Relationship between Parity Status and The Incidence of Preeclampsia in Pregnant Women

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ABSTRACT: Preeclampsia is one of the main causes of maternal death. In 2022, there will be 31 cases of preeclampsia in the Tarokan Community Health Center service area. Preeclampsia may have a negative impact on the mother and unborn baby. The aim of this study was to determine the relationship between parity and the incidence of preeclampsia in pregnant women. This research method is analytical observational with a case control design, with a population of 50 data from pregnant women, sampling using a simple random sampling procedure with 25 respondents who experienced preeclampsia and 25 data who did not experience preeclampsia. The results of the chi-square test with a significance level of 0.05 show that the calculation results show a ρ value of (0.023).Conclusions of This study aims to determine the relationship between parity and the incidence of preeclampsia in pregnant women in the Tarokan Community Health Center working area, Kediri Regency. To recognize preeclampsia early, especially for pregnant women, it is recommended to frequently monitor their pregnancy and comply with integrated ANC.

KEYWORDS: Maternal Death, Preeclampsia, Risk Pregnancy, Woman, Parity.

INTRODUCTION

In 2020, the rate of preeclampsia is still very high, with an estimated 810/100,000 women worldwide dying every day due to problems related to pregnancy or childbirth (Mathew et al., 2023). Hypertension during pregnancy (preeclampsia), excessive bleeding, infections, intrapartum problems, and abortion all contribute to increased maternal and fetal mortality rates. About 5% of pregnancies are complicated by gestational hypertension. Pregnancy-related hypertension increased by 46% in developing countries but fell by 35% in rich countries between 1990 and 2015. There are 4 million pregnant women and an estimated 240,000 diagnosed with hypertension in pregnancy each year in the United States, where hypertension is prevalent. is 6-10%. Preeclampsia affects between 2-5% of pregnant women, and persistent hypertension affects 3-6% (Wiles et al., 2020). Apart from bleeding and infection, preeclampsia is the main cause of maternal death in Indonesia with figures of 1,320 and 1,077 respectively. heart rate was 335 cases, infection was 207 cases, and abortion was 14 cases (RI Ministry of Health, 2022).

Pre-eclampsia is a major complication of pregnancy affecting approximately 4-5% of pregnancies worldwide1-4 (Chang et al., 2023). This disease causes a large burden of maternal and fetal morbidity and mortality, with a major contribution to fetal prematurity (Elkafrawi et al., 2020). One of the earliest descriptions of pre-eclampsia was published in 1637 by Francois Mauriceau, an early pioneer in the field of obstetrics. He noted the high risk of seizures in preeclampsia as well as the increased risk of this condition in primigravidas (Uzun et al., 2022).

Pre-eclampsia is the main cause of death for pregnant women throughout the world (Çintesun et al., 2018). Most of these problems worsen during childbirth, although they can be easily avoided orcorrected (Lisowska et al., 2018). There are a variety of potential pre-existing conditions that, if left untreated, can worsen during pregnancy (Hauge et al., 2022). Approximately 75% of all maternal deaths are caused by four main problems: hemorrhage (postpartum hemorrhage), infection (most often after delivery), hypertension during pregnancy (preeclampsia), and complications of childbirth.not exactly (Rymer et al., 2018).

Pre-eclampsia can occur before, during, and after childbirth (Adam et al., 2021). Preeclampsia attacks 3-4% of pregnant women, hypertension attacks 5-8%, and chronic hypertension attacks 1-2% of pregnant women (Garovic et al., 2020). Pre-eclampsia is characterized by hypertension and proteinuria, both of which appear in the second trimester of pregnancy and always disappear in the postpartum period (Pinto et al., 2021).

Preeclampsia ranks second as a direct cause of death in pregnant women and the incidence rate increases every year. Several factors, including socioeconomic status, history of ANC examinations, and feelings of anxiety, have been associated with

maternal death due to preeclampsia in several studies (Redman et al., 2019). Other risk factors include maternal age, total parity, gestational spacing, multiple pregnancies, history of preeclampsia, hereditary history, and history of diseases such as diabetes, hypertension, and kidney disease (Bergman et al., 2020).

Although the exact reason why some pregnant women experience preeclampsia is still unknown, there are several risk aspects that may predispose them to developing this condition (Hastie et al., 2021). Nullipara, obesity, age over 35 years, genetics, and environmental factors all increase the risk of preeclampsia (Huai et al., 2021). Preeclampsia occurs more frequently in nulliparous pregnancies (especially those involving young mothers) than in multiparous pregnancies. Other risk factors include diabetes mellitus, hydatid flies, multiple pregnancies, fetal hydrops, advanced maternal age, and obesity (Phipps et al., 2019).

Miscarriage, kidney failure, pulmonary edema, brain hemorrhage, intravascular blood clots, and eclampsia are some of the bad effects of preeclampsia in pregnant women.(Pretscher et al., 2020). The placenta may not get enough blood due to preeclampsia, so the fetus does not have enough oxygen (hypoxia) and food. Low birth weight, intrauterine growth retardation, newborn hypoxia, postpartum hemorrhage, early neonatal death, and other problems often occur in preeclampsia/eclampsia (Das, Seema et al., 2019). Due to the development of immature HLA-G (Human Leukocyte Antigen G)-mediated antibody inhibition against placental antigens, trophoblast implantation into maternal decidual tissue is impaired in first-time pregnant women (Skytte et al., 2023). Pregnant women who do not have a biological mother may still experience stress which leads to cortisol production (Roberts et al., 2021). Cortisol causes increased sympathetic activity, which in turn increases cardiac output and blood pressure (Lightman et al., 2021).

Based on the background described above, routine pregnancy checks help reduce maternal deaths related to preeclampsia (ANC). In integrated ANC, health workers carry out early pregnancy screening and educate pregnant women to consistently carry out pregnancy checks. Preeclampsia-related deaths can be reduced if warning indications are recognized as early as possible (Pervin et al., 2021).

METHOD

In this analysis, the method used is observational, meaning that the researcher only observes without intervening in the research subject (Rijnhart et al., 2021). Meanwhile, an analytical approach is used to explore the causes and mechanisms of how this health phenomenon occurs. The case control design begins by identifying pregnant women who experience preeclampsia (cases) and pregnant women who do not experience preeclampsia (controls) (Wong et al., 2022), then retrospectively examine several risk factors for preeclampsia, namely parity status which can cause preeclampsia.

In the period 1 January 2022-31 December 2022, the study population was 1,020 pregnant women who lived in the working area of the Tarokan Community Health Center. In this study, a total of 50 pregnant women were analyzed, 25 of whom had preeclampsia and 25 others as control samples. In this analysis the researcher used a simple random sampling method (Mendoza et al., 2021). The instrument used in this research was the mother's register book. The data collection process uses secondary data. Data management carried out in this research uses editing, coding, tabulation processes and data analysis using Univariate Analysis and Bivariate Analysis.

RESULTS

1. **Data on Characteristics of Pregnant Women**
   Distribution of data on patients who experienced preeclampsia and who did not experience preeclampsia based on parity status. This research was conducted on 50 respondents consisting of 25 case groups and 25 control groups.

Table 1. Distribution of respondent characteristics

Characteristics	Group			
	Case		Control	
Age	Frequency	Percentage	Frequency	Percentage
<20 Years	7	28%	3	12%
21-35 years	13	52%	19	76%

> 35 years	5	20%	3	12%
Total	25	100%	**25**	100%
Parity Status				
Nulliparous	16	64%	7	28%
Primipara	4	16%	10	40%
Multiparous	5	20%	8	32%
Total	25	100%	25	100%
The incidence of preeclampsia				
Preeclampsia	25	50%	25	50%
Normal	25	59%	25	59%
Total	50	100%	50	100%

From table 1above, it can be seen that from the 50 data of pregnant women studied, the majority were aged 21-35 years, 13 of them (52%) in the case group and in the control group, the majority were aged 21-35 years, 19 (76%). Based on the parity status of pregnant women, there were 23 (46%) nulliparous mothers, 14 (28%) primiparous and 13 (26%) multiparous. In the incidence of preeclampsia, there were 25 (50%) pregnant women who experienced preeclampsia and 25 (50%) of the patient data were normal mothers.

2. **Parity status analysis results**

The results of the analysis of parity status on data taken from data on pregnant women in the working area of the Tarokan Community Health Center, Kediri Regency can be seen from the following table

Table 2. Frequency distribution of respondents based on parity status

Parity Status	Frequency	Present
Risk	23	46%
No risk	27	54%
Total	50	100%

From table 2 it can be seen that the majorityIt is clear that the majority of pregnant women are at high risk in the working area of the Tarokan Community Health Center, Kediri Regency. There is data on 23 (46%) respondents with risk parity status and 27 (54%) based on parity status who are not at risk.

3. **Results of analysis of the incidence of preeclampsia**

The results of mothers who have preeclampsia and those who do not have preeclampsia can be seen in the table below

Table 3. Distribution of respondents based on the incidence of preeclampsia

The incidence of preeclampsia	Frequency	Presentation
Preeclampsia	25	50%
Normal	25	59%
Total	50	100%

From table 3 it can be seen that the majority of pregnant women in the Tarokan Community Health Center area, Kediri Regency experienced preeclampsia as many as 25 (50%), severe preeclampsia as many as 0 (0%), normal 25 (50%).

4. **Results of the analysis of the relationship between parity status and the incidence of preeclampsia**

Table 4: Distribution of analysis of the relationship between parity status and the incidence of preeclampsia

Parity Status	Case		Control	
	Frequency	Presentation	Frequency	Presentation
Risk	16	64%	7	28%
No risk	9	36%	18	72%
Total	25	100%	25	100%

DISCUSSION

From Table 2, it can be seen that the majority of preeclampsia patients (64%) had a parity at risk level of 16 patient data. This could be because almost half of the preeclampsia patients, namely 7 patients (28%) were aged 35 years. The results of statistical tests state that the ρ value is 0.023, which indicates that there is a large relationship between parity and preeclampsia.

Primigravid pregnant women who experience preeclampsia are caused by many factors, including the mother's age and Body Mass Index during pregnancy. Those aged 20 years and those aged >35 years will have a greater risk of experiencing preeclampsia. Excessive eating patterns and not paying attention to the mother's weight gain during pregnancy will have an impact on obesity. The risk of preeclampsia increases with obesity.

There is no increased risk of preeclampsia at ages 20-35 years (Okoth et al., 2020). Pregnant women at this age are ready to face the challenges of becoming mothers (Yang et al., 2021). Preeclampsia occurs less frequently in women who have given birth 2-3 times(Lisowska et al., 2018). Pregnant women with previous birth experience tend to have a more positive view of their current pregnancy and birth (Hauspurg et al, 2022). The mother's stress level will not skyrocket like it did in her first pregnancy (Adam et al., 2021). The risk of preeclampsia can be further reduced by maintaining a healthy and fairly strict diet during pregnancy (Hamzah et al., 2021).

Having a first pregnancy at a young age can have a significant impact on a woman's mental readiness to face pregnancy and childbirth. The mother's sleep cycle may be disrupted due to the impact of anxiety and worry on her mental health. Maternal blood pressure may be affected by irregular sleeping habits (Aouache et al., 2018).

Hypertension during pregnancy is more common in first-time mothers than in first-time mothers, supporting the immunological hypothesis between mother and fetus that has been proposed to explain the origins of preeclampsia (Qiu et al., 2020). Immunological theory explains that placental intolerance and preeclampsia are caused by the formation of placental antigen-blocking antibodies and a decrease in Human Leukocyte Antigen Protein G (HLA-G), which plays an important role in controlling the immune response (Krijgsman et al., 2020).

The results of this analysis are relevant to the previous analysis in 2018 with the title "The Relationship between Primigravida and Preeclampsia in Pregnant Women at the Jagir Community Health Center, Surabaya" explaining that there is a relationship between primigravida and preeclampsia. It was explained that from. Data from 164 pregnant women showed that 84 (51.2%) mothers had preeclampsia and 80 (48.8%) did not suffer from preeclampsia. Chi Square test results use levels with a significant level (Harumi Media et al., 2019)

Preeclampsia is more likely to occur in new partners, increasing the risk during pregnancy (Elkafrawi et al., 2020). Although estimates vary widely between studies, the prevalence of preeclampsia often reaches 5%(Hauge et al., 2022). Women with fewer children, or nulliparous, have a higher risk (7 to 10 percent) (Ma'ayeh et al., 2020). For this reason, primigravida mothers are required to have their womb checked regularly, so that midwives can monitor the health of the mother and fetus. Apart from that, support from a midwife is needed to provide IEC to the mother, monitor blood pressure and urine protein until the delivery process. This is done with the aim of minimizing the occurrence of complications that could harm the mother and fetus (Garovic et al., 2020).

CONCLUSION

Research conducted at the Tarokan Health Center, Kediri Regency, showed that there was a strong relationship (p-value = 0.023) between the parity status of pregnant women and the incidence of preeclampsia. The findings of this study provide evidence to

support the recommendation that health care providers screen for preeclampsia risk factors at each antenatal care (ANC) visit. Pregnant women in the Tarokan Community Health Center area, Kediri Regency, whether they have risk factors for preeclampsia or not, are advised to have ANC as often as possible at the nearest health facility, so they can undergo initial screening for preeclampsia symptoms at each visit. and receive education about preeclampsia.

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