

## MAIN ASPECTS THAT FAVOR THE DEVELOPMENT OF URINARY INCONTINENCE IN WOMEN AFTER CHILDBIRTH

## PRINCIPAIS ASPECTOS QUE FAVORECEM O DESENVOLVIMENTO DE INCONTINÊNCIA URINÁRIA EM PUÉRPERAS

## PRINCIPALES ASPECTOS QUE FAVORECEN EL DESARROLLO DE INCONTINENCIA URINARIA EN MUJERES DESPUÉS DEL PARTO

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### ABSTRACT

**Objective:** To identify the main factors that favor the development of urinary incontinence in postpartum women. **Method:** The adopted methodological framework was the Integrative Review of Literature. A search strategy was carried out in the Medline, IBECs, and Lilacs databases in April 2017. The inclusion criteria were: articles presenting results that contemplated aspects related to urinary incontinence during postpartum, based on primary research, quantitative, and published in Portuguese, English, or Spanish between 2012 and 2017. A total of 18 articles were selected. **Results:** The following factors were identified as the main factors that most favored postpartum urinary incontinence: physiological pregnancy alterations, preexisting conditions, lack of guidance, and failed pelvic muscles preparation during pregnancy. **Conclusion:** The studies reiterate the importance of well-tended prenatal care provided by a multidisciplinary team that includes a stomato-therapist nurse because stoma therapy encompasses the care of stomas, wounds, and incontinence. These professionals should awaken the interest for an improved quality of life in the postpartum period in pregnant women.

**Descriptors:** Urinary incontinence; Postpartum Period; Pregnancy.

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## RESUMO

**Objetivo:** Identificar principais fatores que favorecem o desenvolvimento de incontinência urinária em mulheres no período pós parto. **Método:** O referencial metodológico adotado foi a Revisão Integrativa de Literatura. A estratégia de busca foi realizada nas bases Medline, IBECs e Lilacs, em abril de 2017. Os critérios de inclusão foram: artigos resultantes de pesquisa primária, quantitativos, nos idiomas português, inglês ou espanhol, publicados entre o período de 2012 a 2017 e que contemplassem aspectos relacionados à incontinência urinária no puerpério. Foram selecionados 18 artigos, por atenderem os critérios de inclusão desta pesquisa. **Resultados:** Os fatores que mais favorecem a incontinência urinária no pós-parto são: alterações fisiológicas da gravidez, condições preexistentes e falta de orientações à gestante, além do não preparo da musculatura pélvica durante a gestação. **Conclusão:** Os estudos reiteram a importância de um pré-natal bem assistido, com equipe multidisciplinar, incluindo o enfermeiro estomaterapeuta, uma vez que a estomaterapia abrange as áreas de estomas, feridas e incontinências. Estes profissionais devem despertar na gestante o interesse pela qualidade de vida no pós parto.

**Descritores:** Incontinência urinária; Período Pós-parto; Gravidez.

## RESUMEN

**Objetivo:** Identificar los factores principales que favorecen el desarrollo de incontinencia urinaria en mujeres en el período post-parto. **Método:** El referencial metodológico adoptado fue la Revisión Integrativa de Literatura. La estrategia de búsqueda se realizó en Medline, Lilacs y IBECs en abril de 2017. Los criterios de inclusión fueron: artículos resultantes de la investigación primaria, cuantitativa, escrito en portugués, Inglés o Español, publicados entre el período 2012-2017 y que contemplaran aspectos relacionados a la incontinencia urinaria en el en el período posparto. Se seleccionaron 18 artículos para cumplir con los criterios de inclusión de esta investigación. **Resultados:** Los factores identificados como los que más favorecen la incontinencia urinaria en el posparto fueron alteraciones fisiológicas del embarazo, condiciones preexistentes y falta de orientaciones a mujeres embarazadas, además de la no preparación de la musculatura pélvica durante la gestación. **Conclusión:** El estudio reitera la importancia de un prenatal bien asistido, con equipo multidisciplinario, incluyendo el enfermero estomaterapeuta. Estos profesionales deben despertar el interés de la mujer embarazada por la calidad de vida después del parto.

**Descriptor:** Incontinencia urinaria; Periodo posparto; Embarazo.

## INTRODUCTION

The postpartum or puerperium period constitutes a peculiar moment that demands a commitment to the evaluation and care given by health professionals to the

mother, child, and family. Morbid determinants, directly related to the puerperium, can be avoided by means of health actions aimed at the woman during this period.<sup>1</sup>

The postpartum is by itself a unique period in a woman's life. These are times when she is subject to conditions such as depression, perineal pain, and urinary incontinence.<sup>2</sup>

Urinary incontinence (UI) is defined as a condition in which a complaint of any involuntary loss of urine occurs, becoming a social and hygienic problem.<sup>3</sup>

The most common type of UI in postpartum is that related to a physical effort (UIE), followed by moderate UI, and urgency UI. In general, urinary loss during this phase is infrequent and in small volumes.<sup>4</sup>

UI in the puerperium can be considered a serious problem that interferes with work and in the social and sexual lives of women.<sup>4</sup> However, there are few scientific studies in Brazil dedicated to UI in the pregnancy and puerperal periods, which makes it difficult to identify affected populations and to conduct a comparison of results.<sup>5</sup>

Thus, this study aimed to identify factors that favor the development of urinary incontinence in postpartum women. The results will contribute to the development of

interventions to avoid or reduce the incidence of UI in women during this period, and therefore, improve the quality of life of women in the puerperium.

## **METHOD**

The adopted methodological framework was the Integrative Literature Review. This type of study allows for conclusions on a subject subsidized in scientific evidence, corroborating to the decision-making process in the clinical practice.<sup>6</sup>

The following steps were taken: theme identification and debate about the approach to the integrative review, sampling or literature search, categorization of results, and presentation of the integrative review.<sup>6</sup>

The guiding question was: which aspects favor the development of UI in puerperal women? The literature was surveyed in the Virtual Health Library (VHL) using the following descriptors: "Urinary incontinence" and "Postpartum period" with the booleans AND and OR. The search strategy for the selection of articles was as follows:

Chart 1: Search strategy carried out in the VHL. April 2017.

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(mh:("Urinary Incontinence")) AND (mh:("Postpartum period ")) AND (year_cluster:("2012" or "2013" or "2014" or "2015" or "2016" or "2017"))
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The inclusion criteria were: articles presenting results that contemplated aspects related to urinary incontinence during postpartum, based on primary research, quantitative, and published in Portuguese, English, or Spanish between 2012 and 2017.

This search was conducted in April of 2017. The distribution of identified articles in the VHL databases was: Medical Literature Analysis and Retrieval System Online (Medline): 42 articles; Spanish Bibliographical Index of Health Sciences (IBECS): 05 articles; and Latin American Literature in Health Sciences (LILACS): 05 articles. The abstracts of these 52 articles were read, 34 were excluded due to duplication, the use of an approach that did not contemplate the guiding question or were not based on the method of research of literary integrative revision and qualitative studies. Thus, 18 articles constituted this integrative literature review.

The Evidence Based Practice (EBP) was used as the theoretical reference. Evidence means the realization of a truth that leaves no doubt. The scientific evidence represents a proof that certain knowledge is true or false, even if its validation requires previous research conducted within the scientific precepts.<sup>7</sup>

## RESULTS

The authors of the 18 selected papers were medical doctors (in most of the articles), nurses, and physiotherapists. Two articles were published in 2015, three in 2014, seven in 2013, and six in 2012.

Regarding the levels of evidence, four articles presented a level of evidence II, and 14 articles presented a level of evidence IV.

Chart 2 presents a synoptic picture of these articles, which were numbered as Article 1 to Article 18 to facilitate their identification.

**Chart 2:** Synoptic chart of this Integrative Literature Review. April of 2017.

Publication title	Design/Evidence level	Factors that favor UI in the postpartum	Conclusions/Recommendations
Article 01: <sup>8</sup> Factors influencing postpartum women's willingness to participate in a preventive pelvic floor muscle training program: a web-based survey.	Cross-sectional study. Level of evidence: IV	1) Lack of training and lack of preparation of the pelvic muscles during pregnancy.	The importance of training programs for pelvic floor strengthening is recognized by women. However, adherence to the program depends on the degree of commitment and interference in the quality of life or practice of healthy living habits. In addition, other factors such as cost and displacement time may be considered as discouraging for the adherence to the pelvic floor muscle strength training program.
Article 02: <sup>9</sup> Consultation about urinary and fecal incontinence in the year after childbirth: a cohort study.	Prospective cohort study. Level of evidence: II	1) Lack of adequate health monitoring and primary care guidelines in the first 12 months of postpartum.	There is a need for guidelines on postpartum incontinence so that women can report their problem and receive appropriate follow-up.
Article 03: <sup>10</sup> Factors associated with treatment-seeking behavior for postpartum urinary incontinence.	Cross-sectional study. Level of Evidence: IV	1) Lack of counseling about UI during pregnancy; 2) Lack of oriented physical exercise in the postpartum period; 3) Parity; 4) Family income.	Advice and guidance during prenatal care may reduce the occurrence of postpartum UI.
Article 04: <sup>11</sup> Urinary incontinence during pregnancy and postpartum. Associated risk factors and the influence of pelvic floor exercises.	Descriptive, observational, and prospective study. Level of Evidence: IV	1) Occurrence of UI still during gestation; 2) vaginal delivery; 3) Instrumental delivery; 4) Episiotomy; 5) Age; 6) BMI.	Physical exercises on pelvic floor muscles in the postpartum period contribute to the decrease in postpartum UI.

Article 05: <sup>12</sup> Prevalencia y factores de riesgo de incontinencia urinaria en mujeres que consultan por dolor lumbopélvico: estudio multicéntrico.	Cross-sectional study. Level of Evidence: IV	1) Asthma; 2) Hypertension; 3) Intestinal constipation; 4) Multiparity.	No recommendations are presented.
Article 06: <sup>13</sup> Urinary incontinence and weight changes during pregnancy and postpartum: a pending challenge.	Observational cohort study. Level of Evidence: II	1) Elevated BMI; 2) Maintenance of overweight during the first six months postpartum.	Individualized advice on eating habits and exercise to avoid overweight after pregnancy can have a considerable impact on reducing UI risk.
Article 07: <sup>14</sup> Prevalence of urinary and fecal incontinence in Chinese women during and after their first pregnancy.	Prospective observational study. Level of evidence: IV	1) Increase in BMI in the first trimester of pregnancy; 2) Vaginal delivery; 3) Instrumental delivery; 4) Age.	Since pregnancy is a risk factor for the development of urinary incontinence, guidelines for BMI control should be offered to women, as this is a contributing factor but one that can be avoided.
Article 08: <sup>15</sup> Pelvic floor muscle training program increases muscular contractility during the first pregnancy and postpartum: electromyographic study.	Clinical, prospective and blind study. Level of evidence: IV	1) Lack of training of the pelvic floor muscle to increase its own contractility.	Pelvic floor muscle training is an effective means of increasing its own contractility in both primiparous and postpartum primiparous women.
Article 09: <sup>16</sup> Incontinencia urinaria a los 6 meses del parto.	Prospective study. Level of evidence: IV	1) Kristeller maneuver; 2) No pre-gestational weight recovery; 3) Birth weight of the baby at birth > 3.5 kg; 4) Instrumental vaginal delivery; 5) Family income.	UI is a public health problem. The intervention of the health professionals for its prevention is necessary as well as an incentive on the practice of physical and perineal exercises and BMI control.
Article 10: <sup>17</sup> Prevalência de incontinência urinária e disfunção	Cross-sectional study.	1) Muscular dysfunction of the pelvic floor due to weight gain during pregnancy;	Elective cesarean delivery is not a preventive action for UI.

muscular do assoalho pélvico em primíparas dois anos após parto cesárea: estudo transversal.	Level of evidence: IV	2) UI during pregnancy increases the risk of UI in the first two postpartum years; 3) NB weight; 4) Maternal age.	
Article 11: <sup>18</sup> Efecto de un programa de ejercicio físico en la recuperación post-parto. Estudio piloto.	Experimental, randomized, unpaired, controlled, non-blind study. Level of Evidence: II	1) No recovery of pre-pregnancy weight; 2) Failure to perform physical exercises during pregnancy and postpartum; 3) Discomforts caused by childbirth.	Perineal exercises and physical activity during pregnancy contribute to avoiding UI in the puerperium.
Article 12: <sup>19</sup> Impact of childbirth and mode of delivery on vaginal resting pressure and pelvic floor muscle strength and endurance.	Prospective cohort study. Level of evidence: IV	1) Absence or weak strengthening of pelvic muscles during gestation; 2) Vaginal birth using forceps.	The maintenance of pelvic muscle strength is important for postpartum urinary continence regardless of the way of delivery. Incontinence during pregnancy tends to decrease in the postpartum period.
Article 13: <sup>20</sup> Double incontinence in a cohort of nulliparous pregnant women.	Prospective cohort study. Level of evidence: IV	1) UI during pregnancy; 2) Vaginal delivery; 3) Use of instruments at birth; 4) Episiotomy; 5) Family history.	This subject should be explored during prenatal consultations so that women feel free to expose UI and thus receive appropriate treatment during the gestational and puerperal period, regardless of the way of delivery.
Article 14: <sup>21</sup> The impact of gestational diabetes mellitus on postpartum urinary incontinence: a longitudinal cohort study on singleton pregnancies.	Prospective cohort study. Level of evidence: IV	1) Gestational diabetes mellitus; 2) Gestational Arterial Hypertension associated with the use of antihypertensive; 3) Parity; 4) BMI; 5) Age.	Given this finding, health professionals should pay attention to the prevention of UI in pregnant women with hypertension in addition to GDM, adopting measures for glycemic control, feeding, and guidelines regarding the risks caused by this disease.

<p>Article 15:<sup>22</sup> The onset, recurrence and associated obstetric risk factors for urinary incontinence in the first 18 months after a first birth: an Australian nulliparous cohort study.</p>	<p>Prospective cohort study. Level of evidence: IV</p>	<p>1) Prolonged labor; 2) UI during pregnancy favors postpartum UI; 3) Trauma caused by vaginal delivery; 4) Cesarean section after the second stage of labor.</p>	<p>The benefit of keeping the woman in prolonged labor should be evaluated.  *The weight of the baby at birth is not significantly related to UI.</p>
<p>Article 16:<sup>23</sup> Can the delivery method influence lower urinary tract symptoms triggered by the first pregnancy?</p>	<p>Longitudinal prospective study. Level of evidence: IV</p>	<p>1) Frequency, urgency, nocturia, and urgent incontinence triggered during pregnancy decreased significantly in the postpartum period, regardless of the delivery type; 2) Symptoms related to urinary loss due to exertion persisted after vaginal delivery; 3) Vaginal birth; 4) UI during pregnancy.</p>	<p>Incontinence initiated during pregnancy tends to decrease in the postpartum period. However, vaginal delivery tends to be more persistent.</p>
<p>Article 17:<sup>24</sup> Pelvic floor muscle exercises utilizing trunk stabilization for treating postpartum urinary incontinence: a randomized controlled pilot trial of supervised versus unsupervised training.</p>	<p>Randomized, double-blind study. Level of evidence: II</p>	<p>1) Lack of exercise in pelvic floor muscles.</p>	<p>1) Exercise of pelvic floor muscles using trunk stabilization under physiotherapist supervision may be beneficial for the management of postpartum UI.</p>
<p>Artigo 18:<sup>25</sup> Prevalência de incontinência urinária autorreferida no pós-parto e fatores relacionados.</p>	<p>Exploratory study with cross-sectional data collection. Level of evidence: IV</p>	<p>1) White complexion; 2) Overweight; 3) Vaginal birth; 4) Episiotomy; 5) Primiparity; 6) There was no difference between women who received and those who did not receive</p>	<p>UI occurs between the first and third month, with UIE and moderate UI being the most common types, interfering in daily life. However, research and promotion of prevention and/or treatment actions ease the discomfort caused by UI.</p>



		guidelines for preparation of the perineum during pregnancy and postpartum.	
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Source: Prepared by the authors

## DISCUSSION

The emergence of UI can be due to several factors - pre-gestational conditions, physiological alterations during pregnancy, childbirth, and puerperium.

Articles 4, 5, 6, 7, 9, 10, 14, and 18 cite preexisting conditions; article 5 cites diseases such as asthma, systemic arterial hypertension, and intestinal constipation. Another article<sup>5</sup> does not cite asthma. However, it refers to chronic bronchitis as a factor associated with UI. Coughing is one explanation for this finding because it is a symptom in both asthma and bronchitis and directly related to stress incontinence because coughing increases the pressure in the bladder. Similarly, because smoking can be a triggering factor for coughing, it is considered to be a contributing condition for the development of UI.<sup>26</sup> By analogy, constipation may also be the explanation for stress incontinence mentioned in article 5. The presence of feces in the rectum can make it difficult to empty the bladder, leading to instability in the detrusor muscle that may affect the nerve.<sup>26</sup> Therefore, measures that prevent intestinal constipation during

pregnancy and puerperium should be encouraged.

Articles 4, 7, 10, and 14 highlights maternal age as a factor related to the development of UI. Maternal age has been reported in the literature<sup>27</sup> corroborating the idea that maturity may lead to an increased laceration risk due to physiological changes in nerve function in addition to a decrease in the number of muscle fibers along the aging process.

Weight gain during pregnancy and obesity are discussed in articles 6, 7, and 18 as other risk factors for UI. However, increased body mass index (BMI) (overweight or obesity in the three different grades) is a factor that can be modified as a point of prevention.<sup>27</sup>

Article 13 addresses the issue of family history in UI during pregnancy. This fact is corroborated in a literature review on UI<sup>28</sup> in which the authors mention hereditary factors related to the occurrence of this health issue. Hereditary factors should be investigated during prenatal care in order to seek strategies for prevention.

Article 14 cites Diabetes Mellitus (DM) as a factor related to postpartum UI. A review article refers to an association between DM and IU<sup>28</sup> because of a possible increased vulnerability of the pelvic floor that may occur due to a change in the biological tissue and innervation of the pelvic muscle when DM is occurring. Article 14 also highlights gestational hypertension and suggests an association of the occurrence of UI with the use of the antihypertensive drug Methyldopa due to its mechanism of action involving central sympatholytic activity on decreasing the pressure of the urethra. This finding is cited in the literature; however, the authors suggest the need for further investigations on this topic.<sup>29</sup>

Articles 3, 5, and 14 refer to the role of parity mentioning that the number of births interferes in the pelvic muscles and can trigger UI. Parity alone causes alterations in the pelvic musculature.<sup>30</sup>

Articles 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, and 16 describe physiological alterations that occur during pregnancy as factors that may trigger modifications in the pelvic floor. During pregnancy, the hormones progesterone and relaxin produced by the

ovaries relax ligaments and muscles. The growth of the fetus determines an increase in the intra-abdominal pressure that leads pelvic floor muscles to stretch and be damaged, which becomes another factor that can lead to postpartum UI.<sup>31</sup>

This integrative review shows that there is no consensus among authors about the relationship between newborn weight (NB) and the development of UI in the puerperium. Articles 9 and 10 cite NB as a factor related to UI in the puerperium; however, article 15 disagrees with this data. Nevertheless, fetal weight associated with hormonal changes in the pelvic floor musculature during pregnancy can lead to UI, even though the exact mechanism is still obscure.<sup>32</sup>

Vaginal delivery is cited by articles 4, 7, 15, 16, and 18 as an agent related to UI in the postpartum period. In spite of that, this should not be considered a decisive criterion for cesarean section. Another article<sup>33</sup> points out to assistance aspects that can contribute to the well-being of women and the need for further research to better understand the multidimensionality of the labor process, whether vaginal or cesarean. Those authors

surveyed studies that present the positive and negative perceptions of women on both types of delivery. The literature<sup>34</sup> postulates that some injuries occurring in the pelvic floor are naturally related to labor and that pregnancy itself is a risk factor for this muscle, potentially altering the muscle strength of the pelvic floor. In addition, some authors<sup>35</sup> assume that a cesarean section is a procedure that protects women from UI. However, cesarean sections are not recommended as a preventive procedure for UI because studies<sup>26</sup> have indicated that this is not associated with a clear reduction in the risk of incontinence. It is noteworthy that none of the researched articles encouraged the performance of cesarean only based on a mechanism of protection of the pelvic floor to avoid UI.

Article 9 cites the Kristeller maneuver as a factor related to postpartum UI. This technique is characterized by the application of pressure in the uterine fund during the expulsive period in order to shorten it.<sup>36</sup> However, strategies to reduce the duration of the second stage of labor, such as directed pulling and the Kristeller maneuver, should not be used.<sup>37</sup>

According to articles 4, 7, 11, 13, and 15, instrumentalized childbirth is related to injuries to pelvic floor muscles, such as first, second, third, and fourth degrees laceration. Nevertheless, one study<sup>26</sup> refers to a lack of relationship between instrumental childbirth and the occurrence of UI.

The Brazilian Ministry of Health<sup>37</sup> reports measures of perineal care during the expulsive period, highlighting studies that show that the use of warm compresses contributes to lower the risk of lacerations and occurrence of UI at three months postpartum. The use of Lidocaine spray and perineal massage during the second stage of labor result in a lower incidence of grade II and grade III lacerations, respectively. However, it is not recommended for the reduction of pain in the second stage of labor.<sup>37</sup>

Articles 1, 6, 9, 12, 17, and 18 discuss the influence of muscle exercises on the pelvic floor for the prevention and treatment of incontinence during pregnancy and after the puerperal period. Light to moderate intensity exercises during pregnancy are cited<sup>38</sup> as physical activity with positive outcomes in the prevention of UI. These

exercises present better results if performed under the supervision of a specialized professional.<sup>39-40</sup> Conversely, there are situations when the practice of physical activity during pregnancy is counter-indicated, such as hypertension, anemia, thyroid diseases, uncontrolled metabolic activity, morbid obesity, and history of an extreme sedentary lifestyle.<sup>39</sup> In these conditions, the pregnant woman should be carefully guided by professionals in the field of physical activities. It is recalled that pregnancy and childbirth are natural physiological conditions. However, they cause emotional and physical alterations in women.<sup>41</sup>

The findings of this review indicate that pregnancy alone is a risk factor for puerperal UI. It is recommended that health professionals who are assisting women to incorporate a history of urinary loss during prenatal follow-ups. The articles included in this review suggest that efforts to prevent UI in the puerperium should begin during pregnancy.

One limitation in the study was the fact that there are few scientific studies in Brazil dedicated to UI in the pregnancy and

puerperal periods., which made it difficult to conduct a comparison of results.

## CONCLUSION

According to this study, a consensus was observed among the factors that most favor postpartum UI. Out of the three most prevalent factors, physiological alterations during pregnancy come first, followed by pre-existing conditions follows, which are most often unavoidable and represented by diseases and family history. Another important factor is the lack of guidelines and preparation of pelvic muscles; this preparation consists of simple measures that are easy to apply. The aggravating factor is that pregnant women are not always addressed about these aspects due to a lack of knowledge about the relevance and magnitude of the problem on the part of professionals.

The collaboration of health professionals with measures of prevention and guidelines to avoid or minimize the disease can provide patients with the self-esteem and hope needed to return to their daily activities with confidence and

physiological self-control, avoiding additional discomforts and worries in this period.

The stoma therapist nurse, who actively assists pregnant women with preventive attitudes during pre-natal care consultations and assessments, positively contributes to all the situations in this context: pre-pregnancy, pregnancy, childbirth, and puerperium, enhancing self-knowledge that leading to satisfactory self-control.

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