

THE RELATIONSHIP BETWEEN PREGNANT WOMEN'S EDUCATION LEVEL AND THE INCIDENCE OF PREECLAMPSIA IN THE WORKING AREA OF PENANA'E PUBLIC HEALTH CENTER IN 2026

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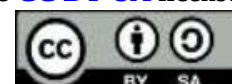
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ABSTRACT

Preeclampsia is one of the leading causes of maternal morbidity and mortality in Indonesia. One of the factors associated with the incidence of preeclampsia is the educational level of pregnant women. A low educational level may affect a mother's ability to obtain, understand, and apply information regarding maternal health, thereby increasing the risk of developing preeclampsia. This study aimed to determine the relationship between the educational level of pregnant women and the incidence of preeclampsia in the working area of Penana'e Community Health Center, Bima City, in 2026. This study employed a quantitative method with an analytical observational design using a cross-sectional approach. The study population consisted of all pregnant women who attended antenatal care services at the Penana'e Community Health Center. A total of 73 respondents were selected using the total sampling technique. Data were analyzed using univariate and bivariate analyses with the Chi-Square test at a significance level of $\alpha = 0.05$. The results showed that the majority of respondents had a basic educational level (elementary and junior high school), accounting for 46 respondents (63.0%). The incidence of preeclampsia was found in 32 respondents (43.8%), consisting of 20 respondents (27.4%) with mild preeclampsia and 12 respondents (16.4%) with severe preeclampsia, while 41 respondents (56.2%) did not experience preeclampsia. The Chi-Square test yielded a p-value of 0.005 ($p < 0.05$), indicating a significant relationship between the educational level of pregnant women and the incidence of preeclampsia. It can be concluded that pregnant women with lower educational attainment are at a higher risk of developing preeclampsia than those with higher educational levels. Therefore, strengthening maternal health education and promoting early detection during pregnancy are essential to reduce the risk of preeclampsia and improve maternal and fetal health outcomes.

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INTRODUCTION

Preeclampsia is a pregnancy complication characterized by elevated blood pressure of $\geq 140/90$ mmHg after 20 weeks of gestation, accompanied by proteinuria or other organ disorders. This condition is a major cause of high maternal and fetal morbidity and mortality, especially in developing countries. If not treated appropriately, preeclampsia can progress to eclampsia, which has the potential to cause serious complications, such as kidney failure, cerebral hemorrhage, premature birth, and even maternal and infant death (Prawirohardjo, 2018).

According to the World Health Organization (WHO), approximately 10–15% of maternal deaths worldwide are caused by preeclampsia and eclampsia. The World Health Organization also states that most of these cases are preventable through early detection, regular prenatal checkups, and increasing maternal knowledge about pregnancy danger signs (WHO, 2023). In Indonesia, preeclampsia remains a leading cause of high maternal mortality. According to data from the Indonesian Ministry of Health, hypertension in pregnancy, including preeclampsia, ranks second among causes of maternal death after hemorrhage. This situation indicates that preeclampsia remains a health problem that requires serious attention from the government and healthcare professionals (Indonesian Ministry of Health, 2023).

The occurrence of preeclampsia is influenced by various factors, including maternal age, parity, history of hypertension, nutritional status, antenatal check-ups, and the mother's education level (Manuaba, 2019). Among these factors, education level is a crucial factor because it is related to a person's ability to obtain, understand, and apply health information. The higher a person's education level, the better their ability to receive information and make decisions related to their own health and that of their fetus (Notoatmodjo, 2018).

Low levels of education often result in pregnant women having limited knowledge about the importance of regular prenatal checkups, a healthy lifestyle during pregnancy, and the signs and symptoms of preeclampsia. As a result, pregnant women tend to delay seeking help when experiencing symptoms, increasing the risk of pregnancy complications. Conversely, mothers with higher levels of education generally have a better understanding of health information and are more compliant with prenatal checkups as recommended by healthcare providers (Nursalam, 2020).

Education also plays a role in shaping a person's health behavior. Pregnant women with higher levels of education tend to be more active in seeking information about pregnancy through health professionals, print, and electronic media. This knowledge will increase mothers' awareness of maintaining their health during pregnancy, conducting regular antenatal checkups, and recognizing pregnancy danger signs as early as possible. Thus, the risk of preeclampsia can be minimized through early detection and prompt treatment (Budiman & Riyanto, 2018).

Several previous studies have shown a link between education level and the incidence of preeclampsia. Research by Hermawati (2021) found that pregnant women with low levels of education have a higher risk of developing preeclampsia than those with secondary or higher education. Another study by Primayanti et al. (2022) also found that low levels of education are associated with a lack of maternal knowledge regarding risk factors and prevention of preeclampsia, thus increasing the likelihood of pregnancy complications.

Based on data from the Penana'e Community Health Center in Bima City, pregnant women are still experiencing preeclampsia, with the majority having a primary education. This suggests

that education level is suspected to be related to the incidence of preeclampsia . Therefore , research is needed to obtain scientific evidence regarding the relationship between maternal education level and the incidence of preeclampsia , which can serve as a basis for developing health education programs for pregnant women .

Based on the description , the researcher is interested in conducting research on the Relationship between the Education Level of Pregnant Women and the Incidence of Preeclampsia in the Working Area of the Penana'e Health Center , Bima City in 2026. This research is expected to provide scientific information regarding the importance of education levels in efforts to prevent preeclampsia and be input for health workers to improve education for pregnant women in order to reduce the incidence of preeclampsia .

RESEARCH METHODS

This study used a quantitative method with an observational analytical research design using a cross-sectional approach . This approach was used to determine the relationship between the education level of pregnant women as the independent variable and the incidence of preeclampsia as the dependent variable at the same time (Sugiyono , 2022). The study was conducted in the working area of the Penana'e Health Center , Bima City in 2026. The population in this study were all pregnant women who underwent pregnancy checks (Antenatal Care/ANC) in the working area of the Penana'e Health Center , Bima City during the study period . The sampling technique used total sampling, so that all members of the population who met the criteria were used as research samples with a total of 73 respondents .

The data used are primary data obtained through observation sheets and medical records of pregnant women , as well as secondary data derived from the documentation of the Penana'e Health Center in Bima City. The independent variable in this study is the education level of pregnant women , which is classified into primary education , secondary education , and higher education . Meanwhile , the dependent variable is the incidence of preeclampsia , which is categorized into no preeclampsia , mild preeclampsia , and severe preeclampsia based on the diagnosis of health workers according to obstetric service guidelines .

Data collection was carried out after obtaining research permits from the relevant agencies . All collected data were then subjected to editing, coding, entry, and cleaning processes before being analyzed. Data analysis was carried out univariately to describe the characteristics of respondents and the distribution of each research variable , and bivariate using the Chi - Square test with a 95% confidence level ($\alpha = 0.05$) to determine the relationship between the level of education of pregnant women and the incidence of preeclampsia . If the p value < 0.05 is obtained , then the research hypothesis is accepted , which means there is a significant relationship between the level of education of pregnant women and the incidence of preeclampsia in the working area of the Penana'e Health Center , Bima City in 2026 (Notoatmodjo , 2018; Sugiyono , 2022).

RESULTS AND DISCUSSION

Univariate analysis

This research was carried out in the working area of Puskesmas Penana'e Kota Bima in 2026 with a total of 73 pregnant women who met the research criteria . The characteristics of the respondents were analyzed based on the level of education and the incidence of preeclampsia .

Univariate analysis aims to provide an overview of the frequency distribution of each variable studied . Based on the research results , it was found that the majority of respondents had primary education (elementary school–junior high school), while others had secondary education (high school / vocational school) and higher education (diploma / bachelor 's degree) . These results indicate that the majority of pregnant women in the Penana'e Community Health Center's work area still have a relatively low level of education .

Regarding the incidence of preeclampsia, it was found that most respondents did not experience preeclampsia , while others experienced mild and severe preeclampsia . Although the number of pregnant women who did not experience preeclampsia was greater , cases of preeclampsia were still found , which require attention because it can increase the risk of complications for both the mother and the fetus .

Bivariate Analysis

Bivariate analysis was conducted to determine the relationship between the education level of pregnant women and the incidence of preeclampsia using the Chi-Square test with a significance level of 95% ($\alpha = 0.05$). Based on the results of the analysis , a p value of 0.005 ($p < 0.05$) was obtained , so it can be concluded that there is a significant relationship between the education level of pregnant women and the incidence of preeclampsia in the working area of the Penana'e Health Center , Bima City in 2026. These results indicate that pregnant women with lower levels of education are more likely to experience preeclampsia than those with secondary or higher education . Therefore , the research hypothesis stating a relationship between maternal education and the incidence of preeclampsia is accepted .

The Relationship Between the Education Level of Pregnant Women and the Incidence of Preeclampsia

The results of the study showed a significant relationship between the education level of pregnant women and the incidence of preeclampsia . This was demonstrated by the Chi-Square test, which obtained a p - value of 0.005 ($p < 0.05$). These findings indicate that education level is a factor associated with the occurrence of preeclampsia in pregnant women . The level of education is a factor that affects a person's ability to obtain , understand , and apply information related to health . The higher a person's level of education , the better their ability to understand the importance of taking care of their health during pregnancy , performing routine antenatal check-ups , and recognizing early pregnancy danger signs (Notoatmodjo , 2018) .

Pregnant women with higher levels of education generally have better knowledge about the importance of prenatal checkups , meeting nutritional needs , complying with supplements prescribed by healthcare providers , and recognizing early symptoms of preeclampsia . Conversely , women with lower levels of education tend to have limited access to health information , which puts them at risk of delays in detecting and managing pregnancy complications (Nursalam , 2020).

The findings of this study also align with health behavior theory , which states that education is a predisposing factor influencing a person 's behavior in maintaining their health . A good level of education will improve a person's ability to make informed health decisions , including adherence to regular prenatal checkups as recommended by health professionals (Notoatmodjo , 2018).

In addition , pregnant women with higher education tend to be more active in seeking information about pregnancy health through health professionals , mass media , and other sources of information . The knowledge possessed will increase the mother's awareness in preventing risk factors that can cause preeclampsia . On the other hand , mothers with low education often only obtain limited information so they do not understand the importance of early detection of pregnancy complications .

The results of this study align with those of Hermawati (2021), who stated that pregnant women with low levels of education have a greater risk of developing preeclampsia than those with higher levels of education . Research by Primayanti et al. (2022) also showed that educational level is associated with a mother's ability to understand health information , thus influencing preeclampsia prevention efforts .

Based on the research results , it can be concluded that education level is a factor associated with the incidence of preeclampsia . Therefore , health workers are expected to increase education and health promotion activities for all pregnant women , especially those with low levels of education , so they can recognize risk factors , perform regular prenatal checkups , and prevent preeclampsia early .

Research Implications

The study results showed that the education level of pregnant women was significantly associated with the incidence of preeclampsia . This finding indicates that education is a significant factor influencing a mother 's ability to understand health information during pregnancy . The higher the level of education , the better the mother 's ability to receive information , understand the recommendations of health workers , and adopt healthy lifestyle behaviors during pregnancy . For healthcare professionals , the results of this study can serve as a basis for improving health promotion activities , particularly for pregnant women with low levels of education . Education regarding the signs and symptoms of preeclampsia , the importance of regular prenatal checkups , a balanced diet , and adherence to healthcare provider recommendations should be conducted continuously using media and methods that are easily understood by all pregnant women .

For the Penana'e Community Health Center in Bima City, the results of this study are expected to serve as evaluation material for improving the quality of antenatal care (ANC) services . Health workers are expected to be able to identify pregnant women with low levels of education as a group requiring more attention in health education . This will enable more optimal early detection of the risk of preeclampsia . Furthermore , this research also benefits the community , particularly pregnant women and their families . Family support , motivating mothers to undergo regular prenatal checkups and attend health education sessions , is essential to increase their knowledge about pregnancy . This improved knowledge is expected to foster healthy lifestyles , thereby minimizing the risk of preeclampsia .

For further researchers , the results of this research are expected to be a reference to develop research on other factors related to the occurrence of preeclampsia , such as maternal age , parity , nutritional status , history of hypertension , compliance with antenatal visits , and family support . Thus , the research results obtained will further enrich the information on efforts to prevent preeclampsia in pregnant women .

Research Limitations

This study has several limitations that should be considered . First , the study used a cross-sectional design , so the relationship obtained only shows an association between maternal education level and the incidence of preeclampsia and cannot explain a direct causal relationship . Second , the study was conducted only in the Penana'e Community Health Center in Bima City, with 73 respondents . Therefore , the results cannot be generalized to all areas with different community characteristics . Third , the study only examined one independent variable , the education level of pregnant women . However, the incidence of preeclampsia is influenced by various other factors , such as age , parity , history of hypertension , nutritional status , and compliance with prenatal checkups . Therefore , further research is expected to add other variables to obtain a more comprehensive picture of the factors associated with the incidence of preeclampsia .

CONCLUSION

Based on the results of research on the relationship between the level of education of pregnant women and the incidence of preeclampsia in the working area of the Penana'e Health Center , Bima City in 2026, it can be concluded that there is a significant relationship between the level of education of pregnant women and the incidence of preeclampsia . The results of the study showed that most respondents had a basic education level and that preeclampsia was still found in pregnant women in the Penana'e Community Health Center in Bima City. Based on the results of statistical tests using Chi-Square , a p value of 0.005 ($p < 0.05$) was obtained , which means there is a relationship between the level of education of pregnant women and the incidence of preeclampsia .

The level of education has an important role in influencing the knowledge and health behavior of pregnant women . Mothers with a higher level of education tend to receive health information more easily , understand the importance of pregnancy check- ups , and make preventive efforts against pregnancy complications . On the other hand , mothers with a low level of education have limitations in obtaining and understanding health information so they risk experiencing delays in detecting danger signs of pregnancy , including preeclampsia .

Thus , improving health education for pregnant women , especially those with low educational levels , is a crucial step in preventing preeclampsia . Health workers are expected to increase outreach and support activities to increase pregnant women 's knowledge and awareness of pregnancy health .

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