



## STRATEGIES TO PREVENT FALLS IN PUERPERAL WOMEN: AN INTEGRATIVE LITERATURE REVIEW

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### ABSTRACT

**Objective:** To identify scientific evidence published from 2009 to July 2020 on strategies to prevent falls in puerperal women. **Methods:** This is an integrative review of the literature in the electronic databases: The US National Library of Medicine, *Literatura Latino-Americana e do Caribe em Ciências da Saúde*, Medical Literature analysis and Retrieval System Online, Cochrane Library and Scientific Electronic Library Online. **Results:** We found 429 articles, nine of which were selected for analysis. The thematic axes found were based on the use of protocols and tools for the evaluation and prevention of falls in puerperal women, focusing on the importance of guidance and care measures for fall prevention. The limitation of the study lays on the low number of publications that led specifically with falls among puerperal women, which made it difficult to further analyze. **Conclusion:** The studies demonstrated that the strategies adopted prevented falls in puerperal women. The contribution of this study is based on the reflection of safe professional practice and contributes to the promotion of patient's safety culture. The lack of Brazilian research is highlighted as a knowledge gap, which points to the need to conduct studies that address this theme, especially by nurses.

**Keywords:** Postpartum period. Women's health. Patient safety. Accidental falls.

### INTRODUCTION

Falls are characterized as all unintentional displacement of the body to a lower level than the starting position<sup>(1)</sup>. They can result in great negative repercussions in the physical, mental and social spheres of patients hospitalized in health services. Factors related to the patient's condition can cause falls, such as age, diagnosis, health condition, worsening of the clinical picture, among others<sup>(2)</sup>.

A study developed in the United States of America demonstrates that the incidence of falls in the hospital environment occurs in 22.0% of hospitalized patients<sup>(3)</sup>. In Brazil, in 2017, the National Health Surveillance Agency published a bulletin, indicating that patient falls represented 5,892 cases in 2016, the fourth most

reported incident, of which 18 had death as the degree of damage.

These data reinforce the need to develop intervention strategies that prevent falls according to the National Policy of Patient's Safety<sup>(4)</sup>. Considering the injuries generated by falls, they can result in decreased mobility due to hematomas, bleeding, fractures or even death. In addition to generating discomfort, anxiety in the patient and in the team, fear of falling again, increased length of hospital stay and worsening of the condition, when added to the moral damage and institutional image, it can increase the costs of treatment, decrease the credibility of the institution and increase the possibility of judicialization<sup>(2,4)</sup>.

Falls are commonly associated with the elderly, however, studies bring another

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population at high risk of falls that are pregnant women, especially in the last trimester of pregnancy and postpartum period where risk situations may be present, such as: visual changes, hypotension, history of fall, preeclampsia, postpartum hemorrhage, sensory deficits, need to carry the newborn, pain, discomfort, fears and concerns<sup>(5,6)</sup>, which may increase the occurrence of the event.

In a study conducted in the United States of America, with 3,997 women, 27.0% of them reported falls during pregnancy, and about one third of them fell more than once<sup>(5)</sup>. The vulnerability to falls in patients who had cesarean sections is further intensified. Mothers after C-section accumulate risk factors, as they have undergone changes caused by pregnancy, childbirth and surgical intervention, which require the use of medications, including anesthetics whose effects impair psychomotor capacity<sup>(7,8)</sup>.

Such peculiarities of obstetric patients were considered for the construction of a fall risk assessment system developed in the United States of America and, consequently, a document with fall prevention strategies prepared in Canada by the accreditation service in partnership with other institutions<sup>(7,9)</sup>.

Nursing plays an extremely important role in the prevention of falls, when performing interventions that influence the occurrence or not of this event, such as: safe transport of patients, use of bars on beds and stretchers, in addition to safe movement<sup>(8)</sup>. Another contribution to fall prevention is the use of the Morse Scale, a tool for assessing the risk of falls, translated and cross-culturally adapted to Brazil, allowing the development of strategies to prevent falls<sup>(10)</sup>. The Morse scale consists of a general evaluation that although it does not point out the specificities of the obstetric patient, it is extremely relevant because it is a single scale cross-culturally validated for Brazil.

Within this context, this integrative literature review is justified due to the importance of knowing scientific publications about the strategies for preventing falls in puerperal women and identifying possible gaps in knowledge. Thus, the following question was elaborated: what is the scientific evidence on strategies to prevent falls in puerperal women

from 2009 to July 2020?

Thus, the objective of this study was to identify scientific evidence published from 2009 to July 2020 on strategies to prevent falls in puerperal women.

## METHODS

This is an integrative review of the literature, which allows the construction of a broad analysis of scientific manuscripts, in order to contribute to discussions about research methods and results, which facilitates the incorporation of evidence that underlies the conducts or decision-making, providing critical knowledge. During the preparation of the review, the following steps were followed: (1) elaboration of the guiding question; (2) search for scientific publications in electronic databases; (3) data collection; (4) critical analysis of the studies; (5) discussion of the results; and (6) presentation of the integrative review<sup>(11-12)</sup>.

The guiding question of the review “What is the scientific evidence on strategies to prevent falls in puerperal women from 2009 to July 2020?”, was elaborated by applying the IOP strategy, acronym of “P” for population (Puerperal), “I” intervention (strategies to prevent falls), and “O” (Outcomes referring to the publications researched), according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)<sup>(13)</sup>.

The inclusion criteria for manuscripts to review were: articles published in Portuguese, English and Spanish, from national and international databases, peer-reviewed, about the theme addressed, available online and in full, from 2009 to July 2020. Publications that were not available in full text and/or in a language not defined in the inclusion criteria and/or that did not involve the theme defined and/or outside the delimited period for the research were excluded.

In search of the articles, we consulted the following electronic databases: The US National Library of Medicine (PubMed), Medical Literature analysis and Retrieval System Online (MEDLINE), *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS), Cochrane Library and Scientific Electronic

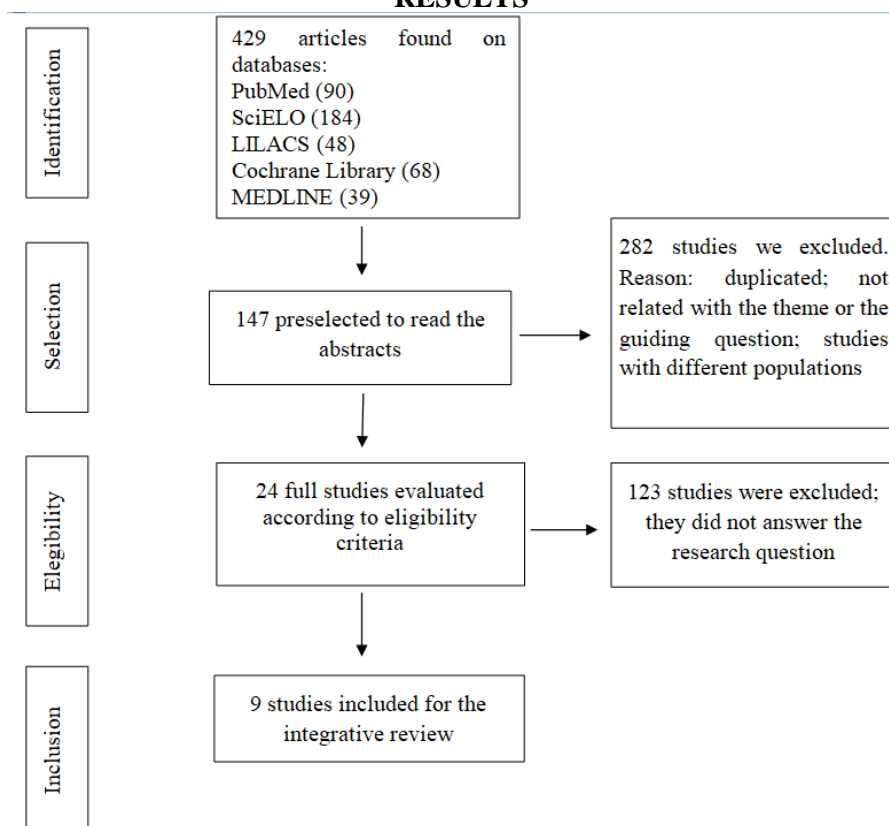
Library Online (SciELO), from January 2018 to July 2020. The following descriptors and their combinations were used with the Boolean operator “and” in Portuguese, English and Spanish, respectively: “saúde da mulher” and “período pós-parto” and “segurança do paciente” and “cesárea” and “gestão de riscos”; “saúde da mulher” and “quedas” “quedas” and “período pós-parto” “women’s health” and “postpartum period” and “patient safety” and “cesarean section” and “risk management” “women’s health” and “falls” “falls” and “postpartum period”; and “cesarean section” and “risk management” and “falls” and “falls” “falls” and “postpartum period”; “salud de la mujer” and “período pós-parto” and “seguridad del paciente” and “cesárea” and “gestión de riesgos” “salud de la mujer” and “caídas” “caídas” and “postparto”.

The analyses and summaries of the data extracted from the articles were compiled and described, making it possible to observe, count, describe and classify the data, in order to gather

the knowledge produced on the theme explored<sup>(12)</sup>. The variables analyzed were selected from items contained in an instrument validated for integrative review, with the registration of the following variables: title, author, year, journal, database, country, type of study, results and level of evidence<sup>(14)</sup>.

For results classification and treatment, a system of hierarchy of evidence levels was used: level I – evidence from systematic review or meta-analysis of randomized controlled trials or clinical guidelines based on systematic reviews of randomized controlled trials; level II – evidence derived from at least one randomized controlled trial; level III – evidence obtained from clinical trials without randomization; level IV – cohort and case-control studies; level V – systematic review of descriptive and qualitative studies; VI – evidence derived from a descriptive and/or qualitative study; level VII – opinion of authorities or report of expert committees<sup>(15)</sup>.

## RESULTS



**Figure 1.** Eligibility flowchart according to PRISMA guidelines<sup>(13)</sup>

**Table 1.** Publications selected and distributed by analysis variable

Year	Title of the articles	Database/Country	Journal/ Type of study
2009	Designing a post-epidural fall risk assessment score for the obstetric patient	MEDLINE/ USA	J NursCare Qual/Systematic review
2010	Applying root cause analysis to improve patient's safety: decreasing falls in postpartum women	MEDLINE/ Taiwan	BMJ Saf/Prospective longitudinal study
2010	Patient falls in perinatal period	PubMed/ USA	MCN Am J Matern Child Nurs/ Expert opinion
2012	Prevention of the risk of falls in postpartum patients	MEDLINE/ USA	J ObstetGynecol Neonatal Nurs/Expert opinion
2013	Development of a tool to assess the risk of falls in women in obstetric units	PubMed/ USA	NursWomens Health/Descriptive study
2013	Postpartum safety: a patient-centered approach to fall prevention	MEDLINE/ USA	MCN Am J Matern Child Nurs/ Descriptive study
2013	We must, we must, we must reduce our maternal drop rate: strategies implemented	PubMed/ USA	J ObstetGynecol Neonatal Nurs/ Expert opinion
2014	Reliability and validity of the post-epidural fall risk assessment score	PubMed/ USA	J NursCare Qual/Cross-sectional exploratory study
2015	Prevention against falls in healthier patients: risk assessment and prevention of injuries in mothers and babies	MEDLINE/ USA	J Healthc Risk Manag/ Systematic review

**Table 2.** Synthesis of the articles selected by the classification of evidence levels<sup>(15)</sup>.

Year	Author	Results	Level of evidence
2009	Frank BJ, Carrie L, Heather H	To prevent falls of post-cesarean patients in obstetric wards, a tool was developed based on a score to assess the risk of falls to be used in the postpartum period of these patients.	IV*
2010	Chen KH, Chen LR, Su S	The introduction of simulations and guidance carried out by professionals on the prevention of falls that involved change of position, walking, going out of bed, how to hold the newborn, in addition to encouraging the proper use of auxiliary facilities on the bed headboard, which resulted in a sharp decline in the incidence of falls in the postpartum period.	IV*
2010	Simpson KR	The importance of establishing measures to improve nursing and/or support care was pointed out to minimize the risk of falls and damage to perinatal patients.	VII*
2012	Auger JE e Gingras DA	The concern with the increase of falls of patients in the obstetric center after epidural injection, established the implementation of a tool to evaluate the ability of the patient to walk in the postpartum period.	VII*
2013	Heafner L et al	After the implementation of a system for assessing the risk of falls in obstetrics, the number of this occurrence significantly decreased and increased the team's awareness of risk factors for falls promoting patient safety in the unit.	IV*
2013	Lockwood S, Anderson K	As a measure to prevent falls, an explanatory pamphlet was given to patients on admission, alerting them to ask for help before getting out of bed. The strategy decreased the incidence of falls in the postpartum period by 50%.	VI*
2013	Simpson E	The implementation of a set of actions contemplating the evaluation of patients for mobility before the first postpartum walking resulted in a higher quality of care and reduced falls in one year by 77%.	VII*
2014	Thompson K, Haddad L, Smith S	The study applied a scale developed for the obstetric population as a tool to prevent falls with satisfactory results, however, it pointed out the need for validation.	IV*
2015	Gaffey AD	The study has the importance of recognizing the risk of falls in pregnancy, childbirth and postpartum, with emphasis on low-cost but high-return initiatives, such as the use of fall risk assessment tools.	I*

**Note:** The Roman numerals \*I, \*IV, \*VI, \*VII correspond to the levels of evidence of Melnyk BM, Fineout-Overholt<sup>(15)</sup>

In the research indexed in the selected electronic databases, 429 articles with abstracts were found. After careful reading of the titles and abstracts of the publications and after applying inclusion and exclusion criteria, 420 articles were excluded, nine of which were selected for analysis of the integrative review, as demonstrated in the flowchart based on Prisma. Tables 1 and 2 collect the analysis of the study by variable.

Considering the analysis of the data obtained in Figure 2, it was found that the MEDLINE electronic database stood out with most of the identified publications, with five manuscripts related to the theme, all found in English and from the United States and 1 from Taiwan. The other four articles come from the PubMed database, in English and also from the United States. The absence of Brazilian publications on the subject is highlighted.

As for the year of publication, most articles were published between 2010 and 2015, and only one of the nine articles in 2009. In the analysis period corresponding to the years 2016, 2017, 2018, 2019 and until July 2020, no publications were found in the databases consulted and according to the search strategies determined in this study.

Regarding the results showed in Figure 3, the variable called: "classification of the level of evidence", one of the nine selected articles has a level of evidence I, being a randomized controlled study. Four articles were classified with evidence level IV, that is, from exploratory studies, only one study was classified as a level VI of evidence because it is a descriptive study and three articles with evidence level VII, which involved expert opinion on the subject.

## DISCUSSION

From the critical analysis of the results of the articles, the thematic axes found were based on the use of protocols and tools for the evaluation and prevention of falls in puerperal women, focusing on the importance of guidance and care measures for the prevention of falls.

Regarding the use of protocols and tools for the evaluation and prevention of falls in puerperal women, five studies revealed that the analyzed articles bring the proposal of tools for

assessing the risk of falls, such as, the Post epidural Fall Risk Assessment Score (PEFRAS), for patients who underwent epidural anesthesia. The construction of this scale was based on two other existing ones - the Morse Fall Scale and the Modified Aldrete Score - both designed for populations other than obstetric. The importance of this tool in the obstetric unit is highlighted, although some modifications to the instrument are recommended for its validation<sup>(16-17)</sup>.

In the United States of America, after finding the high rate of falls in hospitalized puerperal women, the cause and effect diagram was used to review how care was provided identifying ways to improve it, and subsequently, a training course was conducted with professionals, with emphasis on the use of the Morse Scale tools, to assess the risk of falls, and Dionne's Egress Test (DET) to assess locomotion capacity, in addition to training for injury prevention. After these actions, the falls rates were progressively lower in the following two years, indicating the continuity of the use of this protocol as a strategy to improve patient care<sup>(18)</sup>.

Although DET was used in patients after bariatric surgery, it was also used in a research with puerperal women in a North American hospital for 24 months, which resulted in the reduction of falls in the patients evaluated. In addition, it promoted an increase in the safety culture by raising the health team's awareness about the risk of falls in puerperal women<sup>(18)</sup>.

In 2013, another specific tool for assessing the risk of falls aimed at the obstetric population was made, the scale called Obstetric Fall Risk Assessment System TM (OFRAS<sup>TM</sup>). This scale was constructed from studies and discussions conducted during the health team training in a North American hospital along with the implementation of care measures. The items involved the identification of risk factors, the classification of risk in low, moderate, high and the capture of "near miss", a category of almost fall. The protocol also describes specific interventions for each of these classifications. The implementation of the protocol obtained a satisfactory result by keeping the falls rate at zero, for a period of 21 months, in the institution where it was applied<sup>(7)</sup>.

Regarding falls in postpartum women, the risks of these adverse events throughout the

pregnancy-puerperal period may extend to newborns with numerous consequences, one of them is the negative impact on costs. Thus, prevention is fundamental for reducing these incidents and the damage resulting from them<sup>(5)</sup>. Thus, it is essential to introduce and professionals adherence to measures that address the assessment of the risk of falls, and the implementation of strategies that ensure multiprofessional care in a safe and quality environment for patients and their families, extending the benefits achieved to health professionals<sup>(1)</sup>.

Regarding the importance of guidance and care measures for the prevention of falls, four studies have pointed out that in addition to the importance of using tools to assess the risk of falls, it is essential the professionals' participation with measures to improve care in maternity, considering that patients need help walking, going to the bathroom, holding the newborn, among other moments, especially in the first hours after delivery<sup>(19)</sup>.

Falls in obstetric units are a problem, because even if they occur frequently they are not well documented<sup>(20)</sup>. They come from several situations, and can occur mainly by the attitude of the professional in only guiding the patient on admission, because, even if there is an assessment of the risk of falls at that time, during labor and postpartum the risks of occurrence of this adverse event increase, being indispensable to carry out complementary guidance and care measures, especially before the first walking<sup>(18,20)</sup>.

The role of nursing is essential for the prevention of adverse events in care. The most applied activities that show efficacy in the hospital sectors are: maintaining bed barsup, using non-slip footwear and carpets, keeping the call light within reach of patients and effective nursing follow-up during the first walkings<sup>(19,21)</sup>.

A study conducted in Taiwan shows the occurrence of falls in the postpartum period before the implementation of care measures, from 14.24 per 1000 patient-days to 6.02 per 1000 patient-days after the interventions. Among the care actions undertaken are: training the health team on the prevention of the risk of falls, preparation and distribution of educational material about the maintenance of beds of

patients with the bars up in the wards, use of non-slip devices on the floor and adjustments to increase light in bathrooms<sup>(19)</sup>.

Another important factor for the prevention of falls is the improvement of communication. The frequent and precarious communication of the health team revealed to favor the increased risk of falls in a survey conducted in a North American unit. Reduction of falls was observed by educating patients and implementing nursing interventions. In view of the above, women in the postpartum period were instructed to call for help before leaving their beds and alerted to the risk of falls. Two weeks before the implementation of the routine, nurses were trained on a fall prevention plan. For this purpose, training, team meeting and distribution of theoretical material to study were performed<sup>(21)</sup>.

Thus, it is understood that the performance of the health team to reduce the occurrence of falls assumes great importance, especially with regard to the adoption of preventive measures, such as guidance to patients and companions, in addition to the use of instruments to assess the risk of falls and the preparation and implementation of protocols that takes into account various strategies together. This includes the explanation of the National Patient Safety Program during the academic training of health professionals<sup>(22)</sup>. Moreover, the improvement of the physical environment and the acquisition of equipment and devices that provide greater safety are essential to complement care<sup>(23, 24)</sup>.

## CONCLUSION

The studies presented in this review indicate that the use of protocols and evaluation scales, in addition to improving communication, interventions to promote safety in the physical environment, team education and guidance measures provided to patients and companions/family members during patient care, reduces the occurrence of falls especially to obstetric patients, not only in the puerperal period, but in all stages of the gestational period. Thus, contributing to promote the culture of safety through the reflection and action of health professionals by presenting instruments that have already been shown to be effective as allies

of obstetric patient care. The limitation of the study involves the finding of few publications regarding the specific group of puerperal women, with a low level of evidence, which made it difficult a more deeply analysis. There

were also no publications on the theme and research question in the Brazilian reality, which leaves open the possibility of conducting studies for the diagnosis of falls among puerperal women in health services.

## ESTRATÉGIAS DE PREVENÇÃO DE QUEDAS EM PUÉRPERAS: REVISÃO INTEGRATIVA DA LITERATURA

### RESUMO

**Objetivo:** Identificar evidências científicas, publicadas de 2009 a julho de 2020, sobre estratégias para prevenir quedas em puérperas. **Métodos:** Revisão integrativa da literatura realizada nas bases eletrônicas: *The US National Library of Medicine*, *Literatura Latino-Americana e do Caribe em Ciências da Saúde*, *Medical Literature Analysis and Retrieval System Online*, *Cochrane Library* e *Scientific Eletronic Library Online*. **Resultados:** Encontraram-se 429 artigos, sendo nove selecionados para análise. Os eixos temáticos encontrados se basearam na utilização de protocolos e ferramentas para avaliação e prevenção de quedas em puérperas, com enfoque na importância das orientações e medidas de cuidados para prevenção de quedas. A limitação deste estudo se refere ao baixo número de publicações que trataram especificamente de quedas entre puérperas, o que dificultou análise mais ampla. **Conclusão:** Os estudos demonstraram que as estratégias adotadas preveniram quedas em puérperas. A contribuição deste estudo se pauta na reflexão da prática profissional segura e promoção da cultura da segurança do paciente. Ademais, aponta-se como lacuna do conhecimento a ausência de pesquisas brasileiras, urgindo, deste modo, condução de estudos que contemplem essa temática, sobretudo, por enfermeiros.

**Palavras-chave:** Período pós-parto. Saúde da mulher. Segurança do paciente. Acidentes por quedas.

## ESTRATEGIAS DE PREVENCIÓN DE CAÍDAS EN PUÉRPERAS: UNA REVISIÓN INTEGRADORA DE LA LITERATURA

### RESUMEN

**Objetivo:** identificar evidencias científicas publicadas de 2009 a julio de 2020 sobre estrategias para prevenir caídas en puérperas. **Métodos:** se trata de una revisión integradora de la literatura en las bases electrónicas: *The US National Library of Medicine*, *Literatura Latino-Americana e do Caribe em Ciências da Saúde*, *Medical Literature analysis and Retrieval System Online*, *Cochrane Library* y *Scientific Eletronic Library Online*. **Resultados:** fueron encontrados 429 artículos, siendo nueve seleccionados para análisis. Los ejes temáticos encontrados se basaron en la utilización de protocolos y herramientas para evaluación y prevención de caídas en puérperas con enfoque en la importancia de las orientaciones y medidas de cuidados para prevención de caídas. La limitación del estudio ocurre por el bajo número de publicaciones que trataron específicamente de caídas entre puérperas, lo que dificultó un análisis más detenido. **Conclusión:** los estudios demostraron que las estrategias adoptadas previnieron caídas en puérperas. El aporte de este estudio se basa en la reflexión de la práctica profesional segura y colabora para el fomento de la cultura de seguridad del paciente. Se da énfasis, como déficit del conocimiento, la ausencia de investigaciones brasileñas, lo que señalala necesidad de que haya más estudios que contemplen esta temática, principalmente, por los enfermeros.

**Palabras clave:** Período postparto. Salud de la mujer. Seguridad del paciente. Accidentes por caídas.

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