

PHYSICAL ACTIVITY IN PREGNANT ADOLESCENTS WITH HYPERTENSION: A CROSS-CULTURAL PERSPECTIVE

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ABSTRACT

Objective: to describe the generic care practices related to physical activity in pregnant adolescents with hypertension attending a health institution in Sincelejo - Sucre, Colombia.

Method: a qualitative ethnographic study of pregnant adolescents with induced hypertension, cared for in a health institution in Sincelejo - Sucre, Colombia. Data were collected from December 2017 to April 2018, using semi-structured in-depth interviews, participant observation, and field notes in the homes of the participants; an ethnographic analysis was performed, and semantic relationships were established.

Results: generic care practices emerged in the coastal culture related to the physical activity of pregnant adolescents with hypertension, as well as the following subtopics: generic care practices considered physical activity to prevent increased blood pressure (walking every day, putting ice on one's head, lying on one's left side, among others) and generic care practices considered risky physical activity for blood pressure (not walking, having sex at the end of pregnancy, among others).

Conclusion: generic care practices related to physical activity of pregnant adolescents with hypertension show the relevance of the body of knowledge that adolescents and their families have in the coastal cultural environment, which becomes the basis for the nursing professional to provide culturally congruent care and to apply the nursing care process, both at home and in the hospital, to contribute to maternal and perinatal health.

DESCRIPTORS: Physical activity. Adolescents. Pregnant women. Hypertension. Transcultural nursing.

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ACTIVIDAD FÍSICA EN ADOLESCENTES GESTANTES CON HIPERTENSIÓN: UNA MIRADA TRANSCULTURAL

RESUMEN

Objetivo: describir las prácticas de cuidado genérico relacionadas con la actividad física de las adolescentes gestantes con hipertensión que asistieron a una institución de salud en Sincelejo - Sucre, Colombia.

Método: investigación cualitativa etnográfica. Desarrollada en adolescentes gestantes con hipertensión inducida, atendidas en una institución de salud en Sincelejo – Sucre, Colombia. Los datos fueron recolectados desde diciembre de 2017 hasta abril de 2018, a través de entrevistas semiestructuradas en profundidad, observación participante y notas de campo en las viviendas de las participantes; se hizo análisis etnográfico y se establecieron relaciones semánticas.

Resultados: emergieron prácticas de cuidado genérico en la cultura costeña, relacionadas con la actividad física de las adolescentes gestantes con hipertensión y los subtemas: prácticas de cuidado genérico consideradas actividad física para evitar el aumento de la presión arterial (caminar todos los días, colocarse hielo en la cabeza, acostarse a medio lado izquierdo, entre otras) y prácticas de cuidado genérico consideradas actividad física de riesgo para la presión arterial (no caminar, tener relaciones sexuales al final de la gestación, entre otras).

Conclusión: las prácticas de cuidado genérico relacionadas con la actividad física de las adolescentes gestantes con hipertensión muestran la relevancia del mundo de conocimientos que tienen las adolescentes y sus familiares en el entorno cultural costeño, lo que se convierte en la base para que el profesional de enfermería brinde cuidado culturalmente congruente y pueda aplicar el proceso de atención de enfermería a nivel domiciliario y hospitalario con el fin de contribuir a la salud materno perinatal.

DESCRIPTORES: Actividad física. Adolescentes. Gestantes. Hipertensión. Enfermería transcultural.

ATIVIDADE FÍSICA EM GRÁVIDAS ADOLESCENTES COM HIPERTENSÃO: UMA PERSPECTIVA TRANSCULTURAL

RESUMO

Objetivo: descrever as práticas de cuidado genérico relacionadas à atividade física em adolescentes grávidas com hipertensão atendidas em uma instituição de saúde em Sincelejo - Sucre, Colômbia.

Método: estudo etnográfico qualitativo com adolescentes grávidas com hipertensão induzida, atendidas em uma instituição de saúde em Sincelejo - Sucre, Colômbia. Os dados foram coletados no período de dezembro de 2017 a abril de 2018, por meio de entrevista semiestructurada em profundidade, observação participante e notas de campo nas residências dos participantes; foi realizada uma análise etnográfica e estabelecidas relações semânticas.

Resultados: práticas genéricas de cuidado emergiram na cultura litorânea relacionadas à atividade física de gestantes adolescentes hipertensas, assim como os seguintes subtemas: práticas genéricas de cuidado consideradas atividade física para prevenir o aumento da pressão arterial (caminhar todos os dias, colocar gelo na cabeça, deitar sobre o lado esquerdo, entre outros) e práticas genéricas de cuidado consideradas atividades físicas de risco para a pressão arterial (não caminhar, fazer sexo no final da gravidez, entre outros).

Conclusão: as práticas genéricas de cuidado relacionadas à atividade física de adolescentes grávidas com hipertensão mostram a relevância do corpo de conhecimento que as adolescentes e suas famílias possuem no ambiente cultural litorâneo, que se torna a base para o profissional de enfermagem prestar cuidados culturalmente congruentes e aplicar o processo de cuidar de enfermagem, tanto no domicílio quanto no hospital, para contribuir com a saúde materna e perinatal.

DESCRITORES: Atividade física. Adolescentes. Mulheres grávidas. Hipertensão. Enfermagem transcultural.

INTRODUCTION

Physical activity is not a novelty in human health, but according to the World Health Organization (WHO)¹, it is necessary to remember the guidelines to be followed in all age groups due to their multiple benefits; in pregnant women, it reduces the risk of hypertensive disorders, gestational diabetes, and complications during childbirth and the puerperium.

Pregnant adolescents represent a public health problem worldwide, and in Latin America, it involves not only the adolescent, but also the family nucleus and society as a whole, and it continues to grow every day²; therefore, it is essential for health professionals, and especially for nursing professionals, to reflect on this increase. In Brazil, this public health situation has an impact on the social context, thus education for this population must be high-quality³, while in Mexico, failure to implement an optimal adolescent pregnancy prevention policy results in a daily increase in the cost of care⁴.

Furthermore, in Colombia the presence of pregnant adolescents is common in health institutions and the community, according to the weekly epidemiological bulletin of the National Institute of Health. In the 33rd epidemiological week of the year 2022, 164 premature maternal deaths, 74 late deaths, and 34 deaths due to coincident causes were reported, with the main direct cause being hypertensive disorders associated with pregnancy⁵; an alarming situation for the country's development.

In the district of Sucre (Caribbean region, located in northern Colombia), according to research related to the purpose of life in pregnancy in the capital of the district (Sincelejo - Sucre), it was found that the cases of pregnant adolescents in this region of Colombia are growing, women are vulnerable at this stage of their life cycle. In addition, these pregnancies influence the life course of adolescents and their environment, therefore it is mandatory to improve health care to take into account the context of these pregnant women to plan comprehensive care⁶.

Adolescent pregnancies tend to be unplanned, but cultural elements of the environment in which adolescents develop must be observed, which becomes a great challenge for nurses on a daily basis⁷.

On the other hand, pregnant adolescents face various maternal and perinatal complications during the prenatal stage, delivery, and the puerperium, such as preterm deliveries, hypertensive disorders such as preeclampsia-eclampsia, and gestational induced hypertension, and neonatal disorders, to mention a few⁸.

Research related to hypertensive disorders of pregnancy showed that gestational-induced hypertension is both a prevalent complication and a cause of morbidity and mortality⁹.

In the district of Sucre, no research was found on generic care practices related to the physical activity of pregnant adolescents with hypertension; it is noteworthy that in the capital, Sincelejo, is a health institution that is a departmental reference and reports multiple cases of pregnant adolescents with hypertensive disorders on a daily basis¹⁰.

Given the aforementioned, with confidence in the power of knowledge and management of the academic and professional discipline of nursing in the health care of the human being, from a transcultural perspective, taking into account the values, beliefs, and needs of the people being cared for¹¹, it was relevant to conduct this research. The intent was to describe generic care practices related to physical activity of pregnant adolescents with hypertension who visited a health care institution in Sincelejo - Sucre, Colombia. This research is important because it will contribute to improving the health and nursing care provided to pregnant adolescents, by including and not devaluing the cultural context, thus making it possible to diagnose, plan, implement, and evaluate congruent interventions in favor of maternal and perinatal health and the development of society.

METHOD

A qualitative ethnographic study, conducted according to the consolidated criteria for reporting qualitative research (COREQ).

The research was conducted in seven neighborhoods of Sincelejo: Villa Katy, Ciudad Jardín, Botero, Sevilla, Cielo Azul, Villa Orieta, and San Remo, where participants were visited in their homes. Most of the homes belong to relatives or have been rented, and do not have public services, such as piped water or natural gas. These settlements are considered subnormal since they are in areas of high social risk due to delinquency.

The present study was linked to a tertiary healthcare institution in the district of Sucre, located in the municipality of Sincelejo, which is a regional reference in healthcare. A total of 13 people participated, 9 pregnant adolescents as key informants and 4 family members (mothers, grandmother, sister-in-law) who lived with the pregnant adolescents and participated as general informants. Access to the participants was granted thanks to the institution's authorization to conduct the study and to the databases contained in an excel matrix provided by the delivery room, maternal hospitalization, intermediate care, and adult intensive care unit, which allowed the researcher to contact the adolescents by phone.

The inclusion criteria for the key informants were: pregnant adolescents with induced hypertension between 14 and 19 years of age and without another diagnosed pathology. In addition, the inclusion criteria for the general informants were to be mothers, grandmothers, sisters-in-law, or mothers-in-law of the adolescents and to live in the same family nucleus. The exclusion criteria for key informants required the exclusion of pregnant adolescents with mental illnesses; in addition to not meeting the inclusion criteria, some adolescents were excluded because, at the time of making the initial phone call to discuss the research, they stated they had moved to other districts of the country, such as Córdoba and Bolívar. General informants (mothers, grandmothers, grandmothers-in-law, sisters-in-law, and mothers-in-law) who had inadequate communication and intrafamily relationships with the adolescents were excluded.

After obtaining authorization from the ethics committee of the Faculty of Nursing of the Universidad Nacional de Colombia, the research proposal was presented to the ethics committee and the manager of the health institution (clinic) located in Sincelejo - Sucre, Colombia, who approved the study. Letters were then sent to the different branches of the institution to the services where the participants were seen. In this clinic, tertiary care is provided to the entire population, a large part of which is mothers who have outpatient care, gynecological-obstetrical emergencies, general hospitalization, surgery, and intensive care unit hospitalization. The main researcher worked as an assistant nurse in the surgical unit of the institution in question and, from this field she observed the situation that became her phenomenon of study for her master's degree in nursing; in addition to working at the clinic, the researcher was a professor in the nursing program at the Universidad de Sucre (Colombia).

During the second semester of 2017, the intake of participants who visited this health institution was started, using a matrix of admissions and discharges provided by the delivery room, general hospitalization, Intermediate Care Unit, and Intensive Care Unit hospitalization. Through this matrix, a database was created in Microsoft Excel by the principal researcher, a master's degree student in nursing at the Universidad Nacional de Colombia, who received training and practical exercises

guided by the thesis director and some professors of the graduate program for conducting in-depth interviews, since it was new for the researcher. She included adolescents who met the inclusion criteria and then phone calls were made to discuss the purpose of the research and to learn whether or not they wished to participate. The researcher spoke directly with the participant, and she decided whether or not the adolescent would participate in the study and established the day or time of the visit; the sample was selected based on relevance, adequacy, convenience, opportunity, and availability.

Initially, 19 pregnant adolescents were recruited, but only nine participated because six adolescents, at the time of the phone call to invite them to the study, stated that they had moved to other districts of the country; the remaining four were not included because theoretical saturation was met with nine adolescent participants and 4 general informants, for a total of 13 participants in the study.

The data were collected from December, 2017 to April, 2018 using semi-structured in-depth interviews that provided insight into the participants' lived world and their meanings¹². The researcher prepared an interview script with three guiding questions, and also used the participant observation method, which allowed the researcher to take part in the context of the adolescent, to know what the participants were doing, and to reflect on their way of life¹³. This occurred simultaneously with the interview, and once it was finished a field note was completed, which served as a basis to specify what was observed, and to clarify and deepen what the researcher had observed¹⁴.

It is noteworthy that prior to the collection of information, the researcher went to the home of one of the adolescents, after scheduling the visit according to the convenience of the pregnant participant. At this first meeting, the adolescent was accompanied by her husband, given the concerns they had about the study, which were answered by the researcher. The presence in their house allowed the researcher and the participant to break the ice, enter the family nucleus, and generate trust in the research process, where the researcher remained as an apprentice.

Subsequently, in a second visit, the researcher explained the purpose of the research and the main objective, the informed consent was discussed in clear language for the participant, the witness or, alternatively, the legal representative, which gave way to the interview, in the location of the house indicated by the adolescent to be comfortable and private, usually in the backyard, living room, or bedroom. During the interviews with the adolescents, only the researcher and participant were present.

The interviews had a maximum duration of 40 minutes, were coded and recorded with a journalistic recorder. A total of 19 interviews were conducted until theoretical saturation was reached; on several occasions one interview was not enough, and the participants had to be interviewed again; photographs were also taken for academic purposes, all occurred after obtaining a signed informed consent.

Regarding analysis of the information, transcription of the interviews was done before 72 hours, the interviews were read, reflected upon, and the topics mentioned by the adolescent or the general informant were color-coded; this provided the basis for advancing in the analysis, which was done by keeping in mind the categories, patterns, beliefs, practices, and identification of major topics, subtopics¹⁵, and subsequently the domains, taxonomies, and semantic relationships were established¹⁶. On the other hand, participant observation was done simultaneously with the interview, and observation data were captured in field notes which were constructed once the interview and observation were completed. The information generated by each observation was useful in organization of the findings, description of the scenario, characterization of the participants, and analysis of the results at the time of drawing out the topics, subtopics, and semantic relationships.

To control researcher bias, a literature review was conducted continuously, with an emphasis on qualitative ethnographic methodology. In order to control bias of the information from the interviews, they were assigned a code (for example E1P1: interview one conducted with participant one), recorded on USB memory stick (Universal Serial Bus) and journalistic recorder; for methodological rigor, criteria such as credibility, confirmability, meanings in context, recurrent patterns, saturation, and transferability were taken considered¹⁷.

From the analysis conducted, the main topic of physical activity in pregnant adolescents with hypertension appeared, as well as subtopics such as: generic care practices considered as physical activities to avoid increased blood pressure, and generic care practices considered as physical activity putting blood pressure at risk. These topics and subtopics emerged from the daily life of the participants in the study, who followed cultural references to perform practices they expressed. They followed patterns instilled by their mothers, grandmothers, and mothers-in-law; it is noteworthy that although they all belonged to the coastal culture, the context in each home was different because they had different beliefs and meanings about the phenomenon under study. Therefore, the cultural environment influenced whether or not the beliefs were embraced depending on their family references and the experience the participants had in practicing them.

The research was approved by the ethics committee of the Universidad Nacional de Colombia and the health institution located in Sincelejo - Sucre; The study also included the signed informed consent of the participants, witnesses, or legal representatives. It complied with the provisions of Resolution 0008430 of 1993 of the Colombian Ministry of Health, considered research without risk, as proposed by article 11, paragraph a of this resolution¹⁸ and the Declaration of Helsinki regarding the privacy of the participants and the confidentiality of the information¹⁹.

RESULTS

In reference to the key informants, only one participant had achieved a high school degree, seven of them were between sixth and seventh grade, one had received a high school degree, and another had technical studies; eight of them were first pregnancies and one was multiparous, six of them did not plan their pregnancies. As for the general informants, the following people participated: a grandmother, a sister-in-law, and two mothers of the key informants. In the in-depth interviews, the adolescents stated that they listened to their family members (mothers, grandmothers, mothers-in-law) about what they should or should not do during pregnancy to maintain their health. These practices were discussed in the family environment and had meanings attributed to them, which were then transmitted orally down the female line for each generation.

The study made the generic care practices and their meanings explicit in the coastal cultural environment of the district of Sucre, where the main topic emerged as physical activity in pregnant adolescents with hypertension, and subtopics such as: generic care practices considered as physical activity to avoid increased blood pressure, and generic care practices considered as risky physical activity for blood pressure; two domains, six taxonomies (Table 1), and two semantic relationships of inclusion and cause-effect were identified.

Entering the cultural context of the participants allowed us to get to know the world of generic care practices in their homes, which are diverse and mark the culture and tradition of the adolescents, as well as perceived needs and expectations, which are essential to guide nursing care.

Table 1 - Generic care practices related to physical activity in pregnant adolescents with hypertension. Sincelejo, Sucre, Colombia, 2017-2018. (n=13)

Main Topic	Subtopics	Domains	Taxonomies
Physical activity in pregnant adolescents with hypertension	Generic care practices considered physical activity to prevent increased blood pressure	Domain 1: Home occupations that prevent an increase in blood pressure	Taxonomy 1: Putting ice on the head Taxonomy 2: Applying lukewarm water cloths on the forehead Taxonomy 3: Avoiding sexual intercourse at the end of pregnancy
	Generic care practices considered risky physical activity for blood pressure	Domain 2: Home occupations with risk for increased blood pressure	Taxonomy 1: Not resting during the day Taxonomy 2: Letting the headache increase Taxonomy 3: Having sexual intercourse at the end of pregnancy

In the present research, the findings show the generic care practices considered as physical activity to prevent increased blood pressure, focused on the semantic relationship of inclusion (Table 2), highlighting that walking every day in the morning and in the afternoon is essential for pregnant adolescents to maintain their health.

The findings show that the participants of the study are concerned about contributing to their optimal health status from their cultural context and consider several activities at home beneficial and necessary to prevent increased blood pressure, which opens the way for the nursing professional to build interventions in home health care and not only from hospital settings.

Table 2 - Generic care practices considered physical activity to prevent increased blood pressure in pregnant adolescents with hypertension. Sincelejo, Sucre, Colombia, 2017-2018. (n=13)

Generic care practices	Semantic relationship	Domain 1
Walking every day in the morning or in the evening	Considered as	Physical activity to prevent blood pressure increase
Walking in the company of family members		
Putting ice on the head		
Applying lukewarm water cloths on the forehead		
Lying on left side with pillows at the back		
Sitting with legs raised		
Sweeping the house		
Dishwashing		
Cooking		
Taking an early shower		

In contrast, the adolescents considered some generic care practices as risky physical activity for blood pressure, such as not walking, carrying a lot of weight, among others, focused on the semantic cause-effect relationship (Table 3).

Pregnant adolescents with hypertension related the above generic care practices to risk for their blood pressure, therefore, in their daily lives they tend not to perform them to avoid complications during pregnancy. In the present investigation it was possible to show that these practices had not been studied before in this district. In addition, the participants adopt such practices because they are guided by their relatives, by their own experience when performing them (effects on their health), and by what they were told by health professionals in prenatal care consultations. However, the latter contrasted with what they were told by their family cultural references, and at that moment they decided whether or not to put them into practice. They put into practice those that contributed to their health and those that did not, they avoided.

Table 3 - Generic care practices considered risky physical activity for blood pressure in pregnant adolescents with hypertension. Sincelejo, Sucre, Colombia, 2017-2018. (n=13)

Generic care practices	Semantic relationship	Domain 2
Walking under the hot sun		
Not walking		
Carrying a lot of weight during pregnancy	Has the following consequences	Physical activity that put blood pressure at risk
Having sexual intercourse at the end of pregnancy		
Getting the night dew		
Riding motorcycles		

DISCUSSION

This research showed that in a country as diverse as Colombia, adolescent patients with induced hypertension engage in cultural practices typical of their environment, with meanings based on oral transmission from generation to generation, with female relatives in their community as referents.

The cultural behavior, knowledge, and artifacts used by the adolescents in their context show the essence of the coastal culture in the pregnancy stage of these women.

Physical activity is considered an activity with many benefits for the health of the body and mind, since it is associated with the prevention of cardiovascular and degenerative diseases, depression, cancer, among others²⁰; performing it can become a protective or risk factor for the participants of the study.

Walking every day in the morning or in the afternoon was a physical activity that prevented an increase in blood pressure for the participants. This is in line with the findings of a study on cardiovascular risk factors conducted in Venezuela, which stated that physical activity contributes to the prevention and control of cardiovascular diseases in adolescents²¹. Additionally, it is consistent with the results of the study related to teenage pregnancy observed from physical education, where it is evident that during pregnancy, physical exercise such as walking has benefits for the development of the embryo, the fetus, and the mother²².

Similarly, placing ice on the head and warm water cloths were considered favorable physical activity to prevent the increase in blood pressure. In contrast with other publications, there is a similarity when using cold therapy or cryotherapy for headaches, since cold has therapeutic effects and since

ancient times has been used by various specialties to treat clinical manifestations of patients, using cold reduces edema, pain, and promotes the welfare of the osteomioarticular system²³. Warm water has also influenced the health of human beings; hydrotherapy has been considered a healing procedure throughout the history of mankind, and its benefits vary according to its temperature²⁴.

In the research conducted, adolescent participants used cold to reduce headache and by minimizing this symptom, they related it to an essential activity to avoid increased blood pressure, while for other adolescents, warm water cloths on the head also contributed to maintaining their blood pressure: i.e., both the application of cold and heat contributed to the maintenance of their health.

Jobs such as sweeping the house, washing dishes, and cooking are highlighted as physical activities that contribute to the health of adolescent girls, since they are considered physical activities and no barriers should be placed in the way of doing them, such as cost, lack of time, or willingness, as they contribute to maintaining the health of the pregnant adolescent²⁵. In research conducted in Brazil on stimulation in pregnancy, it was concluded that when pregnant women participate in occupations, they perform prenatal stimulation, which leads to physical and mental health for the mother-child binomial²⁶.

On the other hand, for the participants, lying on their left side was a protective activity to avoid increased blood pressure; the left lateral decubitus position in the last trimester of pregnancy is designed to avoid aortic-caval compression and thus prevent hypotension and utero-placental hypoperfusion²⁷. Consequently, the literature differs from what was expressed by the adolescents when they stated that this position prevented an increase in blood pressure, since it seeks to maintain blood pressure in equilibrium and avoid its sudden decrease.

In contrast, the adolescents considered having sex to be a physical activity that poses a risk to blood pressure, but according to a study performed in the Eje Cafetero Colombiano, sexual intercourse is part of the life and health of human beings, and is mediated by many factors, including cultural factors such as the beliefs of each person, family group and community, their religion, norms, and perspectives on life, among others. Sexual intercourse during pregnancy is fundamental, but dysfunctions may occur due to physical changes in pregnant patients and the couple's beliefs. In the face of these difficulties, help should be sought from professionals in order to receive advice in relation to sexual health so that the difficulties do not become an obstacle to integral health²⁸. Therefore, we disagree with the adolescents, because having sex at the end of pregnancy does not present risks for the increase in blood pressure, on the contrary, it is part of sexual health.

In the coastal culture of the study participants, not walking is a risk for blood pressure, while in Ecuador, a retrospective study showed that a sedentary lifestyle is a risk factor for increased blood pressure, which is related to what was expressed by the adolescent participants²⁹. On the contrary, placental accretism is related to previous uterine surgeries and primary pregnancy defects, and not to sedentary lifestyle³⁰.

The research findings, from a cross-cultural perspective, can be grouped into generic care practices that are universal because they belong to the coastal culture, and at the same time are diverse because each participant develops in an environment with unique cultural patterns and meanings. Among the practices found, the following should be preserved: walking every day in the morning or in the afternoon, putting ice or warm water cloths on the head, doing household chores such as sweeping, washing dishes, and cooking. Practices to be negotiated include sexual intercourse, which should not be eliminated or avoided, but conceived as part of the integral health of the pregnant adolescent, with prior education by health professionals so that they do not become a risk. Practices such as walking under the hot sun or not walking and riding motorcycles should be reoriented, because they represent a potential health risk during pregnancy.

It is essential to know these findings because they become the path to follow for future research, in which the health professional includes this population and does not move away from the environments, because the knowledge that guides the practice emerges in them.

In summary, it is important for the nursing discipline to have knowledge of generic care practices and their meaning in the cultural context of the participants, as it allows the development of health strategies aimed at maternal and perinatal wellbeing.

The limitations of the study were framed by the difficult access to each of the neighborhoods where the participants lived, the city's delinquency, and the time the main researcher had to spend studying and working at the same time.

CONCLUSION

The generic care practices related to the physical activity of pregnant adolescents with hypertension are immersed within the coastal culture and two valuable subtopics stand out: generic care practices considered physical activity to avoid increased blood pressure, and generic care practices considered risky physical activity for blood pressure.

The research conducted shows the relevance of the body of knowledge that adolescents and their families have in the cultural environment in an area of the Colombian Caribbean Coast. These become the basis for the nursing professional to provide culturally congruent care and to apply the nursing care process at both home and the hospital level to contribute to maternal and perinatal health.

The health professional must be involved in the cultural context of their patients, because in this context they have direct contact with the phenomena of interest that surround the subject of care, and can thus detect needs to plan and provide humanized care.

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