RELATIONSHIP BETWEEN ANTE NATAL CARE AS A HEALTH EDUCATION APPROACH AND INCIDENCE OF HYPERTENSION (GESTATIONAL HYPERTENSION) AMONG PREGNANT WOMEN

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Keywords:	ABSTRACT
Antenatal care, visits, health education, pregnant women.	This study aims to determine the relationship between antenatal care (ANC) education approach and the incidence of hypertension in pregnant women. This study used a descriptive method to understand the relationship between the ante natal care as a health education approach and the incidence of hypertension in pregnant women. Samples were randomly taken on pregnant women who visited Antenatal Care in Leuwiliang district with a correlation formula as a minimal calculation. Eighty-seven subjects were included, and blood pressure measurements were carried out following the SOP for blood pressure measurement with description analysis and analysis of the relationship between hypertension events with ANC visits and gestational age. The highest variable of antenatal care visits in incomplete visits was 66 pregnant women (66.0%). Pregnant women who have the most hypertension status were 55 pregnant women (55.0%). The most hypertension in the group was not at risk as much as 46%. The highest percentage were mothers whose antenatal care visits were incomplete and hypertension was 44%. The lowest percentage is mothers with complete antenatal care visits and normal hypertension which was 8%. There was an incidence of hypertension in the non-risk group and ANC visits and showed the presence of hypertension in the incomplete ANC visit group. Thus, educational approaches and efforts to increase awareness of pregnant women in ANC need to be improved.

INTRODUCTION

Pregnant women who have hypertension or have a history of hypertension are the highest risk factor for the incidence of preeclampsia with an OR of 6.42 (Hadiningsih and Fatkhiyah 2016). (Karima, Machmud, and Yusrawati 2015) found that the age of > mothers of 35 years was 54.38% and the age of mothers <25 years of 45.61% had a relationship with the incidence of severe preeclampsia. The integrated Antenatal Care (ANC) program is one of the main programs in the health sector regulated by the central government related to the prevention of maternal and fetal mortality (Wulandari and Laksono 2020). Antenatal cares provided through supervision, education, and medical treatment to obtain a safe pregnancy and childbirth (Muna and Qomar 2020).

Antenatal care is a health service provided by health professionals (obstetricians, general practitioners, midwives, and nurses) to pregnant women during their pregnancy, who follow the existing antenatal service guideline program which focuses on promotive and preventive activities. Integrated antenatal care is the integration of services with several other programs that require intervention during pregnancy. Antenatal Care services in normal pregnancy at least 6 times, including: First trimester 2 times: Gestational age 0 – 14 weeks Trimrster II as much as 1 time: Gestational age 14 – 28 weeks Trimester III 3 times: Gestational age 28 – 36 weeks Minimum 2 examinations by doctors in trimesters 1 and 3.

Antenatal care visits are influenced by several factors including age, level of knowledge, employment status, parity, pregnancy distance, maternal knowledge, and attitudes of pregnant women. There are also factors that facilitate the behavior of pregnant women which include the availability of existing facilities and infrastructure or health facilities. Identify some possible causes of examination irregularities including maternal factors (education, occupation, knowledge, maternal medical history or obstetric history), other factors such as socioeconomic and cultural factors. In addition to the above factors of health workers, information factors, occupational factors, and facilities and infrastructure including distance to health care places from the target range (pregnant women) also influence behavior related to pregnancy checks. Factors that affect the level of compliance of ANC pregnant women include experience, environment (friends or family), the presence of drug side effects, economic level, interaction with health workers, and the level of knowledge about health (Yankaskas et al. 2019). Antenatal cares that are according to standards include weighing weight, measuring height, blood pressure, nutritional status values (measuring upper arm circumference), fundus uterine height, determining fetal presentation and fetal heart rate (DJJ), screening tetanus immunization status and providing Tetanus Toxoid (TT) immunization according to TT immunization status, giving iron tablets or blood enhancers at least 90 tablets during pregnancy, laboratory tests (routine & special), case management and counseling, including childbirth planning and prevention of complications (P4K), and postpartum family planning.

The knowledge of mothers about pregnancy and child health is one of the supporting factors. Knowledge of pregnant women is very important because it can help pregnant women in living their pregnancies well, as well as help mental readiness, prevent hypertension in pregnancy and physical mothers in facing the labor process. More and more information can influence or add to a person's knowledge. Knowledge gives rise to awareness that eventually, a person will behave or behave in accordance with the knowledge gained from learning, experience, or instruction. The attitude of a pregnant woman greatly determines the development of the fetus. If a mother diligently checks or controls her health, checks blood pressure during pregnancy, then the mother can find out what happens or what happens later during pregnancy (Puetri and Yasir 2018). Hypertension in pregnancy usually occurs at the age of 20 weeks of pregnancy. Hypertension in pregnancy is 5-15% complicating pregnancy and is quite high (Mouliza and Aisyah 2021). Hypertension can be experienced by all layers of pregnant women

Dewi Atika Putri1, Hari Iskandar Kang2, Anindini Winda Amalia3, Iwan Kusnawirawan4, Hernayati4, Muhammad Arsyad Subu5

so that knowledge about the management of hypertension in pregnancy must be truly understood by all medical personnel both at the center and in the region. Maternal mortality rate (MMR) is still one of the maternal and child health problems in Indonesia (Basana, Tandarto, and Soehono 2020). Health education is very important in preventing worsening of hypertension in pregnant women (Situmorang 2016). Especially for early detection and proper management of diseases and their complications, the knowledge provided ranges from symptoms to strategies for lowering or controlling blood pressure (Febriani and Subagyono 2021). About 50% of hypertension complications in pregnant women can be prevented by education and counseling by informing about the disease provided by a health care provider (Sharma et al., 2017). Therefore, ANC services as an educational approach are needed to prevent preeclampsia from arising by preventing the occurrence of high blood pressure in pregnant women.

RESEARCH METHODS

The samples used in this study were related to antenatal care visits with blood pressure. The number of selected samples was obtained by the formula below:

$$n = \left[\frac{Z\alpha + Z\beta}{0{,}5 \ln\left[\frac{(1+r)}{(1-r)} \right]} \right]^2 + 3$$

Information:
n = Number of samples
Zα = normal standard deviation with a degree of significance of 1% (α=0,01), value Zα=2,58
Zβ = normal standard deviation with a degree of strength equal to 90% (β=0,2),
r = Pearson correlation coefficient

The pearson correlation coefficient (r) between antenatal care visits and blood pressure is no literature that matches the number of samples, so (r) is assumed with a value of r = 0.4

$$n = \left[\frac{Z\alpha + Z\beta}{0{,}5 \ln\left[\frac{(1+r)}{(1-r)} \right]} \right]^2 + 3 \implies \left[\frac{2{,}58 + 1{,}28}{0{,}5 \ln\left[\frac{(1+0{,}4)}{(1-0{,}4)} \right]} \right]^2 + 3$$

$$n = \left[\frac{3{,}86}{0{,}5 \ln\left[\frac{(1{,}4)}{(0{,}6)} \right]} \right]^2 + 3 \implies \left[\frac{3{,}86}{0{,}423} \right]^2 + 3$$

$$n = [9{,}125]^2 + 3 \implies 83{,}26 + 3 \implies 86{,}26$$

The minimum sample calculation is 87, it turns out that the available data is 100 subjects who perform ante natal care services then from the ANC visit records available in the visit check to find out whether the visit is complete or not. Blood pressure was measured with a tensimeter, stethoscope. Measurements are carried out following the Standard Operating Measurement of Blood Pressure. Data analysis was carried out by univariate analysis by describing ante natas care visits and blood pressure. Furthermore, a relationship test or correlation test was carried out for ordinal data types because the variable data types of antenatal care visits and blood pressure are ordinal data types.

RESULTS AND DISCUSSION

Categorical antenatal care visits are obtained by summing the scores from question number 3 about antenatal care visits. Which can be categorized into incomplete ANC visit rate and complete ANC visit rate when $< 4 \geq 4$. As for blood pressure can be categorized as follows: Normal 90-119/60-79, prehypertension: 120-139/80-89, hypertension: 140-159/90-100.

Table.1 Distribution of Frequency of Antenatal Care Visits and Blood Pressure in pregnant women in five villages in Leuwiliang District, Bogor, West Java (n = 100)

Variable	N	%
Antenatal Care Visit (n=100)		
Complete	34	34%
Incomplete	66	66%
Blood pressure (n=100)		
Hypertension	55	55%
Pre-Hypertension	26	26%
Normal	19	19%

Based on table 1 above, out of 100 subjects, the highest variable of antenatal care visits at incomplete visits was 66 pregnant women (66.0%). Pregnant women who have the most hypertension blood pressure status are as many as 55 pregnant women (55.0%).

Table 2. Distribution of maternal blood pressure frequency based on the age category of 15-40 years in five villages in Leuwiliang District, Bogor, West Java (n = 100).

Age Category	Blood pressure				
	Hypertension		Normal		Total
	N	%	N	%	
Non risk	46	46,0%	29	29,0%	75%
Risk	9	9,0%	16	16,0%	25%
Total	55	55,0%	45	45,0%	100%

There was the most hypertension in the non-risk group as much as 46%
The relationship between antenatal care visits and blood pressure.

Dewi Atika Putri1, Hari Iskandar Kang2, Anindini Winda Amalia3, Iwan Kusnawirawan4, Hernayati4, Muhammad Arsyad Subu5

Table 3. Frequency Distribution of Antenatal Care Visit Relationship with Blood Pressure of Pregnant Women in five Villages in Leuwiliang District, Bogor, West Java (n = 100).

Antenatal care visit	Blood pressure				Total	Note
	Hipertension		Normal			
	N	%	N	%		
Incomplete	44	44%	37	37%	81	r= -0,028
Complete	11	11%	8	8%	19	p= 0,077
Total	55	55%	45	45%	100	

*Using tau-b kendalls

Based on table 3 above, the relationship between antenatal care visits and pregnant women's pressure has a result r = -0.028. It means that there is a weak and non-unidirectional correlation, where statistically seen p = 0.077 which shows no meaning. In addition, it can be seen that the highest percentage is mothers with incomplete antenatal care visits and hypertension which is as much as 44%, and the lowest percentage is mothers with complete antenatal care visits and normal hypertension which is as much as 8%.

We found in this study that there are still low antenatal care visits for pregnant women. This condition proved that there were still many pregnant women who have not used health facilities and workers in an effort to check their pregnancy. Many incomplete ANC visits were found among respondents, one of which was the problem of the role of midwives not being good (Fitrayani 2019). The issue of family support is huge for the completeness of ANC visits. The results of this study are in accordance with research by Ni Nyoman Mestri Agustini that there is a relationship between the level of maternal knowledge and family support with the coverage of ANC services (Fitrayeni et al., 2015; Agustini et al., 2011). Family factors such as the number of children, welfare (socioeconomic), distance from home to ANC service facilities, educational information on the importance of ANC for health also affect the completeness of ANC visits (Iacoella and Tirivayi 2019), (Haider and Bhutta 2017); (Winarni, Naimah, and Widiyawati 2019), (Mumtaz et al. 2015).

Blood pressure results of respondents were obtained by 55 pregnant women who had hypertension with a presentation of 55%, while pregnant women with prehypertensive status 26 people with a presentation of 26%, and with normal blood pressure status with a presentation of 19%. In the hypnotization group, in general, have a family history of hypertension, as it is known that someone who has a family history of hypertension is likely to experience greater hypertension. It should be noted that there is a relationship between a history of hypertension and the incidence of hypertension in pregnant women. The result of OR = 3.38, means that pregnant women who have a history of hypertension have a 3.3 times chance of suffering from hypertension compared to pregnant women who do not have hypertension.

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). There is a relationship between the incidence of hypertension with the completeness of visits and groups of mothers at risk. This is in line with research that shows there is a significant relationship between age and the incidence of severe preeclampsia. Obtained OR value of 3.8 which means pregnant women aged < 20

years or > 35 years are 3.8 times more likely to experience severe preeclampsia than pregnant women aged 20 to 35 years (Fahira, 2017, Fitrina & Yosi, 2016).

Risk factors for hypertension in pregnancy include primiparity, age of pregnant women at risk, multiple pregnancies, gestational obesity diabetes mellitus, thrombocytopenia, previous or family history of pregnancy induced hypertension, and complications associated with placental dysfunction such as small for gestation age, placental abruption, or stillbirth. As well as the existence of health problems during pregnancy such as chronic hypertension and diabetes mellitus. Also, the problem of individual factors such as ethnicity, genetics, dietary habits, geography (Mala et al., 2020). Another term is gestational hypertension for hypertension caused by pregnancy. It is associated with pregnancy-related conditioning which hypertension develops at or after 20 weeks of pregnancy, marked by hypertension and proteinuria, as well as edema. It is diagnosed when a woman's blood pressure increases above 140/90 mmHg (Ahmed et al. 2022). It is important to pay attention to possible pregnancy complications in the first trimester such as hyperrmesis, infection, ectopic pregnancy, miscarriage, or abortion. Anemia in pregnancy is considered one of the major risk factors contributing to 20-40% of maternal deaths directly or indirectly through heart failure, preeclampsia, antepartum hemorrhage, postpartum hemorrhage, and puerperal sepsis.

Complications in the third trimester include Gestational diabetes, Preeclampsia is the onset of hypertension accompanied by proteinuria and odema due to 20 weeks of pregnancy or immediately after delivery. Therefore, antenatal cares that are according to standards include weighing weight, measuring height, blood pressure, nutritional status values (measuring upper arm circumference), fundus uterine height, determining fetal presentation and fetal heart rate (DJJ), screening tetanus immunization status and providing Tetanus Toxoid (TT) immunization according to TT immunization status, giving iron tablets or blood enhancers at least 90 tablets during pregnancy, Laboratory tests (routine & special), case management and counseling, including Childbirth Planning and Prevention of Complications (P4K), and postpartum birth control need to be increased health education efforts for pregnant women.

Knowledge and awareness about pregnancy including gestational hypertension in ANC as an educational effort is very important in preventing and overcoming hypertension and preventing its continuation into pre-eclampsia (Sokar Osman Ahmed Omar et al., 2023). In line with Ouasmani et al.'s 2018 research that health education is very important in preventing worsening of hypertension in pregnant women (Ouasmani et al., 2018) especially for early detection and proper management of the disease and its complications (Al Ebrahimy et al., 2019).

The knowledge provided ranges from symptoms to strategies for lowering or controlling blood pressure (Lalo, 2019). You et al. (2012) mentioned that 50% of hypertension complications in pregnant women can be prevented by education and counseling by talking about the disease provided by health care providers (Sharma et al., 2017). With the low number of ANC visits and the incidence of hypertension in at-risk pregnant women, it is necessary to emphasize the importance of ANC as an approach to education for pregnant women.

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CONCLUSION

The low number of ANC visits and the presence of hypertension is related to the completeness of ANC visits with the presence of hypertension in non-risk groups which illustrates the educational approach program and efforts to increase awareness of pregnant women in ANC need to be improved.

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