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Qualitative Analysis of Pregnant Women with Preeclampsia at Muhammadiyah Ahmad Dahlan Hospital, Kediri

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ABSTRACT

Background: Together with bleeding and infection included in the deadly triad, gestational hypertension affects 5-10% of pregnancies worldwide. Pre-eclampsia itself causes more than 70,000 maternal deaths and 500,000 fetal deaths. This study aimed to find significant predisposing factors that cause preeclampsia.
Subjects and Method: Qualitative study with a phenomenological approach conducted at Muhammadiyah Ahmad Dahlan Hospital. The informants in this study were 15 pregnant women with preeclampsia. The focus of this research is to explore the predisposing factors for preeclampsia in pregnant women There are 4 research focuses related to pregnant women with preeclampsia, namely: (1) demographic data of pregnant women; (2) obstetric history; (3) nutrition; and (4) family health history. Data collection was carried out using interview techniques. The data collection were collected by interview techniques.
Results: Pregnant women with preeclampsia were mostly housewives or low socio-economic, old and too young, obese, had families with a history of hypertension, were pregnant with different husbands. All of this can be detected using the preeclampsia screening sheet.
Conclusion: Preeclampsia screening is performed periodically, to identify and diagnose the condition early, to allow for more careful monitoring and effective disease management.

Keywords: preeclampsia, pregnant women, qualitative study.

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BACKGROUND

Preeclampsia is a disease with many causes, so it is called a "disease of theory", but the exact cause is not clear. The main pathogenesis of preeclampsia begins with the failure of remodeling of the spiral arteries that supply maternal blood to the intervillous space of the placenta, causing poor placentation. This causes placental tissue hypoxia, and stimulates oxidative stress, decreased production of nitric oxide (NO), causing vasoconstriction, placental ischemia and endothelial dysfunction (Norwitz et al., 2002; Cunningham et al., 2015). Together with bleeding and infection included in the deadly triad, gestational hypertension affects 5-10% of pregnancies worldwide, and causes a major impact of 145 global

maternal deaths. In addition, pre-eclampsia itself causes more than 70,000 maternal deaths and 500,000 fetal deaths (Mphaphuli et al., 2024).

Based on the 2012 SDKI survey, Indonesia's maternal mortality rate was 359 per 100,000 live births. In Indonesia, the main causes of maternal death are the same as in the international world, namely bleeding (30.1%), hypertension during pregnancy (including pre-eclampsia and eclampsia) and infection. (Ministry of Health RI, 2014). In East Java, the Governor of East Java stated on March 6, 2023, "The Maternal Mortality Rate (MMR) reached 499 cases (2022), this number has decreased drastically from 1,279 cases (2021)".

According to the East Java Health Profile, the highest cause of maternal death in 2020 was pregnancy hypertension (26.9%) or 152 people, bleeding (21.59%) or 122 people, other causes were metabolic disorders, circulatory disorders, infections 210 people (37.1%). Based on data from the Kediri City Health Office, the maternal mortality rate in 2021 was 154.36 per 100,000 live births. While in 2022 it was 25.27 per 100,000 live births. And in 2023 it was 25 per 100,000 live births (Kediri Health Office, 2023). The Kediri City Health Office conducted pre-eclampsia screening followed by 3,713 pregnant women, and 87 people tested positive for preeclampsia (Kediri Health Office, 2024).

At the time of initial data collection at Muhammadyah Ahmad Dahlan Hospital in January 2024, in 2023, 139 pregnant or giving birth women with pre-eclampsia were found. Based on this background, the researcher is interested in submitting a research proposal regarding qualitative analysis of pregnant women with pre-eclampsia at Muhammadyah Ahmad Dahlan Hospital, Kediri City.

SUBJECTS AND METHOD

1. Study Design

This research design is a qualitative study with a phenomenological approach with the focus of the research directed at exploring pregnant women with pre-eclampsia through triangulation in Muhammadiyah Ahmad Dahlan Kediri at 01-30 April 2024.

2. Population and Sample

The subjects of this study were all pregnant women with pre-eclampsia at Muhammadiyah Ahmad Dahlan. The informants in this study were some pregnant women with pre-eclampsia who met the inclusion criteria. The sampling technique used a non-probability sampling approach, namely purposive sampling by taking samples for certain purposes and considerations. Totally there were 15 informants.

3. Inclusion Criteria

Pregnant women with preeclampsia whose condition is stable, not high risk. Pregnant women with preeclampsia who are willing to undergo in-depth interviews

4. Exclusion Criteria

Pregnant women with preeclampsia who are depressed due to Intrauterine fetal death (IUFD), admitted to the Intensive Cardiology Care Unit (ICCU) or at high risk. Pregnant women with preeclampsia who are not willing to undergo in-depth interviews

5. Study Instruments

It explains the measurement tools with in-deepth interview and with questionnaires as guide designed to obtain data on a topic of interest from study subjects.

6. Data analysis

It explains the measurement tools with in-deepth interview and with questionnaires as guide designed to obtain data on a topic of interest from study subjects.

7. Research Ethics

Research ethical issues including informed consent, anonymity, and confidentiality, were addressed carefully during the study

process. The research ethical clearance approval letter was obtained from the Research Ethics Committee at University of Strada, Indonesia, No. 001204/EC/KEPK/-I/03/2024, on March 29, 2024.

RESULTS

There are 4 research focuses related to pregnant women with preeclampsia, namely: (1) demographic data of pregnant women; (2) obstetric history; (3) nutrition; and (4) family health history

1. **Demographic data on pregnant women with preeclampsia including age, socioeconomic, education, occupation**

The age of pregnant women who are too young is related to the psychological and physical unpreparedness in accepting pregnancy. The condition of the uterus and pelvis is not yet mature for childbirth and significant hormonal changes occur. Meanwhile, the age of pregnant women who are too old is also at risk of preeclampsia. As age increases, the quality of sperm and egg cells will decrease. Changes also occur in hormones and organs. The presence of a degenerative process in peripheral blood vessels will increase blood pressure so that there is the potential for preeclampsia.

Education is closely related to a person's knowledge. A person's knowledge of an object contains two aspects, namely positive and negative aspects, these two aspects will determine a person's attitude and behavior. Knowledge about pregnancy and pregnancy problems is very important for pregnant women, because by having knowledge about health they can know and overcome the signs and symptoms and how to overcome health problems that accompany their pregnancy. The following is the transcript of the interview with the informant about age, level of education and occupation (Table 1).

Table 1. Characteristics informant

Informant	Ages	Level of education	Occupation
Informant 1	38 years	Junior high school	Housewife
Informant 2	24 years	Junior high school	Housewife
Informant 3	37 years	Seinor High School	Housewife
Informant 4	37 years	Junior high school	Housewife
Informant 5	20 years	Junior high school	Housewife
Informant 6	29 years	Seinor High School	Housewife
Informant 7	32 years	Seinor High School	Own Bakerry bussines
Informant 8	38 years	Seinor High School	Housewife
Informant 9	27 years	Bachelor	Teacher
Informant 10	41 years	Junior High School	Housewife
Informant 11	28 years	Seinor High School	Housewife
Informant 12	38 years	Seinor High School	Housewife
Informant 13	24 years	Elementary school	Housewife
Informant 14	25 years	Seinor High School	Private Employee
Informant 15	45 years	Seinor High School	Private Employee

2. **Obstetric history in pregnant women with preeclampsia includes age of first pregnancy, parity, diseases accompanying pregnancy, uterine distension, distance between current pregnancy and previous pregnancy.**

In multiparity, the endometrial environ-

ment around the implantation site is imperfect and not ready to receive the results of conception, so that the provision of nutrition and oxygenation to the results of conception is imperfect and results in the growth of the results of conception being disrupted, which can increase the risk of preeclampsia. While in primigravida, it will affect the formation of blocking antibodies that are not perfect, increasing the risk of preeclampsia.

Informant 5

"I have 2 children; I want 3 of these. 10 years old, female. Born normally, premature at 33 weeks, weighing 2.1 kg. The second one, during the last check-up, they said her amniotic fluid was low, so they had to have a cesarean section. Now she's 3 years old, another female" (informant 3 "This is my first pregnancy".

Informant 6

"Now my first pregnancy".

Informant 8

"The first was an 18-year-old girl. The second was a 12-year-old boy. Both were born normally."

Informant 9

"This is my first pregnancy"

Informant 10

"I want 3. The first was a 14-year-old boy. Normal. The second was a 10-year-old girl. It was normal, but premature, sis. Her weight was only 2.1 kg, her placenta was below, so she was born premature.

Informant 11

"This is my first pregnancy"

Informant 12

"This is my first pregnancy"

Informant 13

"This is my first pregnancy"

Informant 14

"This is my first pregnancy"

Twin pregnancy can trigger hypertension and several disorders in pregnant women. The risk of complications in the fetus arises because the fetus must share food intake and other needs in order to develop perfectly during the pregnancy process.

Informant 5; Informant 8

"I'm pregnant with twins"

Preeclampsia is characterized by high blood pressure, edema, positive proteinuria.

All Informants

"Easily tired, high blood pressure, swollen right leg and left leg. there is protein in the urine."

3. Nutrition in pregnant women with preeclampsia includes diet, history of anemia, weight of pregnant women.

This excessive increase in maternal weight during pregnancy is associated with the mother's food intake being unbalanced or excessive, which is related to the habit of Indonesians consuming sweet or high-calorie foods, one of which is the use of added sugar in the food or drinks consumed.

Informant 2

"The food is normal, sis, it's all delicious."

Informant 3

"There are no food restrictions"

Informant 5

"I eat it normally, normally"

Informant 6

"Everything is eaten sis, only if it's salty, reduce it a bit so it doesn't add to it." swollen feet"

Informant 7

"A combination of everything."

Informant 10

"Eating normally" "Combination."

Informant 11

"Everything I eat, that's why I'm obese."

Informant 12

"There are no food taboos or abstinence.

Informant 13

"There are no food taboos"

Informant 14

"A combination of everything.

Informant 15

"Everything is eaten."

In fact, maternal nutrition during pregnancy is very important, this is needed to meet the needs of fetal growth and development, maternal health maintenance, and lactation supplies for both mother and fetus, in addition to a good food menu, diet also needs to be considered. Lack of nutrition can cause anemia, abortion, premature labor, uterine inertia, postpartum hemorrhage, puerperal sepsis, and others. Excess nutrition can result in obesity, preeclampsia, and large fetuses.

4. **Family health history of pregnant women with preeclampsia includes a history of preeclampsia, diabetes, hypertension in the mother, grandmother or sister of the pregnant woman.**

Preeclampsia has complex predisposing factors, which are the result of the relationship between genetic disorders, immunological and placental factors, and a history of essential hypertension in the family. According to the following statement.

Informant 1

"Yes. My father is suffering from high blood pressure at the moment".

Informant 9

"My Father had a stroke".

DISCUSSION

The themes in detail will be discussed below:

1. **Demographic data on pregnant women with preeclampsia including age, socio-economic, education, occupation.**

Age is an important part of reproductive status. Age is related to the increase or decrease in body function, thus affecting a person's health status. The safest and best age for pregnancy and childbirth is 20-35 years. Meanwhile, teenage women who are pregnant for the first time and women who are pregnant at the age of > 35 years will have a very high risk of experiencing preeclampsia. Pregnant women without hypertension who are at risk of experiencing preeclampsia are women aged > 35 years. The age group > 35 years has a significant relationship with the incidence of preeclampsia. Likewise, the age variable for the incidence of hypertension (Situmorang, 2016). The age of pregnant women who are too young is related to the psychological and physical unpreparedness to accept pregnancy. The condition of the uterus and pelvis that are not yet mature for childbirth and significant hormonal changes occur.

The high incidence of preeclampsia in developing countries is associated with the problem of low socioeconomic status and education levels of pregnant women. Both of these things are closely related and play a major role in determining the level of absorption and understanding of health problems that arise both in pregnant women themselves and their environment.

Education is not a direct risk factor for preeclampsia, but with a better level of openness to information, a mother can better understand her health. Education is an effort to develop personality and abilities inside and outside of school and lasts a lifetime. Education affects the learning process, the higher a person's education, the easier it is for that person to receive information. Education is closely related to a person's knowledge.

Based on the results of the study, the majority of informants do not work outside the home or as housewives. These housewives tested positive for preeclampsia. So, mothers who work inside the home have a higher risk of experiencing preeclampsia than mothers who work outside the home. However, in the group of mothers who do not work with low-income levels, the frequency of ANC will decrease as well as

low nutritional quality.

2. Obstetric history in pregnant women with preeclampsia includes age of first pregnancy, parity, diseases accompanying pregnancy, uterine distension, distance between current pregnancy and previous pregnancy.

Based on the immunologic theory presented by Sudhaberata (2005) that the first pregnancy occurs the formation of "Blocking antibodies" against imperfect antigens. In addition, according to Angsar (2004) in the first pregnancy there is the formation of HLA" which plays an important role in modulating the immune response, so that the mother rejects the results of conception (placenta) or there is maternal intolerance to the placenta so that preeclampsia occurs. So, it is very necessary to have an age that is not too young or not too old to produce a healthy and optimal pregnancy.

Parity repeated labor will have many risks to pregnancy. Mothers who have a parity >3 are at risk of experiencing preeclampsia compared to mothers who have a parity of 1-3. In multiparity, the endometrial environment around the implantation site is imperfect and not ready to receive the results of conception, so that the provision of nutrition and oxygenation to the results of conception is imperfect and results in the growth of the results of conception being disrupted so that it can increase the risk of preeclampsia.

Diseases accompanying pregnancy (Sibai et al., 2000). Based on Lecarpentier et al. (2013), reported that 23% of women with chronic hypertension are at risk of preeclampsia. Mean arterial pressure (MAP) 98mmHg is a good predictor of this risk. A systematic review by Bramham et al (2014), that the relative risk of superimposed preeclampsia in women with chronic hypertension is almost eight times higher than preeclampsia in general pregnancy. Preeclampsia can often occur in pregnant women with chronic kidney disease, lupus nephropathy, and diabetic nephropathy.

Previous pregnancy-birth interval. The results showed that mothers with a close pregnancy interval or less than 24 months had a risk of severe preeclampsia, which was 0.92 times compared to a mother with a pregnancy interval of 24 months or more. Women with a birth interval of <2 years also had a 2 times greater risk of death compared to those with a longer birth interval (Armagustini, 2010). During pregnancy, biological resources in the body are systematically used up and for the next pregnancy it takes 2-4 years for the mother's body condition to return to its previous condition. If pregnancy occurs before 2 years, the mother's health will decline progressively. The safe interval for women to give birth again is at least 2 years. This is so that women can recover after pregnancy and lactation. Mothers who become pregnant again before 2 years since the birth of their last child often experience complications in pregnancy and childbirth.

In multiple pregnancies, hydramnion and hydatidiform mole, uterine muscle tension occurs which can cause uterine ischemia which can increase the possibility of preeclampsia. In general, uterine distension factors are associated with the incidence of Severe Preeclampsia (PEB). Women with twin pregnancies have a high rate of preeclampsia (RR= 2.62; 95% Cl 2.03 to 3.38). Increased placental mass during twin pregnancies can cause increased levels of circulating fms such as thyroxine kinase-1 (sFlt 1), which is an antiangiogenic marker circulating from the placenta, and can play an important role in the pathophysiology of preeclampsia (Sibai, 2000). Twin pregnancies can trigger hypertension and several disorders in pregnant women. The risk of

complications in the fetus arises because the fetus must share food intake and other needs in order to develop perfectly during the pregnancy process.

3. Nutrition in pregnant women with preeclampsia includes diet, history of anemia, body mass index of pregnant women

In fact, maternal nutrition during pregnancy is very important, this is needed to meet the needs of fetal growth and development, maternal health maintenance, and lactation supplies for both mother and fetus, in addition to a good food menu, diet also needs to be considered. Lack of nutrition can cause anemia, abortion, premature labor, uterine inertia, postpartum hemorrhage, puerperal sepsis, and others. Excess nutrition can result in obesity, preeclampsia, and large fetuses. Balanced nutrition in pregnant women can be done by: (a). Getting used to consume a wider variety of foods to meet the needs of energy, protein and micronutrients (vitamins and minerals, especially iron and folic acid); (b) Limiting consumption of foods that contain high salt.

Pregnant women are susceptible to anemia due to an increase in blood volume during pregnancy for the formation of the placenta, fetus and iron reserves in breast milk. Hemoglobin levels in pregnant women decrease in the first trimester and are lowest in the second trimester and then increase again in the third trimester. Decreased hemoglobin levels in pregnant women with moderate and severe anemia will result in the risk of labor, increased child mortality and disease infections. Including an increased risk of preeclampsia.

The risk of preeclampsia will be higher in mothers who are overweight or obese. This is due to decreased sensitivity to insulin which increases the risk of glucose and fat metabolism disorders, excessive inflammatory reactions and coagulation abnormalities (Jeyabalan et al., 2014; Hung et al., 2018)

4. Family health history of pregnant women with preeclampsia includes a history of preeclampsia, diabetes, hypertension in the mother, grandmother or sister of the pregnant woman

History of hypertension in parents of pregnant women. Every person with hypertension is not always inherited, but everyone has the potential to have hypertension if their parents are hypertensive. Preeclampsia has complex predisposing factors, which are the result of the relationship between genetic disorders, immunological and placental factors, and there is a history of essential hypertension in the family.

AUTHOR CONTRIBUTION

It is expected that this study can add references on preeclampsia, especially on its predisposing factors. So that by conducting preeclampsia screening (including predisposing factors) as primary prevention, the condition can be identified and diagnosed early to allow for more careful monitoring and effective disease management for every pregnant woman from the beginning of pregnancy.

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CONFLICT OF INTEREST

There are no conflicts of interest

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