

Improving Pregnant Women's Knowledge Through Health Education for Early Prevention of Preeclampsia During Pregnancy at Balowerti Public Health Center, Kediri City

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ABSTRACT

Preeclampsia is a major cause of maternal and infant morbidity and mortality that can be prevented through early detection and health education during pregnancy. This community service program aims to identify pregnant women's knowledge levels regarding early preeclampsia prevention, increase understanding of risk factors, early signs and symptoms, and preventative measures, and improve their ability to perform early detection through adherence to antenatal care (ANC) check-ups and adopting healthy lifestyles. The activity was carried out in the Balowerti Community Health Center in Kediri City and involved 20 mothers. pregnant women. The methods used included health education using interactive lectures, discussions, Q&A sessions, leaflet distribution, and evaluation through pre- and post-tests. The pre-test results showed that almost half of the pregnant women had low and moderate knowledge, each (7 participants (35%)), while the post-test showed that almost all pregnant women had high knowledge, 17 (85%), with the average knowledge score increasing from 64.36 in the pre-test to 90.77 in the post-test, a 26.41-point increase. Participants also demonstrated an increased understanding of risk factors and warning signs of preeclampsia, the importance of regular antenatal care (ANC) check-ups, and a commitment to adopting healthy lifestyle behaviors during pregnancy. This activity demonstrates that health education is an effective promotive and preventive strategy in increasing the knowledge and preparedness of pregnant women for early detection of preeclampsia. It is hoped that educational activities can be implemented sustainably through pregnancy classes and antenatal care services to support reducing the risk of pregnancy complications and improving maternal and fetal health.

Keywords : Health Education, Pregnant Women, Knowledge, Preeclampsia Early Detection.

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INTRODUCTION

Pregnancy is a crucial period in a woman's life that requires special attention due to the risk of various complications that can threaten the health of the mother and fetus. One pregnancy complication that remains a health concern is preeclampsia, a condition of hypertension during pregnancy that can develop into serious complications if not detected and

treated early. The World Health Organization (WHO) states that preeclampsia affects approximately 2–8% of pregnancies worldwide. In Indonesia, preeclampsia remains a significant maternal health problem. According to the 2024 Indonesian Health Profile, there were 4,151 maternal deaths in 2024, with hypertension in pregnancy, including preeclampsia and eclampsia, remaining a leading cause of maternal death in Indonesia. According to the 2024 East Java Provincial Health Profile, there were 499 maternal deaths in 2023, with a Maternal Mortality Rate (MMR) of 93.73 per 100,000 live births. The leading cause of maternal death was hypertension in pregnancy, followed by obstetric hemorrhage and non-obstetric complications. These data indicate that hypertension in pregnancy, including preeclampsia, remains the leading cause of maternal death in East Java. Based on data from the Kediri City Health Office from January to April 2026, cases of preeclampsia were still found in several community health centers (Puskesmas) in Kediri City. The data shows that there were 5 cases of preeclampsia at Sukorame Community Health Center, 1 case at Pesantren 1 Community Health Center, 2 cases at Balowerti Community Health Center, 3 cases at South City Community Health Center, 3 cases at Pesantren 2 Community Health Center, 1 case at Mrican Community Health Center, and 2 cases at North City Community Health Center. This situation indicates that preeclampsia remains a maternal health problem in the community.

The problem of preeclampsia requires attention because it can impact the health of both the mother and the fetus if not recognized and treated early. Preeclampsia can cause complications such as impaired maternal organ function, seizures (eclampsia), premature labor, fetal growth retardation, and an increased risk of maternal and neonatal morbidity and mortality. Poor knowledge among pregnant women regarding early preeclampsia prevention can lead to delays in recognizing pregnancy danger signs and delays in seeking health care. Therefore, promotive and preventive efforts through improving maternal knowledge are an important strategic step to reduce the risk of pregnancy complications.

One recommended effort is improving maternal knowledge through health education. Good knowledge will improve mothers' ability to recognize risk factors, understand the early signs and symptoms of preeclampsia, comply with antenatal care visits, maintain a healthy lifestyle, and immediately seek help if danger signs appear. Empowering pregnant women through education involving health workers, families, and the community is expected to improve early detection of preeclampsia, thereby preventing complications that threaten the safety of the mother and baby.

Based on these issues, community service activities are needed to educate and empower pregnant women about early preeclampsia prevention during pregnancy in the Kediri City community health center (Puskesmas) work area. Activities include providing health education on the concept of preeclampsia, risk factors, danger signs of pregnancy, the importance of antenatal care (ANC) checkups, maternal health monitoring, and self-care preventive behaviors. These activities are expected to increase pregnant women's knowledge and awareness of early detection of preeclampsia risk, increase maternal involvement in maintaining pregnancy health, and support community health center efforts to reduce the incidence of pregnancy complications in the community.

METHODS

The counseling activity was carried out at: Balowerti Community Health Center, Kediri City. Starting from June 15 – June 27, 2026. The target of the counseling activity was: pregnant women who underwent pregnancy check-ups at Balowerti Community Health Center, Kediri City. Number of participants: 20 pregnant women with participant criteria: Pregnant women in their first, second, and third trimesters, Willing to participate in counseling activities, Able to

follow the education process until completion. Media used: Preeclampsia prevention education leaflet and pre-test and post-test questionnaires

RESULTS

1. Respondent Characteristics

1) Age

Age	Frequency	Percentage (%)
< 20 Years	2	10
20 – 35 Years	16	80
> 35 Years	2	10
Total	20	100

Based on the table, it was found that almost all respondents were aged 20-35 years, namely 16 respondents (80%).

2) Education

Education	Frequency	Percentage (%)
Elementary School	1	5
Middle School	2	10
High School	11	55
College	6	30
Total	20	100

Based on the table, it was found that the majority of respondents had a high school education, namely 11 respondents (55%).

3) Status of Gravida

Status of Gravida	Frequency	Percentage (%)
Primigravida	8	40
Multigravida	11	55
Grandemultigravida	1	5
Total	20	100

Based on the table, it was found that the majority of respondents had multigravida status, namely 11 respondents (55%).

4) Gestational Age

Gestational Age	Frequency	Percentage (%)
Trimesters I	6	30
Trimesters II	4	20
Trimesters III	10	50
Total	20	100

Based on the table, it was found that half of the respondents were in the third trimester of pregnancy, namely 10 respondents (50%).

5) Previous History Of Preeclampsia

Previous History Of Preeclampsia	Frequency	Percentage (%)
Ever	1	5
Never	19	95
Total	20	100

Based on the table, it was found that almost all respondents had never had a history of preeclampsia before, as many as 19 respondents (95%).

6) Family History Of Preeclampsia

Family History Of Preeclampsia	Frequency	Percentage (%)
There is	1	5
There isn't	19	95
Total	20	100

Based on the table, it was found that almost all respondents had no history of preeclampsia in their families, as many as 16 respondents (80%).

2. Knowledge

a. Knowledge Before Education

Knowledge Before Education	Frequency	Percentage (%)
Low	7	35
Medium	7	35
High	6	30
Total	20	100

Based on the table, it was found that before education, almost half of the respondents had low knowledge, as many as 7 participants (35%) and moderate knowledge, as many as 7 respondents (35%).

b. Knowledge After Education

Knowledge After Education	Frequency	Percentage (%)
Low	1	5
Medium	2	10
High	17	85
Total	20	100

Based on the table, it was found that after education, almost all respondents had high knowledge, as many as 17 respondents (85%).

DISCUSSION

The results of the activity showed that the majority of respondents were aged 20–35 years (80%), while 10% each were aged less than 20 years and more than 35 years. These results indicate that the majority of pregnant women are in the healthy reproductive age group. Age is one of the factors that influence the mother's health condition during pregnancy, including the risk of preeclampsia. According to the World Health Organization (WHO, 2023), pregnancies occurring at the age of less than 20 years or more than 35 years have a higher risk of obstetric complications than those of healthy reproductive age. At the age of less than 20 years, the reproductive organs have not yet developed optimally so that physiological adaptation to pregnancy is not yet complete. Conversely, at the age of more than 35 years there is a decline in vascular function, an increase in comorbidities such as chronic hypertension, diabetes mellitus, and obesity, which contribute to the increased incidence of preeclampsia. The dominance of respondents in the 20–35 age group suggests that the target of education is a group that is relatively in optimal physical condition to receive health information. According to the theory of adult cognitive development, individuals of productive age possess the ability to think logically and analytically, and integrate experiences

with new information, making the learning process more effective. However, although the majority of respondents were in the healthy reproductive age group, pretest results showed that 35% of respondents still had low levels of knowledge. This indicates that age does not directly determine a person's level of knowledge. Knowledge is more influenced by exposure to information, experience receiving health education, access to information media, and the quality of antenatal care services. This finding aligns with research by Fitriani et al. (2022), which states that a healthy reproductive age is not always accompanied by good knowledge of pregnancy danger signs if the mother has not received comprehensive education. Therefore, health education remains necessary for all age groups, regardless of age.

The results showed that the majority of respondents had a high school education (55%), followed by college at 30%, junior high school at 10%, and elementary school at 5%. Education is a key determinant in shaping health behaviors. According to Notoatmodjo (2018), the higher a person's education level, the easier it is for them to receive new information, understand health messages, analyze health problems, and implement that information in their daily lives. Pregnant women with high school and college education generally have better literacy skills than those with primary education. This makes it easier for them to understand educational materials regarding the definition of preeclampsia, risk factors, danger signs, the importance of blood pressure checks, urine protein tests, ANC visit compliance, and lifestyle changes during pregnancy. However, pretest results showed that although the majority of respondents had a secondary education, some still had low levels of knowledge. This indicates that formal education does not necessarily guarantee someone has specific knowledge about preeclampsia. Information about preeclampsia is not always obtained during formal education, but rather through health services, counseling, mass media, social media, and experiences during pregnancy. After receiving health education, there was a very significant increase in knowledge, with 85% of respondents having high levels of knowledge. This indicates that the educational method provided is able to bridge the information gap at various levels of education. These results align with research by the Indonesian Ministry of Health (2022), which stated that health education using visual media and two-way communication can improve the understanding of pregnant women across all educational levels.

The results showed that the majority of respondents were multigravida (55%), primigravida (40%), and grandemultigravida (5%). Gravidity status is an important risk factor for preeclampsia. Primigravida are known to have a higher risk of preeclampsia than multigravida because during their first pregnancy, the mother's immunological adaptation to the placenta is not yet optimal. Conversely, multigravida have previous pregnancy experience and are more familiar with physiological changes during pregnancy and warning signs to watch out for. Nevertheless, the results of this study indicate that multigravida still need health education. This is evidenced by the low level of knowledge found before education. Previous pregnancy experience turned out to be This has not yet fully improved knowledge regarding the early prevention of preeclampsia. This indicates that experience is not the only source of learning. Experience needs to be reinforced through evidence-based health education so that mothers can distinguish between normal physiological changes and early symptoms of preeclampsia. Research by Wahyuni et al. (2021) also found that previous childbirth experience does not necessarily improve knowledge if mothers have not received specific counseling regarding pregnancy complications.

Most respondents were in the third trimester (50%), with 30% in the first trimester, and 20% in the second trimester. Preeclampsia generally begins after 20 weeks of gestation, so most cases are found in the third trimester. Therefore, the predominance of respondents in

the third trimester is highly relevant to the goal of early prevention education. In the third trimester, mothers' need for information about danger signs becomes even more important because the risk of complications increases. The education provided not only increases knowledge but also increases mothers' awareness of symptoms such as severe headaches, blurred vision, heartburn, edema, high blood pressure, and decreased fetal movement. Furthermore, mothers in the third trimester are highly motivated to maintain their health as they approach delivery, making them more enthusiastic about participating in educational activities. Ninety-five percent of respondents had no history of preeclampsia, while only five percent had experienced it. A history of preeclampsia is one of the greatest risk factors for developing it in subsequent pregnancies. According to the American College of Obstetricians and Gynecologists (ACOG, 2024), the risk of preeclampsia recurrence can reach 20–40%, depending on the severity of the underlying condition. Although most respondents had no history of preeclampsia, education remains crucial, as preeclampsia can occur in women without a history of preeclampsia. Many cases of preeclampsia appear suddenly, so all pregnant women need to be able to recognize the early signs of the disease.

The majority of respondents (95%) had no family history of preeclampsia. Genetic factors are known to play a role in the development of preeclampsia, but they are not the sole cause. Environmental factors, lifestyle, nutritional status, obesity, chronic hypertension, diabetes, maternal age, and the quality of antenatal care also play a significant role. The results of this study indicate that although most respondents did not have genetic risk factors, health education is still necessary because preeclampsia can affect anyone.

The results showed that before receiving health education, 35% of respondents had low knowledge, 35% had moderate knowledge, and only 30% had high knowledge. These findings indicate that most pregnant women do not fully understand the concept of preeclampsia, its risk factors, early signs and symptoms, potential dangers, and preventive measures during pregnancy. This low level of knowledge can be influenced by limited access to information, insufficient health education, low maternal health literacy, and the suboptimal use of educational media in antenatal care. According to Lawrence Green's theory, knowledge is a predisposing factor that significantly determines the formation of health behaviors. A person with good knowledge will more easily develop a positive attitude, increase motivation, and ultimately take preventive measures independently. In the context of preeclampsia, good knowledge will encourage pregnant women to have regular prenatal checkups, adhere to ANC schedules, monitor blood pressure, recognize early warning signs, and immediately seek help when symptoms suggestive of preeclampsia appear. After health education, there was a significant increase, with 85% of respondents having high knowledge, while only 10% were in the moderate category and 5% in the low category. This change in distribution indicates that the educational intervention successfully increased pregnant women's understanding of early preeclampsia prevention.

The success of this education can be explained through adult learning theory (andragogy), which emphasizes that adults learn more effectively when the material presented is directly related to their actual needs. Because all respondents were pregnant, information about preeclampsia was perceived as relevant and useful, increasing attention, motivation, and retention. The presentation of the material in simple language, accompanied by interactive discussions and educational media, also contributed to increased understanding. This increased knowledge has important implications for reducing maternal morbidity and mortality. Mothers who understand the risk factors, danger signs, and preventive measures for preeclampsia tend to be more compliant with standard antenatal visits, monitor their blood pressure regularly, maintain a healthy diet and physical activity, and promptly seek help when

symptoms suggestive of preeclampsia arise. Thus, health education not only improves cognitive aspects but also lays the foundation for developing preventative behaviors that support early detection and timely treatment. These findings are consistent with numerous studies reporting that health education for pregnant women is effective in increasing knowledge about pregnancy complications. This reinforces the importance of integrating structured health education into every antenatal service at the Community Health Center as part of a promotive and preventive strategy to reduce the incidence of preeclampsia and improve the quality of maternal and fetal health.

CONCLUSION

Health education on early preeclampsia prevention has been proven effective in improving the knowledge of pregnant women at the Balowerti Community Health Center in Kediri City. Before education, most respondents had low and moderate levels of knowledge (35% each), while after education, almost all respondents (85%) had high levels of knowledge. These results indicate that health education is an effective promotive and preventive strategy for improving pregnant women's understanding of risk factors, signs and symptoms, and early prevention efforts for preeclampsia. Therefore, health education needs to be implemented routinely as part of antenatal care to support early detection and prevent pregnancy complications due to preeclampsia.

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