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Characteristics of Preeclampsia Patients at Central Mamuju Regional Hospital from 2024 to 2025

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ABSTRACT
Background: Preeclampsia is a clinical syndrome during pregnancy (after 20 weeks of gestation) characterized by increased blood pressure (>140/90 mmHg) in women whose blood pressure was normal before 20 weeks of gestation. Severe preeclampsia (PEB) is a clinical syndrome during pregnancy (after 20 weeks of gestation) characterized by increased blood pressure (>160/110 mmHg) in women whose blood pressure was normal before 20 weeks of gestation. Risk factors for preeclampsia are age, nulliparity, history of previous preeclampsia, history of hypertension and diabetes mellitus, family history and obesity.Preeclampsia is the leading cause of maternal and infant mortality in Indonesia. Research purposes: This study aimed to determine the characteristics of preeclampsia patients at Mamuju Tengah Regional Hospital from 2024 to 2025. This study used an analytical design with a retrospective cross-sectional approach. This study was conducted using secondary data in the form of patient medical records, then the data was processed using SPSS. Results: From 100 samples, the number of severe preeclampsia cases was 93, preeclampsia cases 6 and eclampsia cases 1.The largest proportion of cases, both in total and in cases of severe preeclampsia, occurred in the 20-35 year age group. The majority of patients were multigravida, namely 86 people (86.0%). Only 14 people (14.0%) were primigravida. The distribution of nutritional status in 100 preeclampsia patients (referring to the total sample) showed that the majority of patients had obesity 2 nutritional status (56 people or 56.0%). Followed by obesity 1 (37 people or 37.0%), overweight (6 people or 6.0%), and only 1 person (1.0%) had normal nutritional status. Most preeclampsia patients (99 people or 99.0%) had no previous medical history. Only 1 person (1.0%) had a medical history. Conclusion: Most cases of preeclampsia, severe preeclampsia, and eclampsia occurred in pregnant women in the productive age group of 20-35 years, and most were multigravida. The most significant finding was a very strong association between the incidence of preeclampsia and obesity nutritional status (reaching 93.0% of the total cases), and most patients had no history of previous comorbidities.

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INTRODUCTION

Preeclampsia is one of the most serious and challenging pregnancy complications in obstetrics, making it a leading cause of maternal morbidity and consistently associated with adverse fetal outcomes. More than just high blood pressure, this disease is highly complex and a serious concern for healthcare providers worldwide. Understanding the intricacies of this disease, from its pathophysiology to its impact, is fundamental to efforts to reduce maternal mortality (MMR) and infant mortality (IMR).

Clinically, preeclampsia is defined as a condition characterized by the onset of hypertension and signs of organ damage, most often indicated by proteinuria (the presence of protein in the urine). This condition generally occurs after 20 weeks of gestation in previously normotensive women. The classic triad of symptoms—hypertension, proteinuria, and edema—is the primary indicator, although edema is no longer an absolute diagnostic criterion. These symptoms can manifest during pregnancy, during labor, and even in the postpartum period, making it a long-term threat to maternal health (Rizki, 2024).

The severity of preeclampsia demands high vigilance due to its progressive nature, with the condition at risk of suddenly increasing in severity toward the end of pregnancy. This increase can lead to seizures, known as eclampsia, an obstetric emergency. If eclampsia is not treated promptly and appropriately, it can lead to fatal complications such as heart failure, acute kidney failure, cerebral hemorrhage, and ultimately maternal death (Rizki, 2024).

Globally, preeclampsia plays a significant role in mortality statistics. According to a World Health Organization (WHO) report, Southeast Asia ranks third in maternal mortality. Furthermore, preeclampsia directly causes 16% of maternal deaths in low- and middle-income countries, where the majority of pregnancy-related deaths occur (WHO, 2013; WHO, 2016). These figures clearly emphasize the central role of preeclampsia in maternal morbidity and mortality statistics worldwide.

In Indonesia, the problem of preeclampsia is even more prevalent. Data from the Ministry of Health (Kemkes, 2023) states that preeclampsia is the leading cause of maternal and infant mortality in Indonesia. Percentage-wise, preeclampsia contributes a very high 24% of all maternal deaths. The recorded prevalence of preeclampsia in 2023 reached 4,129 cases, underscoring the urgency for the national health system to have effective management strategies to reduce this substantial mortality rate.

The complexity of preeclampsia stems from its pathophysiology, which is understood as a disease primarily originating in the placenta and progressing through two stages. The first stage involves poor placental development, leading to ischemia, or reduced blood flow and oxygen. This ischemia then triggers the second stage, which involves the release of anti-angiogenic proteins, particularly sFLT1, into the maternal circulation. These proteins damage the lining of blood vessels (endothelium) and extend to all organs, systemically causing hypertension and various other organ dysfunctions (Rana, 2019).

Several clinical studies, including guidelines from the American College of Obstetricians and Gynecologists (ACOG, 2020), have identified strong risk factors contributing to the development of preeclampsia. These risk factors include nulliparity (never having given birth), multifetal pregnancy (twins), gestational diabetes, maternal age 35 or older, and pre-existing

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chronic kidney disease. Understanding these risk factors is crucial for developing screening and prevention strategies targeted at vulnerable populations.

Besides the threat to the mother, preeclampsia carries serious consequences for the fetus. Preeclampsia is directly linked to adverse fetal outcomes such as intrauterine growth restriction (IUGR), an increased risk of preterm birth, placental abruption, fetal distress, and, most tragically, stillbirth. All of these complications increase the risk of neonatal morbidity and require intensive attention in fetal management (Rizki, 2024).

Beyond the acute impacts on the mother and fetus, growing scientific evidence suggests that preeclampsia has long-term adverse effects on offspring. Preeclampsia has been linked to the development of cardiovascular sequelae in children born later in life. These sequelae include an increased risk of hypertension and permanent changes in vascular function (Rizki, 2024). These implications transform preeclampsia from a mere pregnancy complication into a public health risk factor affecting future generations.

Although the importance of fetal surveillance in preeclamptic pregnancies has been recognized, national guidelines for its implementation are often inconsistent. Current fetal management focuses on decisions regarding timely delivery and efforts to mitigate the adverse effects of prematurity, such as antenatal corticosteroids for lung maturation and magnesium sulfate for neuroprotection or seizure prevention (Rizki, 2024). However, the lack of evidence detailing the most appropriate assessment modalities and the timing and frequency of assessments remains a major challenge for clinicians.

To improve the quality of care and adapt clinical guidelines to local conditions, specific epidemiological data at the hospital level is crucial. Characteristics of preeclampsia patients, such as age, parity, and predominant comorbidities in a given region, can provide specific insights for more effective prevention and intervention efforts in that area. Studies on patient characteristics, such as those focused on Mamuju Tengah Regional Hospital, aim to fill this data gap and provide a realistic picture of the risk profile of specific populations.

Given the global and national urgency and current clinical challenges, research into the characteristics of preeclampsia patients is highly relevant. Therefore, this study aims to identify the demographic characteristics and risk factors most frequently found in preeclampsia cases at Mamuju Tengah Regional Hospital between 2024 and 2025. With this detailed data, it is hoped that more precise, evidence-based recommendations can be formulated for improving the quality of maternal and child health services at this health facility.

METHOD

This study was designed using an analytical method through a retrospective cross-sectional approach. This approach was chosen to identify and analyze the relationship between the independent variable, namely Preeclampsia, with a number of dependent variables that describe patient characteristics. The dependent variables that are the main focus in this study include maternal age, gravida status (number of pregnancies), nutritional status (which can be represented by Body Mass Index or weight gain), and history of previous comorbidities (such as chronic hypertension or diabetes mellitus). The retrospective cross-sectional design allows researchers to assess exposure data (characteristics) and outcome data (incidence of

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preeclampsia) at the same time, even though the data is taken from past patient medical records, providing a picture of the characteristics of preeclampsia that occurred in the Central Mamuju Regional Hospital population during the specified study period.

This study will be conducted at Mamuju Tengah Regional General Hospital during October 2025. This time was chosen to ensure the availability of data covering the full study period, namely the characteristics of preeclampsia patients treated at the hospital from 2024 to 2025. The data collection technique in this study exclusively uses secondary data. This secondary data is obtained through systematic search and extraction of information from the medical records of patients diagnosed with preeclampsia. This process requires data validation to ensure the accuracy of the information collected, especially regarding the primary diagnosis and predetermined characteristic variables, thereby minimizing possible information bias.

After secondary data has been successfully collected from patient medical records, the next stage is data processing, which will be carried out using statistical software, the Statistical Package for the Social Sciences (SPSS). This data processing includes data entry, editing, coding, and tabulation, before statistical analysis is carried out. The analysis used will be descriptive to describe the frequency distribution and percentage of each patient characteristic (age, parity, nutritional status, and medical history), as well as inferential analysis if necessary to test the relationship or difference between the independent and dependent variables. The results of this analysis are expected to provide a clear and accurate picture of the profile of preeclampsia patients at Mamuju Tengah Regional Hospital to support the formulation of clinical recommendations and health policies.

RESULTS

In this study, the results of the data analysis on the incidence of preeclampsia in pregnant women at Mamuju Tengah Regional Hospital are presented in the form of a frequency distribution to illustrate the number and percentage of diagnosed patients. This presentation is intended to provide an initial description of the proportion of preeclampsia cases in the study sample. The following presents the results of a descriptive analysis based on medical record data from 100 samples, describing the incidence of preeclampsia in pregnant women at Mamuju Tengah Regional Hospital.

Table 1. Age Distribution in Eclampsia Patients

Age	Frequency	Percentage %
< 20 Years	0	0
20-35 Years	1	100
> 35 Years	0	0
Total	1	100

Based on data on eclampsia patients by age group, it was found that all cases of eclampsia in pregnant women at Mamuju Tengah Regional Hospital were found in the 20–35 age group, with 1 (100%). However, there were no cases of eclampsia in the age groups <20 years or >35 years.

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Table 2. Age Distribution in Preeclampsia Patients

Age	Frequency	Percentage %
< 20 Years	1	16.7
20-35 Years	3	50.0
> 35 Years	2	33.3
Total	6	100

Based on data on preeclampsia patients by age group, it was found that the majority of preeclampsia patients were in the 20-35 age group (3 people) (50.0%). Furthermore, the age group >35 years was recorded at 2 people (33.3%), and the age group <20 years was recorded at 1 person (16.7%).

Table 3. Age Distribution in Severe Preeclampsia Patients

Age	Frequency	Percentage %
< 20 Years	2	2.2
20-35 Years	54	58.1
> 35 Years	37	39.8
Total	93	100

Based on data on severe preeclampsia patients by age group, it was found that the highest incidence of severe preeclampsia occurred in the 20-35 age group, with 54 cases (58.1%). Furthermore, the age group >35 years recorded 37 cases (39.8%), while the age group <20 years recorded 2 cases (2.2%).

Table 4. Age Distribution in Patients with Preeclampsia, Severe Preeclampsia, and Eclampsia

Diagnosis	Age						Total	
	< 20 Years		20-35 Years		> 35 Years			
	N	%	N	%	N	%	N	%
Preeclampsia	1	16.7	3	50.0	2	33.3	6	100
Severe Preeclampsia	2	2.2	54	58.1	37	39.8	93	100
Eclampsia	0	0	1	100	0	0	1	100
Total	3	3.0	58	58.0	39	39.0	100	100

The age distribution of patients diagnosed with preeclampsia, severe preeclampsia, and eclampsia showed that the majority of patients were in the 20–35 age group, with 58 patients (58%). The next age group was patients aged >35 years, with 39 patients (39%), and the smallest group was those aged <20 years, with 3 patients (3%).

In the diagnosis of preeclampsia, the majority of patients were also in the 20–35 age group (3 people) (50%), followed by >35 years old (2 people) (33.3%), and <20 years old (16.7%). For severe preeclampsia, the most patients were in the 20–35 age group (54 people) (58.1%), then >35 years old (37 people) (39.8%), and <20 years old (2.2%). Meanwhile, in the diagnosis of eclampsia, all patients (100%) were in the 20–35 age group, and there were no patients in the <20 years or >35 years age group.

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Table 5. Distribution of Gravida Status in Preeclampsia Patients

Status Gravida	Frequency	Percentage %
Primigravida	14	14.0
Multigravida	86	86.0
Total	100	100

The results of the distribution of gravida status in preeclampsia patients showed that the majority of patients were multigravida, namely 86 people (86.0%), while patients with primigravida status numbered 14 people (14.0%).

Table 6. Distribution of Nutritional Status in Preeclampsia Patients

Nutritional status	Frequency	Percentage %
Normal	1	1.0
Overweight	6	6.0
Obesity 1	37	37.0
Obesity 2	56	56.0
Total	100	100

From the data of preeclampsia patients based on nutritional status, it was found that the majority of preeclampsia patients had obesity nutritional status 2 with a total of 56 people (56.0%), followed by obesity group 1 with 37 people (37.0%), then the overweight group with 6 people (6.0%), and the least was the group with normal nutritional status, namely only 1 person (1.0%).

Table 7. Distribution of Medical History in Preeclampsia Patients

Medical History	Frequency	Percentage %
Hyperthyroidism	1	1.0
There isn't any	99	99.0
Total	100	100

The distribution of preeclampsia patient data based on medical history revealed that the majority of patients had no prior medical history, amounting to 99 patients (99.0%). Meanwhile, one patient had a history of hyperthyroidism (1.0%). Therefore, it can be concluded that the majority of preeclampsia patients had no history of comorbidities.

Discussion

The analysis results showed that the majority of patients diagnosed with preeclampsia, severe preeclampsia, and eclampsia were in the 20-35 age group (58.0%). The next age group was >35 years (39.0%), and the smallest was <20 years (3.0%). Although the 20-35 age group dominates the frequency of cases, medical literature identifies maternal age as≤20 years and≥35 years is a major risk factor for preeclampsia (ACOG 2020). The highest frequency in the 20-35 age group (optimal reproductive age) likely reflects the high number of pregnant women in that age range accessing services at Mamuju Tengah Regional Hospital. However, the high proportion in the >35 age group (reaching 39.8% in cases of severe preeclampsia) still confirms that advanced maternal age is a significant contributing factor to disease severity, in accordance with existing clinical guidelines.

Analysis of the gestational status of 100 preeclampsia patients showed that the majority of patients were multigravida (86 patients) and only 14 (14.0%) were primigravida.

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This finding contradicts the general theory that nulliparity (first pregnancy) is a risk factor for preeclampsia.

The most striking finding of this study is the distribution of nutritional status among preeclampsia patients. Ninety-three percent of patients diagnosed with preeclampsia were either overweight (6.0%) or obese (93.0% - Obesity 1 and Obesity 2). Only 1.0% of patients had normal nutritional status. This high proportion of obesity is consistent with strong evidence in the literature that obesity is a major risk factor contributing to the incidence of preeclampsia and eclampsia, and increases the risk of severe preeclampsia. Therefore, the high prevalence of obesity in this sample highlights the importance of preconception weight management and antenatal nutritional monitoring as primary and secondary prevention efforts to reduce the risk of preeclampsia. The results of this study are in line with research conducted by Mona Nulanda in 2019 at RSIA Sitti Khadijah 1 Makassar, obtained the results of the characteristics of the body mass index of patients who experienced preeclampsia were the obesity group, namely (42.5%). From the results of this study it was also found that the majority of preeclampsia sufferers had a history of chronic hypertension as many as 35 people (38.9%), a history of diabetes mellitus as many as 2 people (2.2%), and those who had no previous history as many as 44 people (48.9%). In the theory obtained that mothers who have a history of hypertension or preeclampsia, are more likely to experience preeclampsia, as well as increasing maternal and neonatal morbidity and mortality (Mona, 2019). This study is also in line with Ambar's 2023 study at RSIA Sitti Khadijah 1 Makassar, the results of the distribution of preeclampsia patients showed that the majority of preeclampsia patients were in obesity nutritional status 1 with a total of 33 people (36.7%), followed by obesity nutritional status group 2 with a total of 27 people (30%), overweight nutritional status group with a total of 20 people (22.2%), and in the normal nutritional status group with a total of 10 people (11.1%) (Ambar, 2023). Most preeclampsia patients (99%, or 99.0%) had no pre-existing medical conditions. Only one patient had a history of hyperthyroidism.

CONCLUSION

Research conducted at Mamuju Tengah Regional Hospital (RSUD) shows that cases of preeclampsia, severe preeclampsia, and eclampsia have a demographic profile concentrated in certain risk groups. Specifically, the majority of cases occur in pregnant women in the productive age group (20-35 years), which is the peak age of fertility. This finding highlights that preeclampsia is not only a problem at extreme ages (adolescents or over 35 years), but also poses a real threat to women of optimal reproductive age. Furthermore, the majority of patients diagnosed with this hypertensive disorder of pregnancy were multigravida (having previously been pregnant). This pattern indicates that the risk of preeclampsia at Mamuju Tengah Regional Hospital is not dominated by primigravida (first pregnancy) as is often assumed, thus requiring more intensive attention and screening of previous pregnancy and delivery histories, even though the current gestational age is considered ideal. The most significant research finding, requiring immediate action, is the strong association between preeclampsia and obesity, with obesity identified in 93.0% of the total cases. This figure confirms that obesity is not merely a risk factor but a dominant trigger underlying the high

incidence of preeclampsia in the region. The urgency of prenatal nutritional management is crucial. Interestingly, most patients with preeclampsia had no prior history of comorbidities (such as chronic hypertension or diabetes mellitus). This fact suggests that at Mamuju Tengah Regional Hospital, preeclampsia often occurs as de novo (new cases) triggered by modifiable risk factors, particularly obesity, rather than complications of pre-existing chronic diseases. Therefore, prevention and education strategies should focus on weight management preconceptionally and during pregnancy to reduce morbidity from preeclampsia.

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