Relationship between Detection of Preeclampsia High-Risk by Pregnant Women and Health Workers with the Success of the Preeclampsia Eradication Program at the Nogosari Health Center

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ABSTRACT: The background of Preeclampsia Eradication Program is a program that seeks to accelerate the reduction in the incidence of preeclampsia in pregnancy, delivery and postpartum as well as comprehensive management of preeclampsia events, so that it is expected to reduce the number of maternal mortality rates (MMR). In Boyolali, Indonesia, the number of MMR in 2020 was 17 cases, where one of the causes of death was preeclampsia. Efforts are being made by the government to reduce MMR and infant mortality due to preeclampsia in pregnancy with the preeclampsia eradication program which began in 2018. The purpose of the study was to determine the relationship between detection of preeclampsia high-risk by pregnant women and health workers with increasing the success of the Eradication Program at the Nogosari Health Center. Research design Quantitative research that uses correlation analysis by using the approach retrospective. The results of data analysis using chi-square obtained results of detection of preeclampsia high-risk by pregnant women obtained the value of p-value 0.00 while for FIGO screening by health workers obtained a value of p-values 0.00. The results of the study showed that the variable detection of preeclampsia by pregnant women, FIGO screening by health workers had a significant relationship with the success of the preeclampsia eradication program with p value = 0.000, p = 0.000. where most of the respondents had poor knowledge as many as 40 respondents (66.7%), while for FIGO screening by health workers the score was obtained p-value 0.00 < 0.05 where most of the respondents, namely 41 respondents (68.3%) received incomplete FIGO screening.

KEYWORDS: Pregnancy, Preeclampsia, Preeclampsia Eradication Program

I. INTRODUCTION

Pregnancy is the period that starts from conception to the fetus's birth. Normal pregnancy is 280 days or 40 weeks 9 months 7 days (Ekasari & Natalia, 2019; Muldaniyah et al., 2022; Yanti & Fauzi, 2023). Pregnancy is when women adapt to changes in their bodies, both physiologically and psychologically (Versele et al., 2021). However, during pregnancy, it does not always run smoothly (Przybyła-Basista et al., 2020). There will be some complications during pregnancy; for pregnant women, the risk of an emergency is an event that can threaten the lives of both mother and baby at any time.

One of the pregnancy complications is preeclampsia (Bhattacharya & Campbell, 2005; Williams, 2011), hypertension that can occur in pregnancies with a gestational age of > 20 weeks or postpartum, characterized by increased blood pressure to ≥ 140/90 mmHg and accompanied by positive urine protein or ≥ 300 mg/24 hours. The clinical picture of preeclampsia due to hypertension that we often encounter starts with severe headaches, weight gain followed by edema of the feet or hands, increased blood pressure, visual disturbances, such as blurred vision, and sometimes even blind patients and finally, proteinuria (Ekasari & Natalia, 2019).

Risk factors for preeclampsia are age, parity, gestational age, body mass index (BMI), family history of preeclampsia, having a history of gestational diabetes, type 1 diabetes, obesity, chronic hypertension, kidney disease, thrombophilia and anxiety (Williams, 2011). Other risk factors include environmental and socio-economic and can also be influenced by the season (Ramadhani, 2020)

Complications of preeclampsia are eclampsia, Hemolysis, Elevated Liver Enzymes Syndrome, Low Platet (HELP), retinal detachment, kidney failure, pulmonary edema, liver damage, cardiovascular disease, nervous disorders, preeclampsia can even

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cause death in both mothers and fetuses. The number of MMR in Indonesia compiled from the recording of the family health program at the Ministry of Health in 2020 there were 4,627 deaths in Indonesia. This number shows an increase compared to 2019 of 4,221 deaths. Based on the causes, most maternal deaths in 2020 were caused by 1,330 cases of bleeding, 1,110 cases of hypertension during pregnancy, and 230 cases of circulatory system disorders. The number of MMR in Central Java in 2020 was ranked the third highest after West Java with 206 deaths and East Java with 147 deaths due to hypertension. Central Java had 127 maternal deaths due to hypertension during pregnancy. In Boyolali, the number of MMR in 2020 was 17 cases of death, higher than in 2019, namely 13 cases of death. The causes of maternal death in Boyolali in 2020 were preeclampsia 4 cases, 5 cases of bleeding, 3 cases of tuberculosis, 2 cases of cardiogenic shock, 1 case of anaphylactic shock, 2 cases of heart disease (Dinkes Kabupaten Boyolali, 2020).

Therefore, the ability of pregnant women is essential in detecting preeclampsia in pregnancy, where detection is a mechanism in the form of providing accurate and adequate information so that pregnant women can take action or avoid and reduce risks and can prepare to respond effectively to abnormalities/ complications and diseases that commonly occur during pregnancy and childbirth (Utami, 2011). Efforts made by the government to reduce maternal mortality and infant mortality due to preeclampsia in pregnancy are the existence of a preeclampsia eradication program, where the eradication program is a program that seeks to accelerate the reduction of the incidence of preeclampsia in pregnancy, childbirth, and postpartum as well as comprehensive management of incidents preeclampsia, so it is expected to reduce the number of maternal mortality (Dinkes Kabupaten Boyolali, 2018).

This program is implemented in an integrated manner, involving cross-programs and cross-sectors from upstream to downstream, namely from the local government, relevant stakeholders (Ministry of Religion, BPJS, Health Professional Organizations) in Boyolali District, Boyolali District Health Office, FKRTL, which consists of hospitals and primary clinics in Boyolali District, FKTP (which consists of Puskesmas, primary clinics, and general and specialist independent practicing doctors in Boyolali District), practicing midwives, and health cadres in Boyolali District, there is a potential for preeclampsia cases to occur. To reduce morbidity and mortality due to preeclampsia before the pregnancy process occurs, the risk factors that cause preeclampsia can be detected early. Through this program, the community will gain knowledge and understanding about early detection and treatment when preeclampsia is present during pregnancy.

Interventions have previously been carried out on the target of prospective brides by conducting premarital health counseling services conducted by midwives who aim to provide education to prospective brides in the form of health services, namely premarital counseling about pregnancy, starting preparation for pregnancy, including detection of risk factors for preeclampsia, and what actions will be taken if you have risk factors for preeclampsia as well as a medical examination of the prospective bride and groom. By the initial screening of high-risk factors for pregnancy by health cadres through integrated activities in UKBM, both active surveillance such as PHBS surveys, and introductory surveys at Alert Village and Posyandu so that the results of the screening by health cadres will be followed up with further examinations by health workers for later immediate intervention to prevent preeclampsia. No less important related to the preeclampsia eradication program is assistance to pregnant women who have high-risk factors for preeclampsia through optimizing the *Resti* (pregnant women who experience greater risk or danger during pregnancy or childbirth) of pregnant women class carried out by midwives/health workers with resource persons obstetrician/obstetrician, with the hope of being able to monitor the condition of pregnant women both directly and indirectly, periodically and continuously. Appropriate management and a good referral system play an important role in reducing the complications of preeclampsia. This program reaches out to FKTP and FKRTL services and strict postpartum monitoring (especially for high-risk groups and risk factors for preeclampsia) through a communicative and effective referral system (Dinkes Kabupaten Boyolali, 2018).

A preliminary study was carried out at the Nogosari Health Center on November 10, 2021. The results obtained from an interview with the head of the Nogosari Health Center that the Nogosari Health Center had the most cases of preeclampsia in 2021. On January 4, 2022, the total data obtained for TM III pregnant women for the period January to December 2021 was 1,048 pregnant women, TM III pregnant women from November to December 2021, as many as 153 TM III pregnant women, 164 pregnant women had received preeclampsia screening by health workers, 164 pregnant women had preeclampsia, 29 pregnant women gave birth with preeclampsia and 365 women gave birth normally.

Based on the background above, the researcher wanted to conduct a study to prove whether "Is there a relationship between the detection of preeclampsia by pregnant women and health workers with the success of the eradication program at the Nogosari Health Center."

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II. RESEARCH METHODS

The research method used in this study is a quantitative correlation analysis method. Correlation analysis is a research method used to measure the closeness of the relationship between two variables (Herlinawati et al., 2022; Suteja & Setiawan, 2022). This research uses a retrospective approach, which is research in the form of observing events that have occurred that are related to the cause. In other words, this research is measured by looking backward. The population in this study were TM III pregnant women from November to December 2021, with a total of 153 respondents. It takes the number of samples using a non-probability with an accidental sampling technique. The sample in this study was 60 respondents of TM III pregnant women. Progressive relaxation in this study was to determine the relationship between the detection of preeclampsia by pregnant women and health workers with an increase in the success of the Eradication Program at the Nogosari Health Center. Because, in Indonesia the health center is one of the places for referrals (Nurfikri & Roselina, 2022) and medical records (Nurcahyati et al., 2022) at the local level. The research instruments used in this study were a preeclampsia detection questionnaire by pregnant women, a FIGO screening checklist by health workers, and a checklist on the success of the preeclampsia eradication program. The univariate analysis in this study resulted in the distribution of frequencies and percentages (Anggraeni et al., 2022) (detection of preeclampsia by pregnant women, FIGO screening by health workers, and success of preeclampsia eradication programs) of each variable. Bivariate analysis was performed with the Chi-Square Test (Nurhayani et al., 2022).

III. RESULTS AND DISCUSSION

A. Univariate Analysis

The frequency distribution in this study was obtained from data on the characteristics of respondents based on age, education, detection of preeclampsia by pregnant women, FIGO screening by health workers, and the success of the preeclampsia eradication program as follows:

Table 1. Characteristics of Research Respondents

Characteristics	Category	N	%
Age	< 20 Years	2	3.3%
	20-35 Years	55	91.7%
	> 35 Years	3	5%
	Total	60	100.0%
Qualification of Education	Basic (Elementary-Junior High School)	25	41.7%
	Middle (Senior High School)	29	48.3%
	High (Bachelor/Diploma)	6	10%
	Total	60	100.0%

Source: Primary Data 2022

Based on Table 1 above, for the age characteristics of pregnant women, the majority of respondents aged 20-35 years were 55 respondents (91.7%). Based on educational characteristics, it was found that the majority of respondents with secondary education were 29 (48.3%).

Table 2. Frequency Distribution of Preeclampsia High-Risk Detection by Pregnant Women

Characteristics	Category	N	%
Detection of Preeclampsia High-Risk by **P**regnant women	Good	7	11.7%
	Enough	12	20.0 %
	Not good	41	68.3%
	Total	60	100.0%

Source: Primary Data 2022

Based on on Table 1 above, the characteristics of the detection of preeclampsia high-risk by pregnant women, most of the respondents had poor knowledge of 40 respondents (68.3%).

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Table 3. Frequency Distribution of FIGO Screening by Health Workers

Characteristics	Category	n	%
FIGO screening by health workers	Complete	19	31,7 %
	Incomplete	41	68.3%
	Total	60	100.0%

Source: Primary Data 2022

Based on table 3, it can be seen that from the detection of preeclampsia by health workers, most of the respondents who received in incomplete high-risk detection of preeclampsia were 41 respondents (68.3%).

Table 4. Frequency Distribution of Preeclampsia Eradication Program Success

Characteristics	Kategori	N	%
Preeclampsia Eradication Program Success	Successful	19	31,7 %
	Unsuccessful	41	68.3%
	Total	60	100.0%

Source: Primary Data 2022

Based on table 4, it can be seen that from the success of the preeclampsia eradication program, most of the respondents were unsuccessful and as many as 41 respondents (68.3%)

B. Bivariate Analysis

The results of bivariate analysis in this study used the Chi-Square test to determine the relationship between the variables studied, these variables include:

Table 5. Relationship between Resti Preeclampsia Detection by Pregnant Women and the Success of the Preeclampsia Eradication Program at the Nogosari Health Center

Preeclampsia High-Risk Detection by Pregnant Women	The Success of the Preeclampsia Eradication Program at the Nogosari Health Center				Total		p-value
	Successful		Unsuccessful				
	n	%	N	%	n	%	0.00
Good	7	36.8%	0	0%	7	11.7%	
Enough	12	63.2%	0	0%	12	20.0%	
Not Good	0	0%	41	100%	41	68.3%	

Based on table 5 it shows that most of the respondents who had poor knowledge were 40 respondents (68.3%) and very few of the respondents had good knowledge as many as 7 respondents (11.7%). Based on the results of statistical calculations using the Chi-Square test to detect a high risk of preeclampsia, a p value of 0.00 was obtained. Because the p value < α is 0.00 < 0.05, it can be concluded that there is a relationship between the detection of a high risk of preeclampsia by pregnant women and health workers and the success of the preeclampsia eradication program at the Nogosari Health Center.

Table 6. Relationship between FIGO screening by health workers and the success of the Preeclampsia Eradication Program at the Nogosari Health Center

FIGO screening by health workers	The Success of the Preeclampsia Eradication Program at the Nogosari Health Center				Total		p-value
	Successful		Unsuccessful				
	N	%	n	%	n	%	0.00
Complete	19	100%	0	0%	19	31.7%	
Incomplete	0	0%	41	100%	41	68.3%	

Based on table 6 it shows that most of the respondents who received incomplete preeclampsia detection were 41 respondents (68.3%) and a few of the respondents who received complete detection of preeclampsia high-risk were 19 respondents (31.7%).

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Based on the results of statistical calculations using the Chi-Square test for the detection of preeclampsia high-risk, p-value of 0.00 was obtained. Because the p value < α is 0.00 < 0.05, it can be concluded that there is a relationship between FIGO screening by health workers and the success of the preeclampsia eradication program at the Nogosari Health Center.

C. DISCUSSION

Based on Table 2, detection of high risk of preeclampsia by pregnant women, it was found that very few of the respondents had good knowledge, 7 respondents (11.7%), and most of the respondents had poor knowledge, 41 respondents (68.3%). Knowledge is very closely related to education, where the higher the education, the more comprehensive the knowledge. This shows that when viewed from the characteristics of respondents based on education, most of the respondents had secondary education (Senior High School), as many as 29 respondents (48.3%), and very few of the respondents with higher education (Diploma/Bachelor) were 6 respondents (10 %). Good knowledge and good insight are determining factors in seeking and requesting health service efforts, especially regarding the detection of high-risk preeclampsia in pregnancy.

Based on Table 3, it can be seen that from the FIGO screening by health workers, most of the respondents who received incomplete preeclampsia were 41 respondents (68.3%), and those who received complete high-risk preeclampsia were 19 respondents (31.7%). Based on Table 2, detection of high risk of preeclampsia by pregnant women, it was found that very few of the respondents had good knowledge, as many as 7 respondents (11.7%), and most of the respondents who had poor knowledge were 41 respondents (68.3%), where good knowledge and good insight are one of the determining factors in seeking and requesting health service efforts, especially regarding detecting the high risk of preeclampsia in pregnancy.

Based on Table 4, it can be seen that from the success of the preeclampsia eradication program, the majority of successful respondents were 19 respondents (31.7%), and those who were not successful were 41 respondents (68.3%). It is because the preeclampsia eradication program can be said to be successful if there are one or more indicators of the success of the preeclampsia eradication program in pregnancy, namely pregnant women can find preeclampsia risk factors, carry out referrals for high-risk pregnant women by health workers and provide early management of preeclampsia. In Table 2, the detection of preeclampsia by pregnant women found that very few respondents had good knowledge, 7 respondents (11.7%), and most had poor knowledge, 41 respondents (68.3%). Knowledge is very closely related to education, where the higher the education, the more comprehensive the knowledge. It can also be seen in Table 3 that from the FIGO screening by health workers, most of the respondents who received incomplete high-risk detection of preeclampsia were 41 respondents (68.3%), and those who received complete high-risk detection of preeclampsia were 19 respondents (31.7%). It means greatly affects the success of the eradication program.

Analysis of the Relationship between the Detection of High-Risk of Preeclampsia by Pregnant Women and the Success of the Eradication Program

High-risk pregnancy screening is an activity to detect risk factors for complications in pregnancy. These risk factors include general complications and preeclampsia (Dinkes Kabupaten Boyolali, 2018).

According to Doloksaribu (2018), knowledge results from humans sensing or knowing someone about an object. Sensing occurs through hearing and sight. The knowledge possessed by a person is one of the determining factors in seeking and requesting health service efforts. It was also stated that the higher the individual's knowledge about the consequences caused by a disease, the higher the prevention efforts carried out. Knowledge is closely related to education, whereas higher education makes the person's knowledge wider.

Based on Table 2, the detection of high-risk preeclampsia by pregnant women, namely, very few of the respondents had good knowledge of 7 respondents (11.7%), and most of the respondents had poor knowledge of 41 respondents (68.3%). Based on Table 5, the results of statistical calculations using the Chi-Square test for detecting high-risk preeclampsia obtained a p-value of 0.00. Because the p-value < α, namely 0.00 < 0.05, it can be concluded that there is a relationship between the detection of a high risk of preeclampsia by pregnant women and health workers and the success of the preeclampsia eradication program at the Nogosari Health Center.

Following the initial hypothesis of the researchers who suspected a relationship between the detection of a high risk of preeclampsia by pregnant women and health workers with the success of the preeclampsia eradication program at the Nogosari Health Center. In line with the research of Rakhmawati & Wulandari (2021), which stated that there was a significant effect of knowledge on preeclampsia in pregnant women with a p-value of 0.036 <0.05. Twenty-one people (52.5%).

Mothers' knowledge about preeclampsia and eclampsia is essential because almost 50% of maternal and fetal deaths are caused by preeclampsia and eclampsia. Pregnant women need to know about preeclampsia as early as possible. The tabulation

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results in this study showed that there was an effect of knowledge on preeclampsia and that there was a significant effect between knowledge of preeclampsia in pregnant women at the Banyuanyar Health Center, Surakarta. The results of this study support research from Aspar and Agusalim (2018) in Rakhmawati & Wulandari (2021), who say that knowledge is related to preeclampsia. Several factors, such as education, age, information, social culture, environment, and experience, influence the level of knowledge. The more dominant factor from this study's results is information; the more information obtained, the higher the level of knowledge about preeclampsia. This is because these pregnant women know about early detection and prevention of preeclampsia, so they apply it to themselves so that mothers with good knowledge do not experience preeclampsia. Some pregnant women have higher education but have poor knowledge regarding the detection of high-risk preeclampsia; from the results of interviews during the study, the mothers said the lack of information obtained during ANC examinations at health facilities in the area beforehand, so mothers did not understand what high risk was preeclampsia in pregnancy.

Knowledge about health and health problems is very influential for pregnant women, especially the problem of preeclampsia because preeclampsia can affect the mother and fetus, so socialization and information about the signs and symptoms of preeclampsia are needed so that pregnant women can detect it as early as possible According to Wiriatarina (2017) in Rakhmawati & Wulandari (2021).

Analysis of the Relationship between FIGO Screening by Health Workers and the Success of the Eradication Program

High-risk pregnancy screening is an activity to detect risk factors for complications in pregnancy (Garti et al., 2021). These risk factors consist of risk factors for general complications and preeclampsia. The general high-risk pregnancy detection system refers to the Poedji Rochjati score. At the same time, for the risk of preeclampsia, it uses a checklist according to the latest theory of preeclampsia (Figo, Working Group on Good Clinical Practice in Maternal-Fetal Medicine, 2019) in (Dinkes Kabupaten Boyolali, 2018). Based on Table 5, the results of statistical calculations using the Chi-Square test for FIGO screening obtained a p-value of 0.00. Because the p-value < α is 0.00 < 0.05, it can be concluded that there is a relationship between FIGO screening by health workers and the success of the preeclampsia eradication program at the Nogosari Health Center.

Following the initial hypothesis of the researchers who suspected a relationship between FIGO screening by health workers and the success of the preeclampsia eradication program at the Nogosari Health Center. In line with Sari & Ardiyanti's research (2020), factors related to the management of early detection of preeclampsia by officers: a systematic review. The study states that early detection will be successful if several factors related to the management of early detection of preeclampsia by health workers can be mastered by all health workers who work in antenatal care. Mothers with high risk will be treated quickly. Health workers need to master the factors above so that the incidence of death due to delays in knowing the problem can be avoided.

Factors related to the management of early detection of preeclampsia by health workers, authors found five factors that officers must have when detecting early preeclampsia, namely knowledge, attitudes, motivation, perceptions, and skills. Skills Based on research results, skills are one of the factors related to the management of early detection of preeclampsia by health workers (Garti et al., 2021; Pribadi, 2021; Seif & Rashid, 2022). In the management of early detection of preeclampsia, good skills are needed when carrying out assessments and examinations (Ferreira et al., 2016), both physical and simple urine tests. The history that needs to be explored in the patient is the age of the mother (Glick et al., 2021), history of previous pregnancies(Magnus et al., 2019), family history of cardiovascular disease (Nuniek Tri Wahyuni et al., 2022), lifestyle (smoking, drinking alcohol) (Pop et al., 2019), history of previous deliveries, history of illness before pregnancy (Duckitt & Harrington, 2005), marital status, duration of sexual intercourse (Kinuthia et al., 2017), menstrual cycle (Wang et al., 2003), and circumstances thyroid (Casey & Leveno, 2006). The skills needed in the management of early detection of preeclampsia are adjusted to the contents of standard operating procedures or protocols at each institution.

From interactions with respondents, one of the factors that failed to implement FIGO screening by health workers came from the target factor, namely pregnant women who tend not to perform ANC at the Nogosari Health Center regularly and on time from access K1 to K4, so mothers do not get FIGO screening from the start. The Nogosari Health Center has services for all target pregnant women, both old and new patients; most new patients do not live in the Nogosari Health Center area.

CONCLUSIONS AND SUGGESTIONS

The results showed that the variable detection of high-risk preeclampsia by pregnant women and FIGO screening by health workers had a significant relationship with the success of the preeclampsia eradication program with a value of p = 0.000, p = 0.000. Most of the respondents have poor knowledge. Whereas for FIGO screening by health workers, most respondents received incomplete FIGO screening.

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This study suggests increasing pregnant women's knowledge about preeclampsia in pregnancy by carrying out routine ANC at the local health center. Health workers can improve their performance in achieving risk detection in pregnant women, specifically in cases of preeclampsia, through FIGO screening. It is hoped that the Community Health Center can provide benefits as an evaluation and program input for recommendations for the next steps in improving quality services for pregnant women regarding the detection of high risk of preeclampsia in pregnant women to prevent an increase in maternal mortality due to preeclampsia.

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