI was better evaluated. The aspects analyzed were: Attitude towards seeking care for prevention and treatment and coping/seeking support.

Most reported feeling very comfortable reporting the UI complaint, if they had one, to the health professional (184/92.0%), even if this professional was male (80.1%). Virtually all (198/99.0%) recognized prenatal care as an appropriate time to talk to a health professional about ways to prevent or treat urine loss; 65.2% (131) of the participants recognized the importance of seeking professional help even before experiencing urinary loss. An even more significant number considered the search for the treatment necessary, with urinary loss slight (183/91%) or important (198/98.5%).

In this subscale, 98.5% (198) of the participants were classified as having an adequate attitude.

Practice related to UI

The evaluation of the Practice has different criteria according to the presence or absence of the UI complaint. For those who did not have UI (102/50.7%), aspects related to preventive behaviors were questioned. For those who complained of UI (99/49.3%), factors associated with adopting behaviors aimed at the treatment.

For those without UI, 97 (95.1%) never asked a health professional what to do to avoid UI and only 9 (8.8%) reported some correct UI prevention practice, such as: avoiding withholding urine (5/ 9), performing PFMT (3/9) and avoid lifting weights (1/9). Thus, only 11 (10.8%) women were classified as having adequate preventive care practices.

For those with UI, only 21 (21.2%) had already sought help to treat UI: 19 went to the doctor and 2 to the nurse. Of these, 15 (71.4%) reported not receiving specific professional guidance for this complaint. Among the 6 (28.6%) who received some guidance (surgery [2/33.3%], PFMT [1/16.6%], behavioral therapy [1/16.6%] and medication [1/16 .6%]), only half carried out the recommendation received.

Only 21 (21.2%) women with UI complaints were classified as having adequate care practices for UI treatment.

Inadequate KAP-related factors

To investigate inappropriate KAP-related factors concerning UI, socio-demographic and obstetric variables were compared between groups of pregnant women.

The absence of guidance on perineal care was the only variable that was associated with inadequate knowledge ($p < 0.001$; odds ratio [OR] = 0.093; confidence interval [CI] = 0.029–0.294) (Table 3).

None of the analyzed variables was associated with inappropriate Attitude ($p>0.05$) (Table 4).

Table 3. Factors associated with inadequate knowledge about UI, 2020.

Variable	Adequate Knowledge (21/10.4%)	Inadequate Knowledge (180/89.6%)	p	OR (CI95%)
	Md ± SD	Md ± SD		
Age	29.67 ± 5.60	28.92 ± 6.16	0.598*	
Education (years of study)	12.43 ± 2.24	11.17 ± 3.93	0.153*	
Income (in Brazilian Reais/BRL)	1744.6 ± 821.8	1489.3 ± 949.5	0.239*	
Number of appointments	5.81 ± 3.54	5.31 ± 2.95	0.475*	
Gestational age (weeks)	27.24 ± 7.72	26.21 ± 7.70	0.564*	
How much UI interferes with daily life (0-10)	2.57 ± 3.99	2.38 ± 3.48	0.812*	
ICIQ Score	5.10 ± 6.70	4.56 ± 5.68	0.687*	
	N (%)	N (%)		
Prenatal risk			0.717**	
High risk	13 (61.9)	104 (57.8)		
Usual risk	8 (38.1)	76 (42.2)		
Did you receive prenatal guidance on how to prepare the perineum for childbirth?			0.000**	0.093 (0.029-0.294)
Yes	7 (33.3)	08 (4.4)		
No	14 (66.7)	172 (95.6)		
UI complaint			0.874**	
Yes	10 (47.6)	89 (49.4)		
No	11 (52.4)	91 (50.6)		
Lump sensation in the vagina			0.682**	
Yes	5 (23.8)	36 (20.0)		
No	16 (76.2)	144 (80.0)		
Vaginal looseness during intercourse			0.188**	
Yes	3 (17.6)	9 (5.8)		
No	14 (82.4)	144 (94.2)		

* Pearson's T test ** Chi-square. UI: urinary incontinence; Md: mean; SD: standard deviation; ICIQ: International Consultation Incontinence Questionnaire; OR: odds ratio; CI: confidence interval. Source: Prepared by the authors.

Table 4. Factors associated with inadequate Attitude towards UI, 2020.

Variable	Appropriate Attitude (198/98,5%)	Inappropriate Attitude (3/1,5%)	p
	Md ± SD	Md ± SD	
Age	29.1 ± 6.06	22.3 ± 5.77	0.056*
Education (years of study)	11.33 ± 3.82	9.33 ± 2.51	0.368*
Income (in Brazilian Reais/BRL)	1511.2 ± 941.5	1831.3 ± 764.4	0.559*
Number of appointments	5.38 ± 3.03	4.00 ± 1.00	0.432*
Gestational age (weeks)	26.36 ± 7.69	23.67 ± 9.01	0.549*
How much UI interferes with daily life (0-10)	2.39 ± 3.52	2.67 ± 4.61	0.895*
ICIQ Score	4.62 ± 5.78	4.33 ± 7.50	0.933*

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Table 4. Continuation...

Variable	Appropriate Attitude (198/98,5%)	Inappropriate Attitude (3/1,5%)	p
	Md ± SD	Md ± SD	
	N (%)	N (%)	
Prenatal risk			**0.379****
High risk	116 (58.6)	1 (33.3)	
Usual risk	82 (41.4)	2 (66.7)	
Did you receive prenatal guidance on how to prepare the perineum for childbirth?			0.086**
Yes	14 (7.1)	1 (33.3)	
No	184 (92.9)	2 (66.7)	
UI complaint			0.578**
Yes	98 (49.5)	1 (33.3)	
No	100 (50.5)	2 (66.7)	
Lump sensation in the vagina			0.575**
Yes	40 (20.2)	1 (33.3)	
No	158 (79.8)	2 (66.7)	
Vaginal looseness during intercourse			0.647**
Yes	12 (7.2)	0 (0.0)	
No	156 (92.8)	2 (100)	

* Pearson's T test ** Chi-square. UI: urinary incontinence; Md: mean; SD: standard deviation; ICIQ, International Consultation Incontinence Questionnaire. Source: Prepared by the authors.

Likewise, there was no association between socio-demographic and obstetric variables and UI prevention practices (p > 0.05) (Table 5). On the other hand, factors associated with inadequate Practice for the treatment of UI were identified. Pregnant women with UI and who had inadequate Practice (78/78.8%) had lower education (Md: 10.62 ± 2.75) (p < 0.001), lower severity of UI symptoms (p = 0.027) and most (73/93.6%) also had not received guidance on how to prepare the perineum for childbirth (p = 0.019; OR = 0.219; CI = 0.057–0.848). As for the gestational risk classification, 56.4% (44) of the pregnant women who had inadequate Practice performed prenatal care at the high-risk outpatient clinic (p = 0.004; OR = 0.136; CI = 0.03–0.62) (Table 5). Finally, there was an association between knowledge and Practice for treatment (p = 0.019; OR = 4.56; CI = 1.18–17.64), in which 82% of pregnant women had inadequate knowledge and also had inadequate Practice.

Table 5. Factors associated with inadequate Practice regarding UI, 2020

Variable	Prevention Practice		p*	Prática Tratamento		p	OR (IC95%)
	Proper (11/10.8%)	Inadequate (91/89.2%)		Proper (21/21.2%)	Inadequate (78/78.8%)		
	Md ± DP	Md ± DP		Md ± DP	Md ± DP		
Age	27 ± 5,49	28,75 ± 6,06	0,365	31,76 ± 5,81	28,83 ± 6,18	0,054*	
Education (years of study)	11,36 ± 3,29	11,59 ± 4,80	0,878	12,57 ± 1,56	10,62 ± 2,75	0,000*	
Income (in Brazilian Reais/BRL)	1715,9 ± 1050,2	1604,2 ± 860,5	0,692	1507,7 ± 1319	1387,1 ± 891,5	0,623*	
Number of appointments	5,36 ± 2,80	5,04 ± 2,83	0,724	6,24 ± 3,14	5,50 ± 3,20	0,350*	

continue...

Table 5. Continuation...

Variable	Prevention Practice		p*	Prática Tratamento		p	OR (IC95%)
	Proper (11/10.8%)	Inadequate (91/89.2%)		Proper (21/21.2%)	Inadequate (78/78.8%)		
	Md ± DP	Md ± DP		Md ± DP	Md ± DP		
Gestational age (weeks)	28.45 ± 8.49	25.51 ± 8.05	0.257	27.90 ± 7.49	26.54 ± 7.19	0.445*	
How much UI interferes with daily life (0-10)	-	-	-	6.19 ± 3.58	4.51 ± 3.59	0.060*	
ICIQ Score	-	-	-	11.43 ± 4.87	8.81 ± 4.70	0.027*	
	N (%)	N (%)		N (%)	N (%)		
Prenatal risk			0.164			0.004**	0.136 (0.03-0.62)
High risk	8 (72.7)	46 (50.5)		19 (90.5)	44 (56.4)		
Usual risk	3 (27.3)	45 (49.5)		2 (9.5)	34 (43.6)		
Did you receive prenatal guidance on how to prepare the perineum for childbirth?			0.425			0.019**	0.219 (0.05-0.84)
Yes	0 (0.0)	5 (5.5)		5 (23.8)	5 (6.4)		
No	11 (100)	86 (94.5)		16 (76.2)	73 (93.6)		
Lump sensation in the vagina			0.116			0.149**	
Yes	2 (18.2)	5 (5.5)		10 (47.6)	24 (30.8)		
No	9 (81.8)	86 (94.5)		11 (52.4)	54 (69.2)		
Vaginal looseness during intercourse			0.629			0.342**	
Yes	1 (11.2)	3 (3.9)		3 (17.6)	5 (7.4)		
No	8 (88.8)	73 (96.1)		14 (82.4)	63 (92.6)		

* Pearson's T test ** Chi-square. Abbreviations: UI, urinary incontinence; Md: mean; SD, standard deviation; ICIQ, International Consultation Incontinence Questionnaire; OR, odds ratio; CI, confidence interval. Source: Prepared by the authors.

DISCUSSION

The prevalence of UI is high, and its symptoms tend to worsen during pregnancy, especially in the third trimester, and may remain after delivery due to mechanical and hormonal factors[1,13,14]. In this study, the onset of urinary loss was also related, in most cases, to current and previous pregnancy, thus showing the strong association already proven between pregnancy and UI[8,15].

The impact of UI on QoL was low. This finding may be associated with the severity of symptoms being low. Most pregnant women were in the first trimester of pregnancy (158/66.7%), a period in which these symptoms were less frequent.[13] In addition, the perception that urinary loss during pregnancy is standard may have even influenced the assessment of the severity of the loss, influencing them to minimize the situation.

However, another more detailed study on the impact of UI on the QoL of pregnant women showed that, despite having mild to moderate urinary losses, which do not seriously affect their lives, they had the physical, mental and social domains as the most affected[13].

The assessment of knowledge about UI identified that there is still a significant deficit related to what the female population knows about this condition. Risk factors, forms of prevention and treatment are only partially understood, with inadequate knowledge showing a prevalence of 50 to 72%[8,16-18].

Among the recognized risk factors, the most cited were pregnancy and childbirth. This finding may result from their experiences during pregnancy since changes in voiding patterns are common. Many pregnant women do not recognize performing PFMT as a way to reduce the risk of UI and are unaware that weight gain can also lead to this symptoms[19].

There is an important relationship between knowledge and care-seeking behavior. Women who believe UI is associated with non-modifiable causes such as pregnancy, childbirth and aging tend to present negative behaviors, as they think nothing can be done to prevent or treat this condition[20].

In addition to insufficient knowledge, the following may be associated with inadequate Practice: embarrassment in reporting the complaint, not perceiving UI as a health problem or even having low expectations regarding treatment[9].

Most women in this study needed guidance about UI. This need shows the unpreparedness of professionals and even a deficit regarding the theme, showing that receiving guidance on changes in the pelvic floor during pregnancy and postpartum needs to be more worked on by health teams[8,21,22].

Despite having inadequate knowledge and practices, the Attitude of most pregnant women was considered adequate. Many women reported that they had talked to health professionals about the subject and considered prenatal care a crucial moment to address the topic.

This situation can be explained by the fact that just identifying that something is necessary or essential (Attitude) for health, without, however, understanding the reason (knowledge) for adopting this behavior, is not enough to achieve the implementation of that action (Practice). In a critical systematic review of KAP for women on UI, the authors, after evaluating a final sample of 19 articles, concluded that to decide to act (Practice), women must believe that the incentives (i.e., symptom reduction, QoL improvement) are more significant than barriers (e.g., embarrassment, time constraints, cost) and considering seeking treatment a priority over other life demands[9].

Despite the complexity of evaluating the three constructs, the results reveal the lack of educational activities that minimize the deficit in pregnant women's knowledge about UI and that routine consultations or even waiting rooms during prenatal care can and should be used strategically for this. Although this research only signals the tip of the iceberg on what can influence the KAP of pregnant women about UI, it is clear how much health professionals who work with pelvic floor disorders need to broaden their approach.

Limitations and recommendations

Bearing that the assessment of the impact of UI on QoL was quick, it is impossible to see more accurately which areas of QoL the pregnant woman perceives the most significant impact. Therefore, further studies should be carried out on this topic.

It is also suggested that more robust studies be carried out to identify the effect of educational interventions in KAP on UI in this population.

CONCLUSION

The prevalence of UI among pregnant women is high, but it has little impact on QoL. Although many participants have heard about UI, knowledge about prevention and treatment still needs to be improved. The Practice was inadequate for most women, and among those who had already sought professional help, a minority received adequate guidance. Attitude was the best-evaluated aspect. Few barriers were identified that would prevent the search for skilled care, showing that, despite not having enough Practice, if health professionals addressed this problem, many pregnant women would be willing to report the urinary loss and even adopt preventive or management measures treatment.

These results demonstrate the urgent need to carry out a broader approach to prenatal care through individual and collective actions to expand women's knowledge and encourage appropriate behavior related to UI.

AUTHORS' CONTRIBUTION

Conceptualization: Ribeiro GL, Firmiano MLV and Vasconcelos CTM; **Methodology:** Ribeiro GL, Firmiano MLV, Vasconcelos CTM and MHBM Lopes; **Research:** Ribeiro GL and Vasconcelos CTM; **Writing – First version:** Ribeiro GL, Firmiano MLV, Vasconcelos CTM, MHBM Lopes, Vasconcelos Neto JA and Damasceno AKC; **Writing – Reviewing & Editing:** Ribeiro GL and Vasconcelos CTM.

DATA AVAILABILITY STATEMENT

Data will be available upon request.

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REFERENCES

1. Abrams P, Cardozo L, Wagg A, Wein A (Eds). Incontinence. 6th edition. Bristol: International Continence Society; 2017.
2. Moossdorff-Steinhauser HFA, Berghmans BCM, Spaanderman MEA, Bols EMJ. Prevalence, incidence and bothersomeness of urinary incontinence in pregnancy: A systematic review and meta-analysis. Int Urogynecol J 2021;32(7):1633-52. https://doi.org/10.1007/s00192-020-04636-3
3. Saboia DM, Firmiano MLV, Bezerra KC, Vasconcelos Neto JA, Oriá MOB, Vasconcelos CTM. Impacto dos tipos de incontinência urinária na qualidade de vida de mulheres. Rev Esc Enferm USP 2017;51:e03266. https://doi.org/10.1590/s1980-220x2016032603266
4. Liang CC, Chao M, Chang SD, Chiu SYH. Impact of prepregnancy body mass index on pregnancy outcomes, incidence of urinary incontinence and quality of life during pregnancy - An observational cohort study. Biomed J 2020;43(6):476-83. https://doi.org/10.1016/j.bj.2019.11.001
5. Burgio KL, Zyczynski H, Locher JL, Richter HE, Redden DT, Wright KC. Urinary incontinence in the 12-month postpartum period. Obstet Gynecol 2003;102(6):1291-8. https://doi.org/10.1016/j.obstetgynecol.2003.09.013
6. Sievert KD, Amend B, Toomey PA, Robinson D, Milsom I, Koelbl H, et al. Can we prevent incontinence?: ICI-RS 2011 Karl-Dietrich. Neurourol Urodyn 2012;31:390-9. https://doi.org/10.1002/nau.22225
7. Abrams P, Smith AP, Cotterill N. The impact of urinary incontinence on health-related quality of life (HRQoL) in a real-world population of women aged 45-60 years: Results from a survey in France, Germany, the UK and the USA. BJU Int 2015;115(1):143-52. https://doi.org/10.1111/bju.12852
8. Perera J, Kirthinanda DS, Wijeratne S, Wickramarachchi TK. Descriptive cross sectional study on prevalence, perceptions, predisposing factors and health seeking behaviour of women with stress urinary incontinence. BMC Women's Health 2014;14:78. https://doi.org/10.1186/1472-6874-14-78
9. Vasconcelos CTM, Firmiano MLV, Oriá MOB, Vasconcelos Neto JA, Saboia DM, Bezerra LRPS. Women's knowledge, attitude and practice related to urinary incontinence: systematic review. Int Urogynecol J 2019;30(2):171-80. https://doi.org/10.1007/s00192-018-3759-3

10. Malta M, Cardoso LO, Bastos FI, Magnanini MMF, Silva CMFP. STROBE initiative: guidelines on reporting observational studies. Rev Saúde Pública 2010;44(3):559-65. https://doi.org/10.1590/S0034-89102010000300021

11. Tamanini JTN, Dambros M, D'Ancona CAL, Palma PCR, Rodrigues Netto Jr N. Validação para o português do "International Consultation on Incontinence Questionnaire - Short Form" (ICIQ-SF). Rev Saúde Pública 2004;38(3):438-44. https://doi.org/10.1590/S0034-89102004000300015

12. Ribeiro GL, Firmiano MLV, Vasconcelos CTM, Saboia DM, Lopes MHBM, Vasconcelos Neto JA. Scale of pregnant women's assessment of knowledge , attitude and practice related to urinary incontinence. Int Urogynecol J 2021;33(6):1503-9. https://doi.org/10.1007/s00192-021-04837-4

13. Martínez Franco E, Parés D, Lorente Colomé N, Méndez Paredes JR, Amat Tardiu L. Urinary incontinence during pregnancy. Is there a difference between first and third trimester? Eur J Obstet Gynecol Reprod Biol 2014;182:86-90. https://doi.org/10.1016/j.ejogrb.2014.08.035

14. MacArthur C, Wilson D, Herbison P, Lancashire RJ, Hagen S, Toozs-Hobson P, et al. Urinary incontinence persisting after childbirth: Extent, delivery history, and effects in a 12-year longitudinal cohort study. BJOG 2016;123(6):1022-9. https://doi.org/10.1111/1471-0528.13395

15. Abdullah B, Ayub SH, Mohd Zahid AZ, Noorneza AR, Isa MR, Ng PY. Urinary incontinence in primigravida: The neglected pregnancy predicament. Eur J Obstet Gynecol Reprod Biol 2016;198:110-5. https://doi.org/10.1016/j.ejogrb.2016.01.006

16. Cardoso AMB, Lima CROP, Ferreira CWS. Prevalence of urinary incontinence in high-impact sports athletes and their association with knowledge, attitude and practice about this dysfunction. Eur J Sport Sci 2018;18(10):1405-12. https://doi.org/10.1080/17461391.2018.1496146

17. Ojengbede OA, Morhason-Bello IO, Adedokun BO, Okonkwo NS, Kolade CO. Prevalence and the associated trigger factors of urinary incontinence among 5000 black women in sub-Saharan Africa: Findings from a community survey. BJU Int 2011;107(11):1793-800. https://doi.org/10.1111/j.1464-410X.2010.09758.x

18. Chen CCG, Cox JT, Yuan C, Thomaier L, Dutta S. Knowledge of pelvic floor disorders in women seeking primary care: A cross-sectional study. BMC Fam Pract 2019;20(1):70. https://doi.org/10.1186/s12875-019-0958-z

19. Mclennan MT, Melick CF, Alten B, Young J, Hoehn MR. Patients' knowledge of potential pelvic floor changes associated with pregnancy and delivery. Int Urogynecol J 2005;17:22-6. https://doi.org/10.1007/s00192-005-1325-2

20. Melville JL, Wagner LE, Fan M-Y, Katon WJ, Newton KM. Women's perceptions about the etiology of urinary incontinence. J Women's Heal 2008;17(7):1093-8. https://doi.org/10.1089/jwh.2007.0606

21. Lopes DBM, Praça NS. Incontinência urinária autorreferida no pós-parto: Características clínicas. Rev Esc Enferm USP 2012;46(3):559-64. https://doi.org/10.1590/S0080-62342012000300005

22. Mandimika CL, Murk W, McPencow AM, Lake A, Wedderburn T, Collier CH, et al. Knowledge of pelvic floor disorders in a population of community-dwelling women. Am J Obstet Gynecol 2014;210(2):165.e1-9. https://doi.org/10.1016/j.ajog.2013.10.011