

## Nursing process in a woman with postpartum preeclampsia

## Proceso de enfermería en mujer posparto con preeclampsia

## Processo de enfermagem em puérpera com pré-eclâmpsia

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### Abstract

**Introduction:** Maternal mortality is a health problem. Every day, approximately 800 women die worldwide due to complications associated with pregnancy or childbirth. Preeclampsia is included among these health problems, which is a hypertensive disorder that occurs during pregnancy or postpartum and causes severe consequences for the mother and fetus. **Objective:** Implement the nursing process in women with postpartum preeclampsia using the language of nursing diagnoses, classification of interventions, nursing outcomes and recommendations of clinical practice guidelines for the management of the patient's health status. **Methodology:** This is a case study performed with the stages of the nursing process by Gordon's functional health patterns;

dysfunctional patterns were prioritized to identify nursing diagnoses; a taxonomy of nursing outcomes and interventions was used. Informed consent was obtained, respecting the confidentiality and privacy of the participants. Objective and subjective data were analyzed to plan priority healthcare. **Results:** The nursing diagnoses were fluid overload, discontinuation of breastfeeding and anxiety; as expected outcomes, severity of fluid overload, maintenance of breastfeeding and level of anxiety were proposed. The nursing interventions proposed were management of hypervolemia, suppression of breastfeeding and reduction of anxiety, which improved the patient's health status. **Conclusions:** Individualized care plans were applied; the post-intervention evaluation showed a moderate to mild change in the patient's health status; the application of scientific support effectively contributed to minimize the possibility of complications.

**Keywords:** Nursing process; preeclampsia; nursing care, (DeCS).

### Resumen

**Introducción:** La mortalidad materna es un problema de salud, en el mundo mueren 800 mujeres por alteraciones del embarazo o parto. Entre ellas está la preeclampsia, un trastorno hipertensivo que se origina durante el embarazo o posparto, provoca consecuencias severas en la mujer y el feto. **Objetivo:** Implementar el proceso enfermero en mujer posparto con preeclampsia utilizando el lenguaje diagnósticos enfermeros, clasificación de intervenciones, resultados de enfermería y recomendaciones de guías de práctica clínica para manejo del estado de salud de la paciente. **Metodología:** Estudio de caso desarrollado con las etapas del proceso enfermero por patrones funcionales de salud de Gordon, se priorizaron patrones disfuncionales para identificar diagnósticos de enfermería, se empleó taxonomía resultados e intervenciones de enfermería. Se contó con consentimiento informado, respetando confidencialidad y privacidad de la persona. Se analizaron datos objetivos y subjetivos para planificar los cuidados prioritarios. **Resultados:** Los diagnósticos de enfermería disfuncionales fueron exceso de volumen de líquidos, interrupción de la lactancia materna y ansiedad; en resultados esperados se planteó severidad de la sobrecarga de líquidos, mantenimiento de la lactancia materna y nivel de ansiedad. Las intervenciones de enfermería propuestas fueron manejo de hipervolemia, supresión de la lactancia materna y disminución de ansiedad, mejoraron el estado de salud de la paciente. **Conclusión:** Se aplicaron planes de cuidados individualizados, la evaluación post-intervención evidenció un cambio de moderado a leve en el estado de salud de la paciente, mediante la aplicación de sustento científico, esto contribuyó de manera eficaz a minimizar la posibilidad de complicaciones.

**Palabras clave:** Proceso enfermería; preeclampsia; cuidado de enfermería (DeCS).

### Abstrato

**Introdução:** A mortalidade materna é um problema de saúde. Todos os dias, aproximadamente 800 mulheres morrem em todo o mundo devido a complicações associadas à gravidez ou ao parto. Entre eles está a pré-eclâmpsia, distúrbio hipertensivo que se origina durante a gravidez ou no pós-parto, causando graves consequências na mulher e no feto. **Objetivo:** Implementar o processo de enfermagem em uma mulher puérpera com pré-eclâmpsia utilizando a linguagem diagnósticos de Enfermagem, classificação das intervenções e resultados de enfermagem as recomendações da diretrizes de pratica clínica para o manejo do estado de saúde da paciente. **Metodologia:** Este é um estudo de caso realizado com as etapas do processo de enfermagem pelos padrões funcionais de



saúde de Gordon. A avaliação foi realizada pelos padrões funcionais de saúde de Gordon, os disfuncionais foram priorizados para identificação dos diagnósticos de enfermagem. Foi utilizada taxonomia de resultados e intervenções de enfermagem. O consentimento informado foi obtido, a confidencialidade e a privacidade foram respeitadas. Dados objetivos e subjetivos foram analisados para determinar padrões disfuncionais. **Resultados:** Foram encontrados os diagnósticos excesso de volume de líquidos, interrupção da amamentação e ansiedade. Como resultados esperados, foram propostos a gravidade da sobrecarga hídrica, a manutenção da amamentação e o nível de ansiedade. As intervenções, manejo da hipovolemia, supressão da amamentação e redução da ansiedade melhoraram o estado de saúde da paciente. **Conclusão:** Foram aplicados planos de cuidados individualizados, realizada a avaliação pós-intervenção e ficou evidente uma mudança de moderado para leve no estado de saúde do paciente, através da aplicação de suporte científico, isso contribuiu efetivamente para minimizar a possibilidade de complicações.

**Palavras-chave:** Processo de enfermagem; pré-eclâmpsia; o Cuidados de enfermagem (DeCS).

## Introduction

Maternal mortality is a health problem. Every day, approximately 800 women die worldwide due to complications associated with pregnancy or childbirth, most of them occurring in low-income and developing countries <sup>(1)</sup>. Among these medical conditions is preeclampsia, a hypertensive disorder that occurs during pregnancy or postpartum and causes severe consequences for the mother and fetus, becoming one of the main causes of maternal and neonatal illness and death with a more than 20% rate <sup>(2)</sup>.

In Mexico, the maternal mortality rate in 2022 was 30.4% deaths per 100,000 estimated births. The states with the highest number of maternal deaths are the State of Mexico with 68, Veracruz with 44, Jalisco had 43, Puebla reported 37 and Chiapas 35, and combined, they account for 40.4% of registered deaths. Among the main causes of death were major obstetric hemorrhage (17.4%); hypertensive disease, edema and proteinuria in pregnancy, delivery and puerperium (17%); abortion (7.1%); respiratory tract diseases (6.2%) and complications in pregnancy, delivery and puerperium (6.2%) <sup>(3)</sup>. Statistics from the State of Puebla, Mexico, reported 39 cases of death during pregnancy, childbirth or puerperium, of which 33.3% corresponded to indirect obstetric conditions and 17.9% were associated with hypertensive disorders and labor complications <sup>(4)</sup>.



The aforementioned context confirms the importance of caring for women with preeclampsia, since it is a multisystem disorder. According to clinical criteria, it occurs when the gestational age is greater than 20 weeks, blood pressure is greater than 140/90 mmHg, and proteinuria in the dipstick indicates 1+ or when the isolated urine sample shows 30 mg in two samples in 4 to 6 hours <sup>(5)</sup>. In light of this situation, it is important to substantiate interventions in women with preeclampsia. To this end, research has been carried out using the nursing process (NP), from which clinical judgment has been developed, identifying the following priority diagnosis labels with the taxonomy of the North American Nurses' Diagnosis Association (NANDA): excess of fluid volume, anxiety, acute pain, risk of infection, altered sleep pattern, self-care deficit, and insufficient knowledge. Likewise, expected results based on the Nursing Outcomes Classification (NOC) and interventions based on the Nursing Interventions Classification (NIC) were reported to provide individualized care, and through scientific knowledge and critical reasoning, prevent risks in women with this condition <sup>(6-11)</sup>.

The process was supported by Gordon's Functional Health Patterns framework, which provides nursing professionals with a standardized and holistic approach to care for different clinical settings, populations, age groups and various health conditions. The 11 functional patterns provide relevant data and information about the patient's health, including their response to acute or chronic illnesses, and describe the client's strengths and functions, and lifestyle management, which are identified by the nurse, thus increasing visibility of the contribution to the patient's expected outcomes <sup>(12, 13)</sup>. This confirms the importance of the use of the nursing process methodology by the health professional to provide care to human beings through systematized assistance (14), which will have an impact on perinatal maternal health. It is important that the nursing professional has the clinical judgment, knowledge, skills and attitudes to perform the holistic management of women with postpartum preeclampsia, as well as the ability to work in collaboration with the



multidisciplinary team, in order to provide quality specialized care to the pregnant women with preeclampsia. With the aim of early identification of alarm symptoms in order to intervene directly in a timely manner and thus avoid maternal and/or fetal deaths, we propose the objective of implementing the nursing process in a woman with postpartum preeclampsia using the NANDA, NOC, NIC and Clinical Practice Guidelines (CPG) language for the care of the patient.

## **Methodology**

Case study using the nursing process, considering the phases of assessment, diagnosis, planning, execution and evaluation. The reference framework of Gordon's functional health patterns was established <sup>(12)</sup>. A 34-year-old woman in surgical delivery with a diagnosis of preeclampsia, admitted to an Intensive Care Unit (ICU) of a public hospital in the State of Puebla, Mexico, was selected. On November 17, 2021, an initial and focused assessment was carried out. In the first assessment, subjective and objective data were collected to have a standardized approach to care; in the second assessment, a more in-depth assessment was carried out to determine the existence of concerning alterations that indicated a risk for the patient. Subsequently, data were synthesized and dysfunctional patterns were determined.

Validation was then performed with other nursing professionals to arrive at a consisting wording of nursing diagnoses using the NANDA taxonomy <sup>(13)</sup>. Next, NOCs <sup>(15)</sup> that reflected the patient's perception were determined, and NICs <sup>(16)</sup> and recommendations of the Clinical Practice Guidelines were established. For the collection of information, ethical aspects were considered, such as informed consent to guarantee the anonymity and confidentiality of the participant, as well as dignified and respectful treatment <sup>(17)</sup>. In addition, we had the approval and registration of the Ministry of Research and Postgraduate Studies, SIEP/EEP/046/20.



## Case presentation

The patient, also known as M.T.E.T.M., who was born on September 14, 1985, is 34 years old, whose marital status is common law marriage, with the occupation of nurse, Catholic; she was admitted to the intensive care unit and was diagnosed with preeclampsia with severity criteria, posterior reversible encephalopathy and operated by cesarean section at 33 weeks of gestation, she was in the immediate puerperium. Her hereditary and family history included mother and maternal grandmother with diabetes mellitus and systemic arterial hypertension, father with diabetes mellitus, systemic arterial hypertension and heart disease; in the personal pathological history, she showed renal lithiasis with ureterolithotripsy treatment and recurrent urinary tract infections.

The patient reported that on November 17, she didn't feel fine in the afternoon, but she went shopping and returned home, where she had a headache and blurred vision, even so, she continued to get ready for work. At work, her blood pressure was measured and showed a blood pressure (BP) of 80/50 mmHg, she said she thought that this was the cause of her discomfort and continued working.

However, around 4 O'clock on November 18 she started to vomit gastric contents with an increased headache and notified a family member. The, she went to the emergency area with blood pressure 210/150 mmHg on admission and later 205/144 mmHg, reason for which it was decided to hospitalize her.

In the labor and delivery area, double peripheral intravenous access was installed, laboratory samples were taken (complete preeclampsia tests), and neuroprotective treatment was started with three boluses of hydralazine IV, rescue antihypertensive, later with alfamethyopa 250 mg and nifedipine 30 mg, both OV single dose, the pulmonary maturation scheme was started with the administration of dexamethasone 8 mg IM every 12 hours until completing three doses, the bladder



catheter was placed to quantify uresis. Based on the evaluation, preeclampsia was diagnosed with secondary severity criteria, symptoms and figures of systemic arterial hypertension.

Another assessment was performed at 7:30 a.m., and she showed a blood pressure of 202/103 mmHg, so it was decided to terminate the pregnancy by cesarean section; a single live male product was obtained, weighing 1,750 grams and gestational age by Capurro of 33 weeks of gestation; the newborn showed pulmonary immaturity, causing respiratory distress syndrome, for which he was sent to a specialty hospital; subsequently, the patient was admitted to the ICU.

Medical treatment during the puerperium and after surgery was as follows: soft diet, 1000 ml Hartman solution plus 20 mEq potassium chloride at 83 ml/hr, 40 mg omeprazole every 24 hours IV, 1 g cefotaxime every 8 hours VI, 1 g paracetamol VO every 8 hours IV, buprenorphine 0.15 mcg every 8 hours for necessary reason SC, 30 mg nifedipine every 8 hours VO, 50 mg losartan every 12 hours VO, 5mg hydralazine for necessary reason with diastolic BP greater than 110 mmHg IV, 1mg clonazepam each 24 hours VO, ketorolac 30 mg every 8 hours IV, 50 mg metoprolol every 12 hours VO, and micronebulizations with ipratropium bromide 250 mcg every 8 hours.

## **Results**

According to Gordon's functional health pattern assessment, it was recorded that in the nutritional-metabolic pattern before pregnancy, the patient weighed 83 kg, her height was 1.52 cm, and she had a body mass index of 35.9 kg/m<sup>2</sup>, which according to the WHO suggests class II obesity. During the pregnancy, the patient gained 5 kg of weight, and at the end of the pregnancy, her weight was 89.5 kg. She showed edema (++) in lower and upper extremities. The reported body temperature was 36.8° C and capillary refill was 2 seconds. Her skin was moist, with adequate coloration, short peripheral venous access in the left arm with an 18-gauge catheter, a vertical



surgical wound of 10 cm, without redness, and little outflow of serohematic material. The patient reported heartburn in the morning after taking the medication and showed tolerance to oral food.

Activity-exercise pattern: Due to the patient's health condition, physical activity was limited; she was restricted from walking and could only move freely in bed. When assessing the hemodynamic status, BP was 158/100 mmHg, Ambulatory Blood Pressure Monitoring was 119 mmHg, the heart rate was 120 bpm, pulse was rhythmic with good tone and intensity, and the respiratory rate was 25 rpm with minimal coughing. In the sexuality reproductive pattern, she had mammary congestion, flat nipples and good milk production. Regarding the patient's cognitive-perceptual pattern, she was conscious and oriented in time, person, and space, was alert, and had a Glasgow score of 15 points. She presented blurred vision in the right eye. She reported headaches that increased when she moved or was in the supine position. He presented pain in the surgical wound of 2 out of 10 according to the visual analog scale (VAS), which is classified as mild.

Stress adaptation-tolerance pattern: The patient was restless and reported anxiety and anguish because she could not see her son, who was hospitalized at the Red Cross because he was preterm (33 weeks of gestation by Capurro), with a low weight for his gestational age (1.750 gr), in addition to respiratory distress syndrome, a situation that prevented him from being breastfed, and all of this worried her.

Regarding the sleep-rest pattern, the patient mentioned that she had not been able to sleep well, she had pronounced dark circles under her eyes, she reported feeling tired, she could not sleep at night due to the excessive noise and alarms in the ICU, this situation did not allow her to reach a deep and restful sleep, so she had insomnia.

In relation to the additional diagnosis tests, the results of the laboratory tests showed protein 4.2 g/dL, albumin 2.1 g/dL, lactate dehydrogenase 343 U/L, serum electrolytes with potassium 5.5 mmol/L, calcium 7.1 mg/dL, sodium 133.0 mmol/L and magnesium 2.7 mg/dL. The complete





blood count indicated the presence of leukocytes 13.9 (10<sup>3</sup>/uL), neutrophils 11.3 (10<sup>3</sup>/uL), fibrinogen 600 in the coagulation test. This allowed us to establish that she has hypoproteinemia, increased lactate dehydrogenase, hyperkalemia, hypocalcemia, mild hypernatremia and hypermagnesemia, in addition to leukocytosis, neutrophilia and hyperfibrinogenemia.

The main NANDA labels based on the prioritization of the patient's health were: Excess fluid volume, interruption of breastfeeding, anxiety, obesity, and altered sleep pattern; due to the above, three care plans were developed focused on the human responses that conditioned the patient's health status at the time of assessment; as NOCs, the severity of fluid overload, maintenance of breastfeeding and level of anxiety were considered.

The main NICs were management of hypervolemia, suppression of breastfeeding and reduction of anxiety. After the intervention, there were moderate to mild changes in the outcomes, which improved the patient's health status, (Table 1-3).

Table 1. Care plan: Excess fluid volume.

Nursing diagnosis <sup>(13)</sup> : Excess fluid volume evidenced by altered blood pressure, edema.					
Expected outcome <sup>(15)</sup> : Severity of fluid overload. Definition: Severity of signs and symptoms of intracellular and extracellular fluid volume excess.	Indicators	<ul style="list-style-type: none"> <li>• Hand edema (3)</li> <li>• Ankle edema (3)</li> <li>• Increased blood pressure (2)</li> <li>• Increased weight (3)</li> <li>• Decreased sodium (4)</li> </ul>	Measurement Scale	1. Serious 2. Severe 3. Moderate 4. Mild 5. None	Target Score Maintain at: Moderate (3) Increase to: Mild (4)
Interventions			Execution and Assessment		
Management of hypervolemia <sup>(16)</sup> . <ul style="list-style-type: none"> <li>▪ Daily measurement of the patient's weight at a specific time (before breakfast), the figures were monitored.</li> <li>▪ Monitoring of hemodynamic status, blood pressure and mean arterial pressure.</li> <li>▪ Cardiac and respiratory monitoring.</li> <li>▪ Monitoring of peripheral edema.</li> <li>▪ Monitoring of the respiratory pattern, identifying symptoms of pulmonary edema.</li> </ul>			<ul style="list-style-type: none"> <li>▪ The patient's current weight was recorded, and vital signs were monitored, especially blood pressure, mean arterial pressure and heart rate. The degree of edema in the ankles and hands was assessed and lung fields were auscultated for wheezing or rales.</li> <li>▪ A strict control of fluids was performed. Laboratory samples were obtained for blood chemistry, hemogram, serum electrolytes, and liver function tests. The effect of antihypertensive drugs on the patient was monitored.</li> <li>▪ The assessment showed mild edema in the lower and upper limbs; blood pressure figures remained within therapeutic parameters (125/87 mmHg), however, mean arterial pressure was still elevated (100 mmHg); weight was not altered, pulmonary assessment showed</li> </ul>		
GPC IMSS-020-08 <sup>(5)</sup> <ul style="list-style-type: none"> <li>▪ Maintain blood pressure between 105 and 80 mmHg as a therapeutic goal for hypertension.</li> <li>▪ Continuous monitoring during puerperium: blood pressure, use of antihypertensive drugs, laboratory</li> </ul>					



tests to monitor platelet, transaminase, and creatinine levels. no abnormalities and sodium levels were maintained at 133 mmol/L.

- Monitor hydration status, pain, systolic and diastolic blood pressure.

Source: Self-development. Taken from NANDA <sup>(13)</sup>, NOC <sup>(15)</sup>, NIC <sup>(16)</sup>, GPC IMSS-020-08 <sup>(5)</sup>

**Table 2. Care plan: Breastfeeding interruption**

Nursing diagnosis (13): Interruption of breastfeeding evidenced by maternal-fetal separation and demonstrated by non-exclusive breastfeeding. Population at risk: Hospitalized children.

Expected outcome <sup>(15)</sup> : Continued breastfeeding. Definition: Continued breastfeeding until weaning.	Indicators	Measurement Scale	Target Score
	<ul style="list-style-type: none"> <li>• Techniques to prevent breast hypersensitivity (2)</li> <li>• Recognition of obstructed ducts (2)</li> <li>• Recognition of signs of mastitis (2)</li> </ul>	1. Inadequate 2. Slightly adequate 3. Moderately adequate 4. Substantially adequate 5. Completely adequate	Maintain at: Slightly adequate (2) Increase to: Substantially adequate (4)
Interventions <sup>(16)</sup>		Execution and Assessment	
Breastfeeding interruption <sup>(16)</sup> <ul style="list-style-type: none"> <li>▪ Explain the techniques for milk expression, by hand, with manual devices, and electric pumping.</li> <li>▪ Instruct on expressing sufficient milk and decreasing breast pressure without completely emptying the breasts.</li> <li>▪ Help the patient identify the duration and frequency of milk expression, considering the time since delivery, the amount of milk, and the frequency of breast emptying.</li> <li>▪ Explain the care to reduce discomfort or pain through the application of cold compresses with ice or with the use of analgesics.</li> </ul> GPC IMSS-637-13 <sup>(18)</sup> <ul style="list-style-type: none"> <li>▪ When there is antihypertensive treatment during breastfeeding, breastfeed with the use of metoprolol, nifedipine, hydralazine and alfamethylidopa.</li> <li>▪ Watch for mastitis, flu-like symptoms, tenderness, erythema, and breast pain; maintain breastfeeding by breast milk expression by hand.</li> <li>▪ Provide instructions on how to store breast milk.</li> <li>▪ Teach hand hygiene before breast milk expression by hand.</li> <li>▪ Emphasize that the first drops of milk are not discarded when breast milk is expressed.</li> <li>▪ Indicate that the breasts and nipples do not need to be washed before expression, since bathing is sufficient.</li> </ul>		<ul style="list-style-type: none"> <li>▪ A brief educational intervention was implemented on breastfeeding, milk expression and interruption, and complications such as breast engorgement, fever, and mastitis. The patient was given support to perform breast massage, and was shown how to use the nipple shield to express milk and promote nipple formation.</li> <li>▪ Questions about the mentioned techniques were answered.</li> <li>▪ During the evaluation, the patient showed interest in breastfeeding, and is willing to express milk independently by hand.</li> </ul>	

Source: Self-development. Taken from NANDA <sup>(13)</sup>, NOC <sup>(15)</sup>, NIC <sup>(16)</sup>



**Table 3. Care plan: Anxiety**

Nursing diagnosis <sup>(13)</sup> : Anxiety related to stressors and evidenced by expressed distress, worry, and insomnia.				
Expected outcome (15): Level of anxiety Definition: Severity of apprehension, tension or uneasiness that is manifested due to unidentifiable sources.	<b>Indicators</b> <ul style="list-style-type: none"> <li>• Restlessness (3)</li> <li>• Verbalized anxiety (3)</li> <li>• Worry (3)</li> <li>• Sleep disorders (3)</li> </ul>	<b>Measurement Scale</b> <ol style="list-style-type: none"> <li>1. Serious</li> <li>2. Severe</li> <li>3. Moderate</li> <li>4. Mild</li> <li>5. None</li> </ol>	<b>Target Score</b> <p>Maintain at: Moderate (3)                      Increase to: Mild (4)</p>	
Interventions		Execution and Assessment		
Decrease in anxiety <sup>(16)</sup> <ul style="list-style-type: none"> <li>▪ Use of a calm approach that offers reassurance.</li> <li>▪ Understand the patient's perspective on stressful situations.</li> <li>▪ Listen attentively and actively.</li> <li>▪ Create an atmosphere of trust.</li> <li>▪ Explain the procedures, pointing out the sensations that may be experienced during the procedures.</li> <li>▪ Provide information about diagnosis, treatment, or prognosis.</li> <li>▪ Help the patient express feelings, perceptions, or fear.</li> </ul> GPC IMSS-392-10 <sup>(19)</sup> <ul style="list-style-type: none"> <li>▪ Provide the patient and her family with evidence-based information about symptoms, treatment, and management of her illness, considering opinions and feelings in order to facilitate decision making.</li> <li>▪ Assess family support, taking into account the available resources, and make suggestions on lifestyle modifications to improve health.</li> </ul>		<ul style="list-style-type: none"> <li>▪ A context of trust was created through physical contact and attentive listening.</li> <li>▪ Care was explained, providing the necessary information regarding the baby's health status.</li> <li>▪ The patient was encouraged to talk about her feelings and emotions based on the situation.</li> <li>▪ Assessment: The patient showed control of her manifestations of anxiety, she also referred to feeling calm regarding her and her baby's health status.</li> </ul>		

Source: Self-development. Taken from NANDA <sup>(13)</sup>, NOC <sup>(15)</sup>, NIC <sup>(16)</sup>

**Discussion**

It was demonstrated that implementing the nursing process in a woman with postpartum preeclampsia using NANDA, NOC, NIC, and Clinical Practice Guidelines for the care of the patient's health status allowed us to have a scientifically based methodological tool when providing priority care to a woman with special needs in order to minimize complications.

Therefore, in this nursing process it was evidenced that the NANDA label “excess fluid volume” was consistent with some authors <sup>(6-8, 10, 20, 21)</sup> who reported it as a nursing diagnosis focused on the problem, this is due to the excess fluid retention that is manifested with edema, which is a particular sign in women with preeclampsia and eclampsia that is caused by the permeability of the vascular



endothelium, originated in turn by an inflammatory and vasoconstriction process, which causes hypoperfusion and hypoxia of the placenta.

Regarding the NANDA label “interruption of breastfeeding,” there were no reports of this label by other authors, which is relevant in this study, since breastfeeding is essential for the development of the newborn. Furthermore, the benefits offered by breastfeeding have an impact on recovery and prevent complications, and in women, there is a risk of bleeding, overweight, and obesity with prolonged breastfeeding, which substantially affects both because it impedes the attachment between mother and child, which can have repercussions on physical and emotional development (22).

Similarities were also found with the nursing diagnosis of anxiety reported by other authors (6, 10, 11, 23). This could be because hospitalized patients are under stressful conditions, due to their own health condition and that of their child; in addition, being immersed in unfamiliar contexts and sometimes isolated from their family members, exacerbates the presence of anxiety symptoms because they cannot be close to their support network.

Likewise, when patients are subjected to different invasive procedures, and possibly also their children, feelings and emotions increase as a human response to different events, a situation that can also have an impact on the state of physical health. The identification of human responses based on functional health patterns and the management of taxonomies from an integral and holistic perspective are achieved through the application of the nursing process (24).

## **Conclusions**

It is important to implement the nursing process to identify the needs of women with postpartum preeclampsia and to act in a timely manner according to their human responses, in order to anticipate the complications or risks that may arise to improve their health status, and reduce maternal and fetal mortality rates.



Likewise, applying the nursing process to a post-cesarean section patient with preeclampsia and using the NANDA, NOC, and NIC taxonomies, allowed us to determine the dysfunctional health patterns and establish the diagnoses of excess fluid volume, breastfeeding interruption, and anxiety. Subsequently, individualized care plans were applied, and a post-intervention assessment was carried out, which showed a moderate to slight change in the patient's health status through the application of scientific support in each of the care measures. This effectively contributed to improve the health status and minimize the possibility of complications that could put the life of the patient with postpartum preeclampsia at risk.

In nursing practice, the application of the nursing process establishes the standardized language used by nursing professionals, which contributes to providing specific care based on scientific evidence for the development of knowledge patterns of praxis.

The limitations of this case study was that the patient's emergency health condition required a focused assessment to address immediate responses, which resulted in the omission of data that could exacerbate symptoms and complicate the patient's health, as well as the lack of material resources for medical care, and also, the biomedical equipment (cardiac monitor) was not in adequate condition for continuous monitoring of the patient.

For this reason, it is recommended that all nursing professionals apply the nursing process as a methodological tool in the care of patients, and as an empirical indicator for the development of their praxis.

### **Conflict of interest**

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