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ORIGINAL

Knowledge level of preeclampsia in pregnant women, province of Santo Domingo, Ecuador

Nivel de conocimientos sobre preeclampsia en gestantes de la provincia de Santo Domingo, Ecuador

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ABSTRACT

Introduction: preeclampsia is a health problem that is among the main causes of maternal death and prematurity. It has an unknown etiology and is multifactorial in nature. This research was conducted with the aim of identifying the level of knowledge about preeclampsia in pregnant women.
Method: a descriptive, observational, cross-sectional study was conducted in 61 pregnant women treated in 2 health institutions in Santo Domingo, Ecuador, selected in a non-randomized manner. A survey was applied consisting of 26 dichotomous questions with yes or no answers, classified by definition (3 questions), signs and symptoms (7 questions), risk factors (9 questions) and prenatal care (7 questions). The level of knowledge was classified as high (greater than 20), medium (16 to 20) and low (less than 16 points).
Results: 54,1 % had a high school education as their highest academic level, 37,7 % reported having had 2 pregnancies, 65,6 % had at least one abortion. Regarding the level of knowledge; 31,2 % obtained an average level in signs and symptoms of preeclampsia, 31,1 % presented a high level on risk factors for preeclampsia, 11,5 % of the patients belonging to the San Agusto Egas Health Center had a low level; 62,3 % obtained a high level and 37,7 % an average level on prenatal care.
Conclusions: a medium level of knowledge about preeclampsia was found among the pregnant women surveyed, highlighting the area of prenatal care, where no participant was classified as having low knowledge.

Keywords: Preeclampsia; Hypertensive Disorders of Gestation; Prenatal Care; Risk Factors; Obstetrics.

RESUMEN

Introducción: la preeclampsia constituye un problema de salud que se ubica entre las principales causas de muerte materna y prematuridad, posee etiología desconocida y naturaleza multifactorial. Se realizó la presente investigación con el objetivo de identificar el nivel de conocimientos sobre preeclapmsia en gestantes.
Método: se realizó un estudio descriptivo, observacional, de corte transversal, en 61 gestantes atendidas en 2 instituciones de salud de Santo Domingo, Ecuador, seleccionadas de forma no aleatorizada. Se aplicó una encuesta compuesta por 26 preguntas dicotómicas con respuesta de sí y no, clasificada por definición (3 preguntas), signos y síntomas (7 preguntas), factores de riesgo (9 preguntas) y cuidados prenatales (7 preguntas). Se clasificó el nivel de conocimientos en alto mayor a 20, medio de 16 a 20 y bajo menor a 16 puntos.
Resultados: el 54,1 % tuvo la educación secundaria como máximo nivel académico, 37,7 % refirió haber tenido 2 embarazos, 65,6 % tuvo al menos un aborto. En cuanto al nivel de conocimientos; 31,2 % obtuvo nivel medio en sígnos y síntomas de la preeclapmsia, 31,1 % presentó un nivel alto sobre los factores

de riesgo de la preeclampsia, 11,5 % de las pacientes pertenecientes al Centro de Salud San Agusto Egas tuvo un nivel bajo; 62,3 % obtuvo un nivel alto y 37, 7 % nivel medio sobre los cuidados prenatales.
Conclusiones: se encontró un nivel de conocimientos medio sobre preeclampsia entre las gestantes encuestadas, destacando la esfera de los cuidados prenatales, donde ninguna participante fue clasificada con conocimientos bajos.

Palabras clave: Preeclampsia; Trastornos Hipertensivos de la Gestación; Cuidados Prenatales; Factores de Riesgo; Obstetricia.

INTRODUCTION

Hypertensive disorders of pregnancy include chronic hypertension, gestational hypertension, preeclampsia or eclampsia, and chronic hypertension with super-added preeclampsia.[1] These remain one of the most important and enigmatic unsolved problems in obstetrics;[2] the exact etiology of hypertensive disorders of pregnancy remains unknown, so it has been considered a disease of a heterogeneous and multifactorial nature.[1,3]

Preeclampsia (PE) is defined as the presence of an arterial elevation after 20 weeks with endothelial dysfunction, and may be accompanied by white organ damage, including: brain, liver and thrombocytopenia. This disease can have important consequences for both the mother and the fetus. Some of the most common complications include: paternal rejection, cervical compression syndrome, placental hypoperfusion, placental hypoxia, and endothelial dysfunction.[4,5,6]

Preeclampsia is a leading cause of maternal death and prematurity associated with hypertensive disorders of pregnancy that affects many pregnant women worldwide. It is estimated that approximately 2-3 % of pregnant women suffer from this disease, making it a highly prevalent condition globally.[4]

Preeclampsia and eclampsia represent the leading cause of maternal-fetal morbidity and mortality worldwide,[7] complicating approximately 10 % of pregnancies, 2 and 25 % of cases occur in Latin America and the Caribbean, according to the World Health Organization (WHO). In the world, every 3 minutes a woman dies from preeclampsia, approximately 50 thousand women die annually.[7]

The Ministry of Public Health of Ecuador registered 31 maternal deaths from week 1 to week 15 of the year 2020, where hypertensive disorders constitute the second cause of maternal death with 13 cases, 5 of which represent severe preeclampsia.[2]

The literature describes that preventing or controlling the risk of preeclampsia requires interventions that address a wide range of factors through actions aimed at self-care and lifestyle modification of the pregnant woman.[1]

The present study was carried out with the objective of identifying the level of knowledge about preeclampsia in pregnant women attended at the Augusto Egas Health Center and the San José Maternity Hospital.

METHOD

An observational, descriptive, cross-sectional study was conducted in pregnant women attended at the Augusto Egas Health Center and the San José Maternity Hospital, province of Santo Domingo de los Tsáchilas, Ecuador, during the year 2021.

The universe was constituted by the patients attended at the institutions during the year 2021, from which a total of 61 patients were selected who met the inclusion criteria, 31 attended at the Augusto Egas Health Center and 30 at the San José Maternity Hospital, by means of a purposive sampling. Patients between 18 and 30 years of age, treated for gestational hypertension or any entity associated with it, who agreed to participate in the research were included. The exit criterion was also established as those patients who, as a product of intensive care, were not in full physical or mental condition to participate in the study, or who suffered from some type of mental disability.

A survey developed and validated by Bonifacio Menzuna (Annex 1)[8] was used, which is structured in three sections: the first explores sociodemographic data, the second obstetric characteristics and in the third part we measured the level of knowledge, the latter contains 26 dichotomous questions with yes and no answers, classified by definition (3 questions), signs and symptoms (7 questions), risk factors (9 questions) and prenatal care (7 questions).

To find the level of knowledge, the scores obtained in each question were added up, obtaining a minimum of 0 and a maximum of 26, the scores were evaluated by means of the Estanones[9] scale, using the Gaussian bell, the arithmetic mean, the standard deviation and a constant of 0,75, obtaining as defining measures: high greater than 20, medium from 16 to 20 and low less than 16.

The survey was applied by the authors in person, after a brief explanation of the study and its characteristic's, informed consent was requested and a brief explanation was given on how to complete the questionnaire.

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Permission was requested from both institutions to carry out the present study; the surveys were completed anonymously, and it was not possible to identify any participant. All patients were treated with due respect.

RESULTS

Table 1 shows that the patients were predominantly unmarried (49,2 %), 85,2 % reported being middle class as socioeconomic level, 8,2 % indicated being lower class, belonging to the San Agusto Egas Health Center. Regarding maximum schooling, only 16,4 % indicated having completed university, while 54,1 % had secondary education as the maximum academic level.

Table 1. Distribution of the patients surveyed according to sociodemographic variables

Variables	Dimensions	San José Maternity Hospital		San Agusto Egas Health Center		Total	
		No.	%	No.	%	No.	%
Marital status	Single	10	16,4	9	14,8	19	31,1
	Unmarried	16	26,2	14	23	30	49,2
	Married	4	6,6	8	13,1	12	19,7
Total		30	49,2	31	50,8	61	100
Socioeconomic level	Lower class	0	0	5	8,2	5	8,2
	Middle class	29	47,5	23	37,7	52	85,2
	Upper class	1	1,6	3	4,9	4	6,6
Total		30	49,2	31	50,8	61	100
Academic degree	Incomplete elementary school	0	0	1	1,6	1	1,6
	Primary complete	2	3,3	2	3,3	4	6,6
	Secondary incomplete	7	11,5	3	4,9	10	16,4
	High school complete	13	21,3	20	32,8	33	54,1
	University incomplete	2	3,3	1	1,6	3	4,9
	University complete	6	9,8	4	6,6	10	16,4
Total		30	49,2	31	50,8	61	100

Table 2 shows that 37,7 % reported having had 2 pregnancies, while 36,1 % were primigravida (1 pregnancy), only 3,3 % reported having more than 4 or 5 pregnancies respectively. More than half of the respondents had at least one abortion (65,6 %). Only 3,3 % indicated having 4 or 5 children respectively. 65,6 % of the participants were in their third trimester of pregnancy.

Table 2. Distribution of the sample according to obstetrical history

Variables	Dimensions	San José Maternity Hospital		San Agusto Egas Health Center		Total	
		No.	%	No.	%	No.	%
Number of pregnancies	1	10	16,4	12	19,7	22	36,1
	2	11	18	12	19,7	23	37,7
	3	6	9,8	6	9,8	12	19,7
	4	1	1,6	1	1,6	2	3,3
	5	2	3,3	0	0	2	3,3
Total		30	49,2	31	50,8	61	100
Number of abortions	1	20	32,8	20	32,8	40	65,6
	2	8	13,1	7	11,5	15	24,6
	3	0	0	3	4,9	3	4,9
	4	2	3,3	1	1,6 %	3	4,9
Total		30	49,2	31	50,8	61	100
Number of children	1	10	16,4	13	21,3	23	37,7
	2	11	18	11	18	22	36,1
	3	6	9,8	6	9,8	12	19,7

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	4	1	1,6	1	1,6	2	3,3
	5	2	3,3	0	0	2	3,3
Total		30	49,2	31	50,8	61	100
Trimester of pregnancy	1	3	4,9	1	1,6	4	6,6
	2	11	18	6	9,8	17	27,9
	3	16	26,2	24	39,3	40	65,6
Total		30	49,2	31	50,8	61	100

The participants from Maternidad San José obtained a medium level of knowledge (31,2 %) about the signs and symptoms of preeclampsia, coinciding with 57,4 % of the total number of participants who scored at the same level. Only 14,8 % obtained a low level of knowledge (table 3).

Table 3. Distribution of the sample according to the level of knowledge of signs and symptoms of preeclampsia

Health center		**Knowledge of signs and symptoms of preeclampsia**			
		High Level	**Medium Level**	**Low level**	**Total**
San José Maternity Hospital	No.	8	19	3	30
	%	13,1	31,1	4,9	49,2
San Agusto Egas Health Center	No.	9	16	6	31
	%	14,8	26,2	9,8	50,8
Total	No.	17	35	9	61
	%	27,9	57,4	14,8	100

Table 4 shows that 31,1 % of the patients surveyed had a high level of knowledge of the risk factors for preeclampsia, while 11,5 % of the patients from the San Agusto Egas Health Center had a low level of knowledge.

Table 4. Distribution of the participants according to the level of knowledge of the risk factors for preeclampsia

Health center		**Knowledge of risk factors for preeclampsia**			
		High level	**Medium Level**	**Low level**	**Total**
San José Maternity Hospital	No.	14	15	1	30
	%	23	24,6	1,6	49,2
San Agusto Egas Health Center	No.	5	19	7	31
	%	8,2	31,1 %	11,5	50,8
Total	No.	19	34	8	61
	%	31,1	55,7	13,1	100

Table 5 shows that no pregnant woman obtained a low level of knowledge on prenatal care, with a balance between both health centers in terms of knowledge on the subject, where of the total sample, 62,3 % obtained a high level and 37,7 % obtained a medium level.

Table 5. Distribution of patients surveyed according to knowledge of prenatal care

Health center		**Kowledge of prenatal care**		
		High Level	**Medium Level**	**Total**
San José Maternity Hospital	No.	19	11	30
	%	31,1	18	49,2
San Agusto Egas Health Center	No.	19	12	31
	%	31,1	19,7	50,8
Total	No.	38	23	61
	%	62,3	37,7	100

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DISCUSSION

Studies consulted, such as that of Flores Cruz[10] show in their results a predominance of schooling at the high school level with 39,4 %, followed by secondary school with 27,1 % and elementary school with 5,4 %. Castro Palacios[2] in his graduate work where he explores the level of knowledge of pregnant women about preeclampsia attended in the outpatient clinic of the Marco Vinicio Iza Hospital, Sucumbíos, obtained 52 % which results from the sum of the percentages of complete and incomplete primary school and incomplete secondary school, facts that partially coincide with what was found in the present investigation.

The educational level of the pregnant women influences the correct development of the pregnancy; the low number of patients with more than secondary education could indicate a lack of sexual education in these population groups, added to a possible lack of family planning for pregnancies.

Bonifacio Mezuma[8] indicates in his research on the knowledge and source of information on preeclampsia, a predominance of women in "consensual union" marital status with 54,9 % and the highest level of schooling was secondary education for 67,9 %, data that coincide with those published by Luque Cupy[11] in which most of the pregnant women have completed secondary school (40,6 %); and with those obtained in this study.

Luque Cupy shows that in her study, 35 % reported being pregnant for the first time, 30,5 % reported being pregnant for the second time and 34,4 % had already had more than 2 pregnancies. Flores Cruz[10] in her undergraduate work, showed that 42,5 % of the patients were in the first trimester of pregnancy, 49,3 % in the second and 8,1 % in the third trimester. Regarding the number of abortions, Luque Cupy, 11 found that 71,7 % of the pregnant women reported having had no abortions, 22,6 % had had at least one abortion, while 5,4 % had more than two abortions.

Obstetric history is an important part of the prevention and diagnosis of EP. Generally, unfavorable antecedents lead to a torpid evolution of pregnancies and end in negative results for both the mother and the product of gestation. Thus, PE is responsible for about 14 % of intentional abortions.[4]

The sources of information to which pregnant women have access determine and influence the early diagnosis of PE, by directly influencing the knowledge of the pregnant woman or her relatives on the subject, which can determine significant changes in the evolution and therapy of this disease.

Guerra Aguilar[12] in her graduate thesis, found that 36,6 % had received some type of information from gynecologists, 32,9 % reported not having received any type of information from any source, 20,5 % received information from obstetricians, 6,21 % received information from at least two sources of information, 2,5 % received information from a general practitioner. Bonifacio Mezuma[8] published among his results that the main sources of information for pregnant women were the obstetrician (39,1 %), the gynecologist (29,3 %) and family members (20,7 %).

The same author also found that pregnant women with preeclampsia who had a "Low" level of knowledge about preeclampsia received information from their family members (56,3 %), those with a "Medium" level of knowledge received information from the Obstetrician (38,7 %) and the Gynecologist (34,2 %), while pregnant women with a "High" level of knowledge received information from the Obstetrician (70,7 %).[8]

Although these variables were not analyzed in the present study, it is worth noting that the family physician constitutes par excellence the direct contact between the population and the health systems, so that he/she should be one of the main, if not the main, way and means of obtaining information on the characteristics of a pathology in the patient who suffers from it, if one considers, in addition to the work of health promotion, the fact that all therapeutic conduct begins with the instruction to the patient about his/her disease or state of health, as well as the work on risk factors and behaviors.

The onset of the characteristic signs of preeclampsia occurs at a minimum period of six hours to four weeks before delivery. But PE before the period of fetal viability in the third trimester of gestation has a 58 % perinatal mortality and neonatal morbidity between 22-28 weeks of gestation. Clinical symptoms include: seizures, blurred vision, or scotomas, right hypochondrium pain. Clinical signs are systemic arterial hypertension, proteinuria and edema. Hypertensive event is defined as a BP ≥140/90 mm Hg systolic, two taps with a minimum time interval of four hours.[4]

The warning signs and symptoms of preeclampsia most frequently identified in the literature by pregnant women include headache (92,4 %), pain and burning in the pit of the stomach (57,1 %), ringing in the ears (83,7 %), swelling of the face and hands (79,3 %) and swelling above the knee (75,5 %).[8] Other research shows that medium knowledge of the signs and symptoms of hypertensive disorders of pregnancy predominates with 51,4 %, followed by high knowledge with 38,9 % and low knowledge with 9,6 %.[11]

For Romero Caballero, 72 % (36) of the pregnant women had a regular level, 18 % (9) had a high level and 10 % (4) had a low level of knowledge about signs and symptoms.[13] Crespín Valencia obtained in her sample,[14] that the pregnant women knew more than one sign, with 49 % choosing between 2 or more signs, while 51 % chose only one alarm sign. Education in symptoms and signs is one of the pillars of primary health care and is based on its purpose, which is the prevention of complications.

In Bonifacio Mezuma's study on the risk factors for preeclampsia, the pregnant women correctly responded

that age over 35 years (69,6 %), first pregnancy (54,9 %), obesity (89,1 %), history of hypertension in previous pregnancies (89,7 %), diabetes mellitus (63,6 %) and renal insufficiency (61,4 %), 7 %), diabetes mellitus (63,6 %) and renal failure (61,4 %), while others did not identify among them age younger than 20 years (56,5 %), black race (72,3 %), first pregnancy with a new partner (68,5 %) and twin pregnancy (57,1 %).[8] In other studies,[2] multiparity, body weight, extreme ages, and the intergestational period are not considered as predisposing factors to preeclampsia.

The risk factors that lead to preeclampsia represent the reason why maternal fetal complications are associated with this pathology, which increase if we do not work hard at the different levels of health care with pregnant women who constitute a vulnerable group.[2]

Vera Quispe[15] explored the level of knowledge on self-care and PE, and obtained 46,2 % classified at a regular level and their PE was mild, 15,4 % their level was deficient and PE was also mild, followed by 21,3 % whose level of self-care was deficient and preeclampsia was severe. This reaffirms the dependency relationship existing between the prevention of risk factors and the appearance of complications of a disease or health condition.

Similar studies, such as that of Quintero Medrano[16] show that the level of knowledge about risk factors and maternal-fetal complications related to gestational diabetes was found to be in the very low category.

An investigation on the level of knowledge on the prevention and diagnosis of preeclampsia and eclampsia in medical graduates of a public university showed a high level of knowledge on the subject.[17] The above results could lead to the dilemma of where the problem lies with the early diagnosis and treatment of this entity, if the mortality figures are due to lack of knowledge or poor work by health care providers.

Guerra Aguiar[12] in his study on the level of knowledge of pregnant women about preeclampsia during prenatal care in an obstetrics service, found that, of the 161 pregnant women, 72 % had a low level of knowledge about preeclampsia, 22,4 % had a medium level of knowledge and 5,6 % had a high level of knowledge. It was also found that pregnant women with secondary education had a low level of knowledge (78,90 %).

Other authors such as Flores Cruz[10] found 5,4 % of pregnant women with minimal knowledge, 9,0 % insufficient, 50,7 % good, and 34,8 % excellent. For Castro Palacios[2] 53,4 % did not know about preeclampsia.

The low numbers of pregnant women classified with low knowledge in the present study and in those found in the literature suggest a minimal knowledge present among patients, which could be interpreted as an encouraging result for the obstetrics area; however, there is a lack of studies with the methodological soundness necessary to establish guidelines on this problem.

Health education programs have a positive impact on the level of knowledge and attitudes of pregnant women regarding hypertensive disorders during pregnancy, as well as on their self-care behaviors, allowing changes in lifestyle in the face of modifiable risk factors and the early identification of signs and symptoms, which results in the detection and timely treatment of this condition, and probably the reduction of its negative consequences.[1]

Among the main limitations of the present study are its observational nature, the fact that no association between variables was analyzed, the causes of the levels of knowledge obtained were not explored, and that no educational intervention was designed to correct the deficiencies found in the pregnant women surveyed.

CONCLUSIONS

A medium level of knowledge about preeclampsia was found among the pregnant women surveyed, highlighting the area of prenatal care, where no participant was classified as having low knowledge.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

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ANNEX 1. Instrument

SURVEY

The objective of the following questionnaire is to collect information on how much the pregnant women know about the risk factors of preeclampsia, in order to measure their level of knowledge.
Hello, our names are Lisbeth Castillo, Solange Sanchez, students of the Instituto Tecnológico Superior Adventista del Ecuador in the career Superior Technology in Nursing of the 5th level. The purpose of this questionnaire is to determine the level of knowledge about the risk factors of preeclampsia in pregnant women.
Your participation is completely voluntary and you are not obliged to fill out this form if you do not wish to do so. If you wish to participate in this study please answer the following questions below, and you can stop filling out the questionnaire if you choose to do so. Any doubts or questions you may have at a later date are welcome to ask.

I. SOCIODEMOGRAPHIC DATA
Mark with an X in your Age Range

18 to 22 years old ( ) 23 to 27 years old ( ) 28 to 30 years old ( )

Mark with an X your marital status:
Single ( ) Married ( ) Free Union ( ) Widow ( )

Please mark with an X your socioeconomic level

High class ( ) Middle class ( ) Lower class ( )

Mark with an X your level of education
( ) No education ( ) Completed elementary school
( ) Incomplete elementary school ( ) High school completed
( ) Incomplete high school ( ) Complete University
( ) University incomplete

II. OBSTETRIC CHARACTERISTICS Answer according to your criterion:
How many pregnancies have you had ( ) How many abortions have you had ( )
How many living children have you had ( ) How many weeks pregnant are you ( )

III. KNOWLEDGE:
Next, answer the following questions by marking with an (X), if the answer is “Yes” or ”No”.

No.	Ask	YES	NO
DEFINICIÓN			
1	Does preeclampsia only occur in pregnancy?		
2	Does preeclampsia occur when blood pressure is high (greater than or equal to 140/90 mmHg) during pregnancy?		
3	3 Is the presence of protein in urine an indicator of preeclampsia?		
SIGNS AND SYMPTOMS			
4	Is headache during pregnancy a warning symptom of preeclampsia?		
5	Is pain/burning in the pit of the stomach (epigastrium) during pregnancy a warning symptom of preeclampsia?		
6	Is ringing in the ears during pregnancy a warning symptom of preeclampsia?		
7	Is swelling of the face and hands during pregnancy a warning sign of preeclampsia?		

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8	Is swelling above the knee a warning sign of preeclampsia?		
9	Is nausea and vomiting during pregnancy after 22 weeks of gestation a warning sign of preeclampsia?		
10	Is vaginal bleeding during pregnancy a warning sign of preeclampsia?		
RISK FACTORS			
11	Is age older than 35 years a risk factor for preeclampsia?		
12	Is age younger than 20 years a risk factor for preeclampsia?		
13	Are black women at higher risk for preeclampsia in pregnancy?		
14	Does a woman's first pregnancy increase the risk of developing preeclampsia?		
15	Is obesity a risk factor for preeclampsia?		
16	Is a history of hypertension in previous pregnancies a risk factor for preeclampsia?		
17	Are women with twin pregnancies at increased risk of developing preeclampsia?		
18	Is suffering from diabetes mellitus a risk factor for preeclampsia?		
19	Is renal insufficiency a risk factor for preeclampsia?		
PRENATAL CARE			
20	Should prenatal check-ups be started early and attended regularly?		
21	Is the request for a specialized ultrasound during gestation necessary to prevent preeclampsia?		
22	Does daily blood pressure monitoring during pregnancy help to alert the presence of preeclampsia?		
23	Should weight gain and edema be monitored to prevent preeclampsia?		
24	Should salt intake be low to prevent preeclampsia?		
25	Does consuming calcium-rich foods such as milk help prevent preeclampsia?		
26	Should women at risk of preeclampsia take aspirin before 16 weeks gestation to reduce the likelihood of developing preeclampsia?		

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