Original Article

Prevalence and related factors of self-reported urinary incontinence in the postpartum period*

Prevalência de incontinência urinária autorreferida no pós-parto e fatores relacionados

Prevalencia de incontinencia urinaria autorreferida en el postparto y factores relacionados

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ABSTRACT

Objectives: To verify the prevalence of self-reported urinary incontinence (UI) in women after childbirth, and to identify related factors. **Methods:** A cross-sectional epidemiological study was conducted between January and August 2009. We interviewed 288 women, who were 30 days to 6 months postpartum. Data were statistically analyzed. **Results:** The prevalence of self-reported postpartum UI was 24.6%. The average age of women was 26 years; only skin color showed a statistically significant difference, with the largest representation among white women. Among the 71 women who reported postpartum UI, the majority were primiparas and underwent normal delivery. **Conclusion:** The occurrence of self-reported urinary incontinence after childbirth is associated with skin color, predominantly in primiparous women as compared to non primiparous. Identification of factors related to UI in women after childbirth and its prevalence contribute to the planning of midwifery care for women who experience reproductive events.

Keywords: Obstetrical nursing; Urinary incontinence; Women's health

RESUMO

Objetivos: Verificar a prevalência de incontinência urinária (IU) autorreferida por mulheres no pós-parto e identificar os fatores relacionados. **Métodos:** Estudo epidemiológico transversal, realizado no período de janeiro a agosto de 2009. Foram entrevistadas 288 mulheres com 30 dias a 6 meses de pós-parto. Os dados foram analisados estatisticamente. **Resultados:** Observou-se prevalência de 24,6% de IU autorreferida no pós-parto. A idade média das mulheres foi de 26 anos, apenas a cor da pele apresentou diferença estatística significante, com maior representatividade em mulheres brancas. Dentre as 71 entrevistadas que referiram IU no pós-parto, a maioria era primípara e submeteu-se ao parto normal. **Conclusão:** A ocorrência de IU autorreferida no pós-parto associa-se à cor da pele com predominância em primíparas em comparação às não primíparas. Identificar os fatores relacionados à IU em mulheres no pós-parto e sua prevalência contribui no planejamento de atenção de enfermagem obstétrica à mulher que vivencia o período reprodutivo.

Descritores: Enfermagem obstétrica; Incontinência urinária; Saúde da mulher

RESUMEN

Objetivos: Verificar la prevalencia de incontinencia urinaria (IU) autorreferida por mujeres en el postparto e identificar los factores relacionados. **Métodos:** Estudio epidemiológico transversal, realizado en el período de enero a agosto del 2009. Fueron entrevistadas 288 mujeres con 30 días a 6 meses de postparto. Los datos se analizaron estadísticamente. **Resultados:** Se observó prevalencia de 24,6% de IU autorreferida en el postparto. La edad promedio de las mujeres fue de 26 años, apenas el color de la piel presentó diferencia estadística significativa, con mayor representatividad en mujeres blancas. De las 71 entrevistadas que refirieron IU en el postparto, la mayoría era primípara y se sometió al parto normal. **Conclusión:** La ocurrencia de IU autorreferida en el postparto se asocia al color de la piel con predominio en primíparas en comparación a las no primíparas. La identificación de los factores relacionados a la IU en mujeres en el postparto y su prevalencia contribuye en la planificación de atención de enfermería obstétrica a la mujer que vivencia el período reprodutivo.

Descriptores: Enfermería obstétrica; Incontinencia urinaria, Salud de la mujer

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** Study extracted from Master's thesis entitled "Prevalence and associated factors of self-reported urinary incontinence on postpartum"– presented to the School of Nursing – University of Sao Paulo – USP – Sao Paulo (SP), Brazil.*

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INTRODUCTION

Until recently, urinary incontinence in women was accepted as an inevitable consequence of aging or pregnancy, receiving reduced or little attention and research dedicated to its understanding, both for their causes and their potential treatments [1]. The term urinary incontinence (UI) is currently defined by the International Continence Society as any complaint of involuntary urine loss [2].

Among the transitional situations, pregnancy and mode of delivery are considered risk factors for changes in pelvic floor muscle strength. Throughout pregnancy, during labour and delivery, changes occur in the anatomical position of the pelvis, in the pelvic muscles form, in the viscera and perineum. The sequential physiological processes in these periods can injury the pelvic support and the perineal body, becoming determining factors in a long-term, for the appearance of urinary loss [3].

The increase of body mass index in pregnancy, multiparity, vaginal labour, prolonged second stage of labour and episiotomy are factors which decrease the strength of the pelvic floor muscles, favoring UI [3]. Consecutively, the postpartum period is characterized by physical, psychological and emotional adaptations, which may negatively impact the quality of life and cause a negative experience in relation to motherhood.

In Brazil, publications on postpartum urinary incontinence is inexpressive, and this is a morbidity which is slightly explored by health professionals, making it difficult to identify the woman who has this complication. The limited research on this loss, by health professionals, and the limited amount of complaints by affected individuals complicate the actions aimed at the prevention of its aggravation[4].

As mentioned, it is considered that the lack of studies on the topic, including puerperal-pregnancy stage, delays the construction of a body of knowledge that shows evidences for nursing practice regarding the UI in the postpartum. Given this situation, this study aimed at determining the prevalence of self-reported urinary incontinence in the postpartum, and identifying the risk factors in women who are consulted in a health unit in the west of Sao Paulo (SP). The purpose is to contribute for the planning of obstetric assistance and nursing attention to women, in prevention, diagnosis and UI treatment.

METHODS

This is an epidemiological cross-sectional study about self-reported urinary incontinence in the postpartum. The sample size was calculated based on research conducted in Denmark, in which the prevalence of UI identified was 23.4% in women, after 6 months postpartum [5]. It was assumed a 5% error with a probability of 95% of certainty of this error. Thus, the sample was defined with 288 women, considering the potential losses, and ensuring the error estimation assumed (0.05).

Data collection was conducted from January to August 2009, at the pediatric ambulatory clinic of the School Health Center Samuel Barnsley Pessoa, located in the western region of Sao Paulo-SP. This is a teaching care unit, which allowed contact with women, who experienced the postpartum period up to 6 months, when they came to the institution for monitoring/consulting their child in puericulture consultations. The following inclusion criteria in the sample were considered: a woman with 30 days to 6 months of postpartum, aged from 18 years old on, and who agreed to participate in the study.

The women were individually interviewed in a private room, using a form with identification data, obstetric background and data from involuntary urine loss. Before the interview, women had their height and weight measured for the subsequent calculation of Body Mass Index (BMI); they were contacted during or after the waiting period for their child consultation. For the approach, the researcher introduced herself, explained the objectives and the purpose of study. In consonance to their agreement to participate, the Consent Form was presented for their knoledgement and to obtain the signature.

Data were stored, in duplicate entries, in the database elabourated at the Epi-Info software version 2000. The validation of the database and importation to Excel application were done. In order to analyze differences between categorical variables corresponding to the two groups, one in which urinary incontinence was reported and one in which it was not mentioned, the chi-square test was used, and for the data with very low frequencies the *Monte Carlo* Simulation was used.

Once the research project was approved by the Ethics Committee in Research of the School of Nursing, University of Sao Paulo, according to registration No 761/2008, this document was forwarded to the coordination of the School Health Center Samuel Barnsley Pessoa (SHCSBP) for obtaining permission to conduct the research.

RESULTS

The answers for the questions in the form classified the sample in two groups: women with self-reported urinary incontinence and those without self-reported urinary incontinence. To classify them in each group, the following answer to the question was considered: "After child-birth, have you had urine loss?" Every woman who presented a

negative answer to this question was included in the continent group; if the answer was affirmative, the interviewee joined the group of women with self-reported UI.

Among the 288 interviewees, 71 (24.6%) cited the involuntary urine loss during the postpartum period, and 36 (50.7%) indicated that the incident occurred also by the end of gestation. During the interview, 24 women (33.8%) had UI, being referred for a clinical evaluation.

The sample mean age was 26 years old. The data in Table 1 shows that 104 interviewees (36.2%) were aged 21-26 years. It is noteworthy that among the 49 women (17%) aged until 20 years old, the highest percentage (15 – 21.1%) reported UI; situation also identified for women from 33 to 38 years old (12 – 16.9%). Regarding self-reported skin color, 125 women (43.4%) considered themselves as having white skin and from these, 37 (52.2%) mentioned having UI. The relationship of the variable skin color with self-reported UI in the postpartum was statistically significant (p = 0.0043).

Table 1. Sociodemographic and anthropometric variables of the sample, as the occurrence of self-reported urinary incontinence (UI) in the postpartum. Sao Paulo – 2009

Variable/ Category	UI (+) No (%)	IU (-) No (%)	Total No (%)	p value
Age (years)				
< 20	15 (21.1)	34 (15.7)	49 (17.0)	
21-26	20 (28.2)	84 (38.7)	104 (36.2)	0.5782(**)
27-32	20 (28.2)	57 (26.3)	77 (26.7)	
33-38	12 (16.9)	31 (14.3)	43 (14.9)	
39-45	4 (5.6)	11 (5.0)	15 (5.2)	
Skin Color				
White	37 (52.2)	88 (40.6)	125 (43.4)	
Black	16 (22.2)	58 (26.7)	74 (25.7)	0.0043(*)
Brown	14 (19.7)	70 (32.2)	84 (29.2)	
Yellow	4 (5.6)	1 (0.5)	5 (1.7)	
Education				
Illiterate	-	1 (0.5)	1 (0.3)	
Incomplete primary education	7 (9.9)	51 (23.5)	58 (20.1)	
Complete primary education	9 (12.7)	27 (12.4)	36 (12.5)	0.2379(**)
Incomplete secondary education	13 (18.3)	29 (13.4)	42 (14.6)	
Complete secondary education	31 (43.6)	85 (39.2)	116 (40.3)	
Incomplete higher education	6 (8.5)	10 (4.6)	16 (5.6)	
Complete higher education	5 (7.0)	14 (6.4)	19 (6.6)	
Occupation				
With employment bond agreement	30 (42.3)	111 (51.2)	141 (49.0)	0.1929(*)
Without employment bond agreement	41 (57.7)	106 (48.8)	147 (51.0)	
Physical Efforts				
Yes	27 (38.0)	71 (32.7)	98 (34.0)	0.4124(*)
No	44 (62.0)	146 (67.3)	190 (66.0)	
Physical Activity				
Active	9 (12.7)	23 (10.6)	32 (11.1)	0.6288(*)
Sedentary	62 (87.3)	194 (89.4)	256 (88.9)	
BMI				
Underweight	11 (15.5)	22 (10.1)	33 (11.4)	
Normal weight	27 (38.0)	99 (45.6)	126 (43.8)	0.5772(**)
Overweight	23 (32.4)	66 (30.4)	89 (30.9)	
Obese	9 (12.7)	29 (13.4)	38 (13.2)	
Morbid obesity	1 (1.4)	1 (0.5)	2 (0.7)	
Total	71(100)	217(100)	288(100)	

(*)Chi-square test; (**) Chi-square test, considering *Monte Carlo* Simulation.

UI (+) – Urinary Incontinence presence / IU (-) – Urinary Incontinence absence

Regarding education, it is worth mentioning that the interviewees with complete primary, secondary and higher education were more representative for the presence of UI compared to women who did not self-reported UI. Among those without employment bond agreement, 41 (57.7%) self-reported UI. On the other hand, in the same table, there was a higher proportion of women who performed physical efforts in their daily activities (27-38%) and who reported UI. The percentage of women (9 – 12.7%) who performed physical activity and had UI, compared to the group that did not have the condition (23 – 10.6%), was slightly higher.

Weight gain in pregnancy, self-reported by women was similar for both groups, with and without UI: mean of 12.2 kg and 12.7 kg, respectively. In contrast, at the moment of the interview, the proportion of overweight women (BMI – from 25 to 29.9) and morbid obesity (BMI greater than or equal to 40) was higher in the group that reported UI in the postpartum (23 – 32.4% and 1- 1.4%, respectively) comparing with women without the condition. The same occurred with those presenting underweight (BMI less than or equal to 20) (11 – 15.5%). The mean of BMI was 25.12 (indicative of overweight). It should be noted that for the values and concepts of BMI, the current criteria used by the World Health Organization, according to the IBGE was adopted [6].

The data also presented that the percentage of women who self-reported UI was higher for those with weight gain during pregnancy, between 9 and 16 kg (44-62%) when compared to interviewees without UI (121- 55.8%), although this difference was not statistically significant. It is also important to highlight the number of women who received no orientation for the preparation of the perineum during pregnancy and postpartum period (277 – 96.2%); this factor did not show statistical significance.

The data in Table 2 illustrates that the mode of delivery showed no statistically significant difference between groups with and without self-reported UI, but a tendency was noticed for this association when the proportion noted is greater than the occurrence of UI in women submitted to vaginal labour (33 – 46.5%) and forceps (15 – 21.1%) compared to those without UI (90 – 41.5% and 28 – 12.9%, respectively).

Table 2. Variables associated with their last labour, according to the occurrence of self-reported urinary incontinence (UI) in the post-partum. Sao Paulo – 2009

Variable/ Category	UI (+) No (%)	IU (-) No (%)	Total No (%)	p value
Mode of delivery				
Vaginal	33 (46,5)	90 (41,5)	123 (42,7)	
Forceps	15 (21,1)	28 (12,9)	43 (14,9)	0,0843(*)
Caesarean	23 (32,4)	99 (45,6)	122 (42,4)	
Duration of labour				
zero	10 (14,1)	37 (17,1)	47 (16,3)	
1 -12	47 (66,2)	137 (63,1)	184 (63,9)	0,8322(*)
13 e +	14 (19,7)	43 (19,8)	57 (19,8)	
Labour Position				
Lithotomy	70 (98,6)	213 (98,2)	283 (98,3)	0,8076(**)
Other	1 (1,4)	4 (1,8)	5 (1,7)	
Perineum situation				
Integrity	32 (45,1)	129 (59,4)	161 (55,9)	
Episiotomy	29 (40,8)	64 (29,5)	93 (32,3)	0,1040(*)
Laceration – First Degree	10 (14,1)	24 (11,1)	34 (11,8)	
Newborn weight at birth				
< 2.500 a 2.999	23 (32,5)	81 (37,3)	104 (36,1)	
3.000 – 3.999	43 (60,5)	119 (54,9)	162 (56,3)	0,6990(*)
≥ 4.000	5 (7,0)	17 (7,8)	22 (7,6)	
Total	**71(100)**	**217(100)**	**288(100)**	

(*)Chi-square test; (**) Chi-square test, considering *Monte Carlo* Simulation.

UI (+) – Urinary Incontinence presence / IU (-) – Urinary Incontinence absence

In the same table, the duration of labour from 1 to 12 hours was reported by 47 interviewees with UI (66.2%); higher percentage than of those who did not mention the condition (137- 63.1%), although not statistically significant.

The *lithotomy position* was the most used during labour (283 – 98.3%) compared to other positions characterized as: sitting, standing and lying on the side. Regarding the situation of the perineum, it is noted that episiotomy was performed in 93 women (32.3%). Although not statistically significant, 29 interviewees (40.8%) who underwent episiotomy reported UI; a higher percentage than in women who did not mention the complications (64 – 29.5%). The same occurred with lacerations in first degree.

Still, in the same table, it is observed that the percentage of women with UI was higher and newborn with a birth weight of 3.000g – 3,999 g, when compared to women without UI and same weight of newborn at the moment of delivery, although findings are not statistically significant.

It is noteworth that the percentage of primiparous who reported UI (38 – 53.5%) was slightly higher when compared to non primiparous (33 – 46.5%); however, the data on the number of pregnancies and parturitions did not show statistically significant difference for the occurrence of self-reported urinary incontinence in the postpartum.

Other results from this study showed that 191 interviewees (66.3%) cited a urinary tract infection (UTI) at some point in their lives, of whom 79 (41.4%) the occurrence was before the last pregnancy, 99 (51.8 %) during the last pregnancy and 13 (6.8%) reported it in the postpartum. It is worth adding that among women who reported a UTI at some point, 189 (98.9%) underwent treatment through medication and only two did not.

It should be noted that the percentage of interviewees who reported UI in the postpartum and who presented UTI during pregnancy and postpartum (112) was higher (31 – 43.7%) compared to women without UI (81-37, 3%), however, no statistically significant differences between the two groups were found.

DISCUSSION

The prevalence of urinary incontinence in the first 6 months after delivery, found in the present study, was higher when compared to researches conducted in Denmark (23.4%) and in Italy (20.3%) [5,7].

Most epidemiological studies, focusing on the UI, investigate women in higher ages, probably because it is a life stage in which the symptoms usually occur with greater frequency. On the other hand, this study had women in the postpartum period, whose mean age was 26 years; age also found in other researches conducted in the postpartum period, in which postpartum women mean age ranged from 26 to 30 years, with prevalence of UI between 20% and 27.5% [5,8 – 11]. These results show that UI is also present in young women.

It was found that the occurrence of involuntary urine loss was statically significant, when evaluated the women referred skin color. The most representative data was found among the ones who self-reported as having white skin, and from those, the percentage of women with UI was higher when compared to the same skin color, without UI. These results are in agreement with a study conducted in the United States of America (USA), where skin color seems to be a risk factor for the occurrence of urinary incontinence during pregnancy and in the postpartum. In this study, the prevalence of UI was higher in white women (21-68%) compared to black women (8-26%) and Hispanic (2-6%) [12]. The same risk factor was also found in a research conducted in Norway and in the Midlands [13,14].

Other maternal sociodemographic characteristics analyzed, such as education, occupation and physical efforts showed no statistically significant differences between groups of women with or without self-reported urinary incontinence in the postpartum, but women with at least secondary education reported UI in the postpartum in greater proportion compared to women with less education. Concerning this situation, the question is: would the low education interfere on the perception of female urinary incontinence? Would it be more embarrassing for them to admit this loss? These are points for which no answers were sought, but it indicates the need to do it.

Although not statistically significant, there was a large number of women who did not perform physical efforts on a daily basis, or any other type of physical activity. In this regard, a study conducted in Stockholm, with 665 primiparous aimed at describing physical activity and urinary loss before, during and after childbirth. The results, unlike the findings of this study, showed high intensity and frequency of physical activity among women who participated in their study. The risk factors involved in the urine loss and identified in the research were: symptoms of pelvic floor dysfunction, connective tissue disorders and activities of high physical impact (activities which exert force on the pelvic floor) before pregnancy, while the low impact activity (walking, cycling, swimming and horse riding) seemed to promote continence [15].

According to the results found in this study, physical activity practice of low-impact before and during pregnancy and in the postpartum was not considered a risk factor for onset of urine loss. Divergences data from this study, which found greater representation of UI in women undergoing occupational effort and physical activities when compared to those who did not present the complications. This finding led us to hypothesize that other variables may affect this situation.

Another variable of interest is the weight gain. The Ministry of Health, recommends evaluation in pregnancy, as nutritional status before pregnancy or early prenatal care and considers that women with low weight should have weight gain between 12.5 to 18 kg; the one who starts prenatal care with appropriate weight should gain between 11.5 to 16 kg; overweight women from 7 to 11.5 kg and the ones with obesity 7 kg [16]. The women weight gain mean was (12 kg) came close to the standard set by the Ministry of Health for those with normal weight, although in this study it was not possible to obtain data about pre-pregnancy or the beginning of pregnancy. Even though the relation of weight and BMI suggests that more women may have started pregnancy with appropriate weight, followed by overweight women.

The data on BMI in this study followed the criteria used by the World Health Organization and showed that most women were normal weight, followed by overweight women. Given the lack of proper parameters of the postpartum period, the data obtained were analyzed in light of the results of a study conducted in Norway about the prevalence of UI during pregnancy associated with BMI and high weight gain [13]. The high BMI (equal to or greater than 30) at the beginning of pregnancy is associated with higher frequency of urinary incontinence after childbirth. Consecutively, the high maternal weight at the beginning of pregnancy influences the structural integrity of the pelvic floor and corresponds to the increased incidence of urinary incontinence and dysuria, while weight gain during pregnancy does not influence the incidence of urinary symptoms [7.17]. Indeed these facts are consistent with this study, because no statistically significant association between the groups with and without self-reported urinary incontinence in the postpartum.

This study, highlights, higher percentage of UI in women with a BMI characterized as underweight when compared to those without complications.

The variables, number of pregnancy and parturitions showed no statistically significant difference, however, when comparing women according to parturitions and the occurrence of UI in the postpartum, it was found that the representation of UI in the postpartum was slightly higher in primiparous than in non primiparous. These results are in agreement with a study done in the U.S.A, in which it was found a prevalence of 46% and 43% respectively [18], however, it contradicts those other studies conducted in Europe and in Brazil which found higher incidence of UI in multiparous than in primiparous [8,12,19,20]. The analysis of presented studies have shown that parturitions is a determinant risk factor to urinary incontinence in the postpartum.

In this study, 96.2% of women had not received guidance on the preparation of the perineum during their last pregnancy. Study reports that, although the decrease in perineal muscle strength in each pregnancy is small, in the course of several pregnancies, this reduction may deteriorate, causing morbidity [21]. From this perspective, the study showed that training of the pelvic floor muscles, at this stage, prevented the UI during pregnancy and after delivery, additionnaly pelvic floor muscle strength improved significantly after training [22].

Among 71 women who reported urinary incontinence, those who had vaginal labour or forceps labour were proportionally more affected when compared to those without UI or undergoing cesarean. These results confirmed those obtained in a study conducted in the U.S.A in 2003, which showed no statistically significant difference between continent and incontinent women concerning their mode of delivery [18]. In this regard, this study, showed that UI, in the postpartum, do not depend on the mode of delivery.

It was found that the occurrence of urinary incontinence was higher among women whose labour duration was between 1 and 12 hours compared to women without the condition. A study conducted in Australia, with 1,336 mothers, found that women in labour for a period greater than or equal to 12 hours were more likely to complain of urinary incontinence than those with shorter labour (less than 6 hours)[23], even though the results of a study in Tehran showed no association between the prevalence of urinary incontinence after childbirth and the duration of the second stage of labour [17].

It was not possible to compare the variable position of women in labour with the appearance of the UI with other studies, since no studies were found with approaches of the association of these variables. It is worth noting, however, that the lithotomy position is not the most favorable for the performance of labour, since it requires more effort for the woman giving birth.

Another fact of interest to this study is related to the situation of the perineum after childbirth. A study conducted in the Midlands, with 2,100 participants, investigated the incidence of perineum morbidity in the postpartum showed that women who experienced perineum continuity of solution had greater representation for perineum morbidity than those who remained with perineum integrity [14]. The results of this study showed that routine usage of episiotomy does not seem to have protected the interviewees from suffering UI in the postpartum, these results were also found in a research conducted in France [10].

In this study, there was no statistical difference between the two groups, weight of the newborn at birth with the occurrence of urinary incontinence in the postpartum, the result is consistent with studies conducted in Denmark [5] and USA [24] which also did not identify such associations, but the result of a research conducted in Sweden, with 2,450 women revealed an association between the weight

of the newborn being greater than 3,500 grams with UI in multipara. In this study, a similar association was not seen, although the interviewees with UI had greater representation to women without UI, when considering the baby's weight at birth between 3,000 and 3,999 g.

In the literature, the association between prolonged labour and the weight of the newborn at birth with the occurrence of UI in the postpartum has been little studied, in this research, these variables were not determinants for the occurrence of this morbidity.

This study contributed to the planning of obstetric nursing care to women who experiences the reproductive period and suggests the incorporation of the topic in disciplines with a focus on women's health, training courses in the health area, nursing area, in particular, to warn future professionals about the relevance of this morbidity and its prevention.

CONCLUSIONS

The findings of this study demonstrate the importance of identifying the prevalence of urinary incontinence in women in the postpartum period, given the lack of studies on the subject in the country. Skin color was the only factor associated with the occurrence of urinary incontinence after childbirth. Factors associated with urinary incontinence in the postpartum, found in the literature and identified in the study, although not statistically significant, contributed to the construction of knowledge about the issue and indicated the need for new researches in order to compose a body of evidence aimed at urinary incontinence in the postpartum period.

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