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THE RELATIONSHIP BETWEEN DETERMINANTS OF THE CAUSES OF HYPERTENSION IN PREGNANT WOMEN IN THE WORKING AREA OF THE CIRUAS HEALTH CENTER, SERANG REGENCY IN 2024

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Abstract

One of the dangerous diseases in pregnant women is hypertension. Hypertension is a cause of death for both mother and baby. Hypertension has no typical symptoms and signs as an early warning. In pregnancy with hypertension occurs when gestational age enters 20 weeks. This study aims to determine the factors associated with hypertension in pregnant women. Hypertension is a condition where the blood pressure of pregnant women is above more than 140 mmHg or diastolic blood pressure above 90 mmHg. This type of research is quantitative with a cross sectional design. Independent variables are age, education, knowledge, ANC examination, and history of hypertension. While the dependent variable is Hypertension. The population is all pregnant women in the working area of the Ciruas health center, Serang Regency in 2023. The sample number of 100 people was selected by purposive random sampling. Statistical test using Chi square test with 95% CI. The results of statistical tests showed that age and education variables did not have a significant relationship with hypertension in pregnant women ($p > 0.05$), while knowledge variables with $p = 0.002$, ANC examination with $p = 0.014$, history of hypertension with $p = 0.001$, which means it has a significant relationship with hypertension in pregnant women in the working area of the Ciruas health center, Serang regency in 2024. The largest OR value is in the knowledge variable OR=6.366.

Keywords: Audio visual, Menstruation, Knowledge, Attitude, Behavior.

1. Introduction

One of the dangerous diseases in pregnant women is hypertension. Hypertension is a cause of death for both mother and baby. Hypertension has no typical symptoms and signs as an early warning. In pregnancy with hypertension occurs when gestational age enters 20 weeks (Vitahealth, 2018).

Hypertensive disorders in pregnancy are diagnosed with blood pressure levels exceeding 140/90 mmHg with or without proteinuria greater than 0.3g/24 hours of urine, after 20 weeks of pregnancy according to the American College of Obstetricians and Gynecologists (ACOG) in 2013. The development of this disorder leads to dysfunction of endothelial function responsible for many abnormalities in the mother with a high risk (about 12%) of maternal death during pregnancy and puerperium (Bharadwaj et al., 2018)

According to World Health Organization (WHO) data, the worldwide maternal mortality rate in 2020 became 295,000 deaths with maternal causes being high blood

pressure during pregnancy (pre-eclampsia and eclampsia), bleeding, infection and unsafe abortion (WHO, 2021).

According to the Indonesian health profile (2015), the five biggest causes of maternal death are bleeding (28%), hypertension in pregnancy (25%), infection (11%), old partus / traffic jam (5%). Maternal mortality rate in Indonesia by three main causes namely bleeding, hypertension in pregnancy (HDK). (Health & Indonesia, n.d.2015).

According to the Ministry of Health in 2020 stated that hypertension in pregnancy was the second percentage of causes of maternal death in Indonesia in 2020, which was 1,150 out of 1,584 deaths in pregnant women (72.60%).

2. Theoretical Background

The solution that has been carried out by the Serang District Health Office to reduce maternal mortality due to hypertension in pregnancy is to carry out integrated antenatal services, namely with overall and quality antenatal services provided to all pregnant women with the aim of healthy pregnancy, safe delivery and giving birth to healthy and strong babies, ANC 10 T Service (weighing weight and height, determine blood pressure, determine nutritional status, determine fundus uterine height, determine fetal rate, give blood-boosting drugs to pregnant women).

According to previous research (Bahtiar et al, 2020) stated that there is a relationship between hypertension factors (gender, age and education), and previous research related to knowledge related to hypertension in pregnant women by Taukhit. (2019), there is a relationship between ANC examination of pregnant women in hypertension found that pregnant women can change their understanding of health which will eventually apply positive actions about health (Setyowati, 2019). (Factor et al., 2019)

Based on this description, the purpose of this study is to determine the factors associated with the incidence of hypertension in pregnant women in the working area of the Ciruas Health Center, Serang Regency in 2024

3. Methods

This type of research is quantitative with the design used in this study is cross sectional by analyzing factors associated with the incidence of hypertension in pregnant women. The population in this study is all pregnant women who are in the working area of Ciruas sub-district in 2023. The sampling technique in this study was taken by purposive random sampling with a sample of 100 people. The research was conducted from December 2023 to January 2024 in the working area of the Ciruas health center, Serang Regency. Data collection techniques are carried out by checking the blood pressure of pregnant women, interviews and with data collection tools, namely questionnaires filled out by respondents.

4. Results and Discussion

This section presents the results of the research analysis. Research analysis can be supplemented by tables, graphs (images), and/or charts. The discussion section describes the results of data processing, interprets the findings logically, and relates to relevant reference sources.

4.1 Univariate Analysis

This data is primary data collected through filling out questionnaires conducted on 100 respondents. This univariate data consists of age, education, knowledge, ANC examination, and history of hypertension. The following are the results of the analysis of univariate statistical tests:

Table 1. Frequency distribution of determinants of hypertension in pregnant women

Variable	Sum	(%)
Age		
No risk	93	93%
Risk	7	7%
Education		
Low	55	55 %
Tall	45	45 %
Knowledge		
Less	30	70 %
Good	70	30%
ANC Examination		
Complete	64	64%
Incomplete	36	36%
History of Hypertension		
Exist	40	40%
None	60	60%

The distribution of respondents by sex illustrates that the number of respondents with age not at risk (<40 years) is 93 people (93%) and respondents with age at risk (>40 years) 7 people (7%). Based on the distribution of respondents according to age, it gives an idea that the majority of respondents are having an age that is not at risk.

Based on the level of education, respondents are divided into two categories, namely: low education which includes respondents who do not go to school to the level of junior high school education and higher education includes respondents who completed high school and college education levels. From the table above, it shows that respondents who have low education amounted to 55 people (55%) and respondents who had higher education amounted to 45 people (45%).

The frequency of respondents with poor knowledge amounted to 30 people (30%) and good knowledge as many as 70 people (64.3%). Based on these results, the majority of respondents have good knowledge about hypertension in pregnancy.

ANC examination as the operational definition of research is divided into 2 categories, namely complete ANC examination if in pregnancy 1st trimester performs > 2 examinations, 2nd trimester performs > 3 examinations, and 3rd trimester performs > 6 examinations. While the ANC examination is incomplete if in pregnancy the 1st trimester performs < 2 examinations, the 2nd trimester performs < 3 examinations, and the 3rd trimester performs < 6 examinations. Based on the existing categories, it shows that 64 people (64%) did a complete ANC examination and 34 people (34%) did not do a complete ANC examination.

The proportion of respondents who have a history of hypertension as in the table above is 40 people (40%) and those who do not have a history of hypertension as many as 60 people (60%).

4.2 Bivariate Analysis

In bivariate analysis, the test used is the chi-square test with $p < 0.05$. The factors studied in research related to the incidence of hypertension in pregnant women can be seen in the table as follows:

Table 2. Determinants of the Causes of Hypertension in Pregnant Women in the Working Area of the Ciruas Health Center, Serang Regency in 2024

Variable	Hypertension				N	P value	OR	CI 95%
	Hypertension		No Hypertension					
	F	%	F	%	F			
Age Risk No risk	 3 65	 3% 65%	 4 28	 4% 28%	 7 93	0,139	0,323	0,068-1,539
Sum	68		32		100			
Education Low Tall	 38 15	 38% 15%	 17 30	 17% 30%	 55 45	0,796	0,895	0,385-2,079
Sum	53		47		100			
Knowledge less Good	 27 41	 27% 41%	 3 29	 3% 29%	 30 70	0.002	6,366	1,76-22,990
ANC Examination Incomplete Complete	 30 38	 30% 38%	 6 26	 6% 26%	 36 64	0.014	3,421	1,28-9,397
History of Hypertension None Exist	 33 35	 33% 35%	 27 5	 27% 5%	 60 40	0.001	5,727	1,972-16,633

Based on statistical tests providing a comparative picture of the incidence of hypertension by age group, it shows that the proportion of age groups at risk (>40 years) who experience hypertension as many as 3 people (3%) and age groups not at risk (<40 years) years as many as 65 people (65%). Respondents who did not have hypertension in the age group were at risk as many as 4 people (4%), and the age group was not at risk as many as 28 people (28%). The relationship between age factors and the incidence of hypertension in pregnant women statistically illustrates that there is no relationship shown with p values = 0.139 and OR = 0.323 (95% CI: 0.068-1.539).

In the education factor, it shows that respondents affected by hypertension with low education as many as 38 people (38%) and the proportion of respondents with higher education is 15 people (15%). While respondents who did not experience hypertension

with higher education as many as 30 people (30%) and low education as many as 17 people (17%). The difference in the proportion of hypertension incidence in pregnant women in educational factors statistically illustrates that there is no relationship shown with p value = 0.796 and OR = 0.895 (95% CI: 0.385-2.079).

The proportion of respondents who experienced hypertension in pregnant women who had good knowledge was 41 people (41%) and respondents with less knowledge as many as 27 people (27%). The proportion of respondents who do not have hypertension in pregnant women and have good knowledge is 29 people (29%) while those who have less knowledge as many as 3 people (3%). Statistically it shows that knowledge factors have a significant relationship with the incidence of hypertension in pregnant women as shown by the value of p = 0.002 and OR = 6.366 (95% CI: 1.76-22.990). The OR value can be interpreted as follows: the knowledge factor shows that respondents who have less knowledge will have a 6-fold chance of hypertension in pregnant women when compared to respondents who are well knowledge.

From the table above, it shows that the proportion of respondents who have hypertension in pregnant women who carry out incomplete ANC examination is 30 people (30%) and respondents who do complete ANC examination as many as 38 people (38%). the proportion of respondents who did not have hypertension in pregnant women and did not carry out a complete ANC examination was 6 people (6%) while those who carried out a complete ANC examination were 26 people (26%). Statistically it shows that ANC examination factors have a significant relationship with the incidence of hypertension in pregnant women as shown by the value of p = 0.014 and OR = 3.421 (95% CI: 1.28-9.397). The OR value can be interpreted as follows: ANC examination factors show that respondents who do not do a complete ANC examination will have a 3 times chance of hypertension in pregnant women when compared to respondents who do a complete ANC examination.

The proportion of respondents who experienced hypertension in pregnant women who did not have a history of hypertension was 33 people (33%) and respondents with a history of hypertension as many as 35 people (35%). The proportion of respondents who did not experience hypertension in pregnant women and did not have a history of hypertension was 27 people (27%) while those who had a history of hypertension as many as 5 people (5%). Statistically shows that the factor History of hypertension has a significant relationship with the incidence of hypertension in pregnant women indicated by the value p = 0.001 (95% CI: 1.972-16.633). The OR value can be interpreted as follows: the History of hypertension factor shows that respondents who have a history of hypertension will have a 5-fold chance of hypertension in pregnant women when compared to respondents who do not have a history of hypertension.

4.3 The Relationship Between Age and Hypertension in Pregnant Women in the Working Area of Ciruas Health Center, Serang Regency

Based on the results of univariate analysis, it was found that the majority of respondents were at the age of not at risk or < 40 years as many as 93 people (93%).

While the results of bivariate analysis showed that the age variable did not have a significant relationship (p = 0.139) with the incidence of hypertension in pregnant women. So, it can be concluded that there is no difference in the proportion of respondents who experience hypertension in pregnant women between the age at risk or > 40 years with the age not at risk or < 40 years.

This is in line with research on risk factors for hypertension in pregnant women at the Kramat Jati health center, East Jakarta in 2019, the results showed that age did not have a significant relationship with the incidence of hypertension in pregnant women, this was shown by obtaining a p value of 0.416 (Arikah et al., 2020).

The safest age for a woman to get pregnant and give birth is between 20-35 years old, as they are in a healthy reproductive period. Maternal mortality in pregnant and giving birth at the age of < 20 years and the age of > 35 years will increase significantly, because they are exposed to complications both medical and obstetric that can endanger the life of the mother (Arikah et al., 2020).

According to researchers, although there is no relationship between age and the incidence of hypertension in pregnant women, age is still a risk factor for hypertension in pregnant women, this is explained, hypertension is more often obtained in the early and late reproductive age, namely adolescence or over 35 years. Pregnant women < 20 years are prone to increase blood pressure and cause seizures faster, while the age of over 35 years is also a risk factor for hypertension. So, women who are at the beginning or end of reproductive age are more prone to suffer from hypertension during pregnancy.

4.4 The Relationship Between Education and Hypertension in Pregnant Women in the Working Area of Ciruas Health Center, Serang Regency

Based on the results of univariate analysis, it was found that the majority of respondents' education was low or did not go to school until they graduated from junior high school as many as 55 people (55%). While the results of bivariate analysis showed that the education variable did not have a meaningful relationship (p = 0.796) with the incidence of hypertension in pregnant women. So, it can be concluded that there is no difference in the proportion of respondents who experience hypertension in pregnant women between those with higher education and those with low education. This is because respondents' education is not the cause of hypertension but other factors. Although the majority are poorly educated, it is not the cause that the poorly educated will experience hypertension, and vice versa, the highly educated are not necessarily not hypertensive.

This is in line with research conducted by on factors related to hypertension in pregnant women in the city of Makassar. The results showed that education had no significant relationship between education and hypertension in pregnant women, as evidenced by the acquisition of a p value of 0.615 (Basri et al., 2018).

Based on the researchers' analysis, this is likely to happen because most pregnant women with low education get maximum information from the puskesmas about the incidence of hypertension in pregnancy, in addition to the puskesmas services that are so

good in terms of promotion. In addition, it is undeniable that not always people are highly educated, after they know the dangers of hypertension for their pregnancy, they will apply it.

4.6 The Relationship Between Knowledge and Hypertension in Pregnant Women in the Working Area of Ciruas Health Center

Based on the results of univariate analysis, it was found that the majority of respondents' knowledge was good as many as 70 people (70%). While the results of bivariate analysis showed that knowledge variables had a meaningful relationship (p = 0.002; OR=5.204) with the incidence of hypertension in pregnant women. So it can be concluded that there is a difference in the proportion of respondents who experience hypertension in pregnant women between those who have good knowledge and those who have poor knowledge, in other words it can be concluded that there is a meaningful relationship between knowledge and the incidence of hypertension in pregnant women.

The knowledge variable has the greatest influence on the incidence of hypertension in pregnant women, it can be seen that the odds ratio (OR) value of the knowledge variable is 6.36 meaning that respondents who have poor knowledge have a 6 times chance of hypertension in pregnant women compared to those who have good knowledge.

This is in line with research conducted by on the relationship of age, knowledge, and attitudes towards hypertension in pregnant women at the Krueng Barona Jaya Health Center, Aceh Besar district. The results showed that there is a rich relationship between knowledge and hypertension in pregnant women, this is evidenced by the acquisition of a p value of 0.002 (Puetri & Yasir, 2018)

Knowledge is the most important basis in shaping one's actions (Notoatmodjo, 2018). The knowledge of mothers about pregnancy and child health is one of the supporting factors, the higher the knowledge, the wider the insight obtained. Knowledge of pregnant women is very important because it can help pregnant women in living their pregnancy well, as well as help mental readiness, prevent hypertension in pregnancy and physical mothers in facing the labor process(Setyawati et al., 2016)

Based on the researchers' analysis, pregnant women need to have knowledge about pregnancy, because some studies reveal that the low knowledge of pregnant women is one of the main causes of death when the mother gives birth. Knowledge of pregnant women is very important because it can help pregnant women in carrying out their pregnancy well, as well as help mental / physical readiness and prevent pre-eclampsia in pregnancy during labor. Knowledge gives rise to awareness that eventually, a person will behave or behave in accordance with the knowledge gained from learning, experience, or instruction.

4.7 The Relationship Between ANC Examination and Hypertension in Pregnant Women in the Working Area of Ciruas Health Center

Based on the results of univariate analysis, it was found that the majority of respondents were conducting a complete ANC examination as many as 64 people (64%).

While the results of bivariate analysis showed that the ANC examination variable had a significant relationship (p = 0.014) with the incidence of hypertension in pregnant women. So, it can be concluded that there is a difference in the proportion of respondents who experience hypertension in pregnant women between those who do complete ANC examination and those who do not do complete ANC examination, in other words it can be concluded that there is a significant relationship between ANC examination and the incidence of hypertension in pregnant women.

This is in line with research on risk factors for hypertension events in pregnant women at the Kramat Jati health center in East Jakarta in 2019, the results showed that a history of hypertension has a significant relationship with the incidence of hypertension in pregnant women, this is indicated by obtaining a p value of 0.009 (Arikah et al., 2020).

Women who develop hypertension in the first pregnancy will increase to get preeclampsia in subsequent pregnancies. Matello said the incidence of preeclampsia will increase in the second pregnancy if there is a pregnancy that is too far apart. Cincotta also found that if there is a history of hypertension, the possibility of primigravida will increase four times (Mardiani, 2013).

Based on the researchers' analysis, a history of hypertension is a factor that can be controlled by maintaining lifestyle, diet, and physical activity, although a history of hypertension is a risk factor, but if you can control it well, the possibility of hypertension will not be experienced in pregnant women, on the contrary, pregnant women who do not have a history of hypertension can also be affected by hypertension if in their daily lives do not live a lifestyle or a good diet.

4.8 The Relationship Between History of Hypertension and Hypertension in Pregnant Women in the Working Area of Ciruas Health Center

Based on the results of univariate analysis, it was found that the majority of respondents did not have a history of hypertension as many as 60 people (60%). While the results of bivariate analysis showed that the variable History of hypertension had a significant relationship (p = 0.001; OR=4.846) with the incidence of hypertension in pregnant women. So, it can be concluded that there is a difference in the proportion of respondents who experience hypertension in pregnant women between those who have a history of hypertension and those who do not have a history of hypertension, in other words it can be concluded that there is a significant relationship between a history of hypertension and the incidence of hypertension in pregnant women.

This is in line with research on the relationship between age, parity, history of hypertension, and frequency of ANC examination on the incidence of preeclampsia in pregnant women. The results showed that there was a significant relationship between ANC examination of the incidence of preeclampsia in pregnant women with the acquisition of a p value of 0.000 (Laila, 2019).

Antenatal examination according to the Ministry of Health of the Republic of Indonesia is a pregnancy examination carried out to check the condition of the mother and fetus periodically followed by efforts to correct the deviations found. This can be

interpreted that the more often ANC examinations, the risk of developing preeclampsia is smaller in accordance with the theory put forward by seniors to detect preeclampsia as early as possible, namely by going through regular antenatal examinations starting from the first trimester to the third trimester in an effort to prevent preeclampsia from becoming more severe (Laila, 2019).

Based on the analysis of researchers, ANC examination aims to supervise and also control hypertension in pregnant women. This ANC examination is very important, but the condition in the field shows that various reasons are said by respondents when not making ANC visits, such as the perception of mothers during pregnancy, there is no need to check it or only a few times, if you already know the condition of the healthy fetus, there is no need to do another examination, just waiting for the time of birth. So that things that may be related to hypertension cannot be detected.

5. Conclusion

This finding shows that there is a significant relationship between knowledge, ANC examination, and history of hypertension with the incidence of hypertension in pregnant women in the working area of the Ciruas sub-district health center, Serang regency. However, there is no significant relationship between the age and education of pregnant women with the incidence of hypertension in pregnant women. The most dominant variable for the occurrence of hypertension in pregnant women is the knowledge variable.

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