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THE CORRELATION BETWEEN ANTENATAL CARE, PARITY AND MATERNAL AGE AMONG PREGNANT WOMEN WITH ANTEPARTUM HEMORRHAGE INCIDENCE AT GONDOSARI COMMUNITY HEALTH CENTER, KUDUS

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ABSTRACT

Background: Antepartum hemorrhage is one of the main cause of maternal mortality. The Maternal Mortality Rate (MMR) in Indonesia currently reaches 305 every 100,000 live births which is still quite high from the MDGs target. Risk factors for antepartum hemorrhage will increase with increasing age and maternal parity, while, the cause of maternal death can be prevented via regular Antenatal Care (ANC). This present study aimed to determine the correlation between the frequency of antenatal care, parity, and age of pregnant women with the incidence of antepartum hemorrhage in the Community Health Center, Kudus City.

Method: This was an observational analytic study with cross-sectional design. This study used secondary data obtained from maternal cohort books and Local Area Monitoring of Mother and Child Health (PWS-KIA) databooks. Using simple random sampling technique, a total of 323 individuals were recruited. Univariate analysis, bivariate analysis and multivariate analysis were performed on the data obtained.

Results: The Spearman's correlation test showed that there was significant correlation between frequency of Antenatal Care (ANC) (p=0.001), parity (p= 0.001) and age (p=0.001) with antepartum hemorrhage. The correlation coefficient showed that antenatal care (ANC) has a strong negative correlation with antepartum hemorrhage (r= -0.541), parity has a medium correlation with antepartum hemorrhage (r= 0.418) and age has a medium correlation with antepartum hemorrhage (r= 0.465). Multivariate analysis showed that age had the strongest influence on the incidence of antepartum hemorrhage (PR= 274.573), while other variables had the weakest influence smaller effect on the incidence of antepartum hemorrhage (ANC, PR= 0.001 and parity, PR= 0.041)

Conclusion: The frequency of antenatal care (ANC), parity and age have correlation with antepartum hemorrhage in the working area in Gondosari Community Health Center, Kudus. Age is the most influential factor in the incidence of antepartum hemorrhage.

Keywords: Antenatal Care, Antepartum Hemorrhage, Maternal Age, Parity.

INTRODUCTION

Antepartum hemorrhage is defined as bleeding from the genital tract, from the survival time of pregnancy (from 28 weeks) during the extrauterine survival of infants. [1] The most common causes of antepartum hemorrhage are placenta previa, placental abruption, uterine rupture, and Vasa previa. [2]

The Maternal Mortality Rate (MMR) in Indonesia currently reaches 305 every 100,000 live births which are still quite high from the MDG target, where the MDG are targeting the Maternal Mortality Rate in

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Indonesia of 102 every 100,000 live births.[3] For the Maternal Mortality Rate in Kudus City, it is 115 every 100,000 live births where the figure is still above the national target of 105 every 100,000 live births.[4]

Based on the health profile of the province of Central Java in 2016, hemorrhage was the main cause of maternal mortality by a percentage of 33.22%, followed by hypertension in pregnancy of 27.08%, metabolic disorders, 13.29%, infections by 4.82%, the disorders circulatory system 0.33% and others 21.26%.[3] Based on the profile data of Central Java province in the year 2016, maternal deaths based on age, most at age 20 - 34 years of 67.11%, then in the age group of 35 years of $\geq$ 29.07%, and in the age group $\leq$ 20 years amounted to 3.82%[3].The antepartum hemorrhage risk factors will increase in line with increasing maternal age and parity, where the age of risky mothers is women under the age of 20 years and over 35 years of age and mothers with high parity (more than three).[5] This is very different from the reality.

Basically the cause of maternal deaths is preventable, so maternal mortality in Indonesia can be lowered. One of the attempts in lowering the number of incidence and maternal mortality or perinatal service is by antenatal (Antenatal Care).[6] In the weeks before labor the frequency of ANC is carried out more frequently that is once a week. Attention and schedule of visits should be more stringent for high risk pregnancies.[7] WHO recommends that ANC be carried out at least 4 times to detect, identify and provide care for women during pregnancy.[8]

One of the main goals of Antenatal Care (ANC) is to analyze early the abnormalities or complications that may occur during pregnancy, where Antenatal Care (ANC) examination includes identification of medical history (personal general data, current complaints, menstrual history, first day of last menstruation (HPHT), history of pregnancy and childbirth, history of current pregnancy, family history, history of illness in the mother, history of family planning programs, history of immunization and breastfeeding history) and pregnancy examination General condition, Abdomen examination (inspection, palpation and auscultation), and laboratory tests (urine analysis, stool analysis, blood analysis, blood sugar examination, hepatitis B virus antigen and ultrasonography).[7]

Non standard ANC will have an impact on the health status of mothers and babies so that they can improve Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR).[9]

The Maternal Mortality Rate (MMR) in Indonesia currently reaches 305 every 100,000 live births which is still quite high from the MDGs target or the Millennium Development Goals where the MDGs target the Maternal Mortality Rate in Indonesia of 102 every 100,000 live births [1]. For the Maternal Mortality Rate in Kudus City, it is 115 every 100,000 live births where the figure is still above the national target of 105 every 100,000 live births [2]. Gondosari Community Health Center is located in Gebog's Subdistrict. The number of maternal deaths on the Gebog's subdistrict is higher than other subdistricts in Kudus, where as 4 death in Gebog compared to 1 – 3 death in the other subdistricts [2].

Based on the health profile of the province of Central Java in 2016, hemorrhage was the main cause of maternal mortality with a percentage of 33.22%, followed by hypertension in pregnancy of 27.08%, metabolic disorders 13.29%, infections by 4.82%, disorders circulatory system 0.33% and others 21.26% [1]. Hemorrhage which is the direct cause of maternal death consists of antepartum hemorrhage and postpartum hemorrhage [3]. Antepartum hemorrhage is defined as bleeding from the genital tract, from the survival time of pregnancy (from 28 weeks) during the extrauterine survival of infants [4]. The most common causes of antepartum hemorrhage are placenta previa, placental abruption, uterine rupture, and Vasa previa [5].

The causes of maternal death cannot be separated from the condition of the mother herself which consists of criterion 4 "too" which is too old at delivery (> 35 years), too young (<20 years), too many

children (> 4 children) and too tight distance birth / parity (<2 years) [1]. The antepartum hemorrhage risk factors will increase in line with increasing maternal age and parity, where the age of risky mothers is women under the age of 20 years and over 35 years of age and mothers with high parity (more than three) [6].

Basically the causes of maternal deaths is preventable, so maternal mortality in Indonesia can be lowered. One of the attempts in lowering the number of incidence and maternal mortality or perinatal service is by Antenatal Care. WHO recommends that ANC be carried out at least 4 times to detect, identify and provide care for women during pregnancy [7]. In the weeks before labor the frequency of ANC is carried out more frequently that is once a week [8]. Attention and schedule of visits should be more stringent for high risk pregnancies [9]. Non standard frequency of ANC will have an impact on the health status of mothers and babies so that they can improve Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) [10].

METHODS

This study was an observational analytic study with cross-sectional study design. This research was conducted in Gondosari Community Health Center Kudus using secondary data obtained from the mother's cohort and PWS-KIA Local Area Monitoring of Mother and Child Health's databooks. In this study, secondary data was taken in 2017 with a population of 927 pregnant women. Sample size was determined using the Lemeshow cross-sectional formula and obtained 323 of pregnant women as samples. Simple random sampling technique was used as sampling method.

The subjects used in this study were pregnant women whose data were complete in the maternal cohort and Local Area Monitoring of Mother and Child Health's databooks at the Gondosari Community Health Center in Kudus City and trimester III pregnant women who visited the Gondosari Community Health Center in Kudus City. The exclusion criteria were pregnant women who had chronic diseases (hypertension, diabetes mellitus, and anemia). Based on inclusion and exclusion criteria, 604 pregnant women were excluded. This study uses univariate analysis, bivariate analysis using spearman's rho and multivariate analysis using logistic regression.

The independent variables in this study were ANC frequency, parity and age. ANC frequency variable is divided into 2 namely standard ANC frequency (more than 4) and non standard ANC frequency (less than 4). Parity variable are divided into 3, namely low risk (including nullipara and primipara), multipara (giving birth 2-4 times) and grandemultipara (giving birth more than 5). Age variable is divided into 2 namely low risk (between 20 years to 35 years) and high risk (less than 20 years and more than 35 years)

The dependent variable in this study is antepartum bleeding where the variable is divided into 2 namely antepartum hemorrhage (Bleeding in pregnant women after the 28th week of pregnancy) and non antepartum hemorrhage (Non occurrence of bleeding in pregnant women after the 28th week of pregnancy).

This research has received ethical approval from the Research Ethics Committee of the Gunung Jati University School of Medicine No. 69 / EC / FK / XI / 2018. Informed consent for secondary data collection was carried out to the Gondosari's Community Health Center by presenting on the objectives and benefits of the research.

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RESULTS
Univariate Analysis
From the results of the study, it was found that out of 323 respondents there were 262 respondents who had the standard antenatal care (ANC), 266 respondents who had low-risk parity, 275 respondents with low-risk ages and 298 respondents who does not suffer antepartum hemorrhage.

Table 1. Distribution of Frequency of Antenatal Care (ANC), Parity, Age and Antepartum Hemorrhage

Variable	Frequency	Percentage
ANC		
Standard Standard Frequency	262	81.1
Not Standard Non Standard Frequency	61	18.9
Parity		
Low-Risk	226	69.9 70.0
Multipara	73	22.6
Grande Multipara	24	7.4
Age		
Low-Risk	275	85.1
High-Risk	48	14.9
Hemorrhage		
Hemorrhage (-)	298	92.3
Hemorrhage (+)	25	7.7

Bivariate Analysis
From the results of the Spearman rho test between the correlation of antenatal care (ANC), parity and age with the antepartum hemorrhage, $p = 0.001$ so that it can be concluded that there is a significant correlation. Based on the Spearman rho test result which has shown that the frequency of antenatal care (ANC), parity and age have p-value <0.05, it means the frequency of antenatal care (ANC), parity and age have a significant correlation to antepartum hemorrhage.

From the data table below, the correlation coefficient for Frequency of Antenatal Care variable (ANC) is -0.501, it can be interpreted that frequency of antenatal care (ANC) has a strong correlation with antepartum hemorrhage and has a negative correlation which means that the higher frequency of antenatal care (ANC) is carried out, the less the incidence of antepartum hemorrhage. The correlation coefficient for Parity is 0.418, it can be interpreted that parity has a moderate correlation with antepartum hemorrhage and has a positive correlation which means that if parity increases, the antepartum hemorrhage will also increases. The correlation coefficient for Age is 0.465, it can be interpreted that age has a moderate correlation with antepartum hemorrhage and has a positive correlation which means that if age increases, the antepartum hemorrhage will also increases.

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Table 2. Correlation between Antenatal Care (ANC), Parity and Age with the incidence of Antepartum Hemorrhage

	Antepartum Hemorrhage			
Variable	**Yes**	**No**	**Correlation Coefficient**	**Sig.**
Antenatal Care (ANC)			-0.541	0.001
Standard Standard Frequency	2	259		
Not Standard Non Standard Frequency	23	39		
Parity			0.418	0.001
Low-Risk	0	230		
Multipara	7	59		
Grande Multipara	18	6		
Age			0.465	0.001
Low-Risk	18	27		
High-Risk	7	271		

Multivariate Analysis
The results of the logistic regression test showed that age was the most influential factor in the incidence of antepartum hemorrhage with the risk of 274,573 times higher causes antepartum hemorrhage.

Table 3. Factors that Most Influenced Against Antepartum Hemorrhage

	Exp(B)	Sig.	95% C. I. for Exp(B)	
			Lower	Upper
ANC	.001	.003	.001	.108
Parity	.041	.002	.005	.304
Age	274.573	.016	2.905	25954.866

DISCUSSION
Antenatal Care (ANC)
Based on the statistical result, it showed there was a significant correlation between frequency of Antenatal Care (ANC) and antepartum hemorrhage, with a negative correlation. It means that the higher frequency of antenatal care (ANC) is carried out, the less the incidence of antepartum hemorrhage.

According to WHO, Standard frequency of Antenatal Care during pregnancy is very important for the health of the mother and her baby [11]. Non-standard Frequency of Antenatal Care (ANC) during the pregnancy period will have an effect on both the mother and the baby [11]. The effect on the mother can cause death because of the late detection of abnormalities and complications during pregnancy, one

of the mostly causes of maternal death is antepartum hemorrhage, which are directly related to inadequate frequency of Antenatal Care during pregnancy [11]. The effect on infants is the occurrence of antepartum stillbirths [11]. Antepartum stillbirths have a number of causes, including maternal infections – notably syphilis – and pregnancy complications, that late detected because of inadequate ANC [11].

According to WHO, Standard Antenatal Care during pregnancy is very important for the health of the mother and her baby. Non-standard Antenatal Care (ANC) during the pregnancy period will have an effect on both the mother and the baby, where the effect is the late detection of abnormalities and complications that occur during pregnancy which will increase the Maternal Mortality Rate and Infant Mortality Rate. The causes of maternal mortality are mostly caused by hypertension that occurs during pregnancy (preeclampsia and eclampsia) and hemorrhage consisting of antepartum hemorrhage and postpartum hemorrhage. It is estimated that about 3.5 out of 25% of maternal deaths occur during pregnancy hypertension (preeclampsia and eclampsia) and antepartum hemorrhage due to inadequate/standard Antenatal Care (ANC) .

Parity
Based on the results of statistical tests, the parity obtained a p-value of 0.001, which means it shows a correlation between parity and antepartum hemorrhage. This result is in line with the research conducted by Ernesti, Sunarsih and Susanaria, and Junita where there is a significant correlation between parity and antepartum hemorrhage [12,13,14].

Based on demographic data that have been obtained from the results of the study, the incidence of antepartum hemorrhage as many as 25 pregnant women where the incidence of antepartum bleeding occurs mostly in pregnant women with grande multipara. Physiologically primipara, an extension of the lower uterine segment occurs well before labor while in multipara and grande multipara, the development of the lower uterine segment and thinning of the cervix may be delayed until delivery. Increased maternal parity with antepartum hemorrhage is caused by reduced vascularization and atrophic changes in the decidua caused by past labor. Blood flow to the placenta is insufficient and extends its surface to cover the opening of the birth canal [15].

Age
Based on the results of statistical tests, the age obtained a p-value of 0.001, which means it shows a correlation between age and antepartum hemorrhage. This result is in line with the research conducted by Ernest, Sunarsih and Susanaria, and Junita where there is a significant correlation between age and antepartum hemorrhage [12,13,14].

The age of the mother during pregnancy affects the condition of the mother's pregnancy, in addition to being associated with the maturity of the reproductive organs also associated with psychological conditions, especially readiness in accepting pregnancy [16]. Risk factors for antepartum hemorrhage will increase with increasing age, where the age of risky mothers is women over the age of 35 years [17].

Women with age under 20 years old have a higher risk of developing antepartum hemorrhage because the endometrium is still immature, the production of the hormone progesterone is still lacking and the corpus luteum reacts slowly, thus affecting the endometrial maturation process especially the uterine fundus area. The area is not ready to accept the results of conception and a less perfect decidua is formed so that the placenta looks for a better place for implantation to get adequate blood flow. [3].

At the age above 35 years the function of the reproductive system from mother to fetus decreases causing the red blood vessels to rupture causing retroplacental and due to sclerosis blood vessels small

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arteries and myometrial arterioles cause blood flow to the endometrium unevenly so that the placenta grows wider with the surface area greater, to get adequate blood flow, so that the placenta grows in a fertile area which is around the internal uterine ostium [3].

From the explanation above, women with multipara and grandemultipara, there can be a decrease in vascularization and atrophic changes in the decidua so that blood flow to the placenta is insufficient and extends its surface to cover the lower segment of the uterus. Formation of the lower uterine segment occurs when approaching labor. The formation of the lower uterine segment occur progressively and can cause lacerations. In addition, laceration of the placenta is also caused by a flat and open cervix. This causes bleeding at the site of laceration so that bleeding will be facilitated and multiplied by the lower uterine and cervical segments that cannot contract adequately.

Women who are less than 20 years old, have a high risk of antepartum bleeding because the immature endometrium can still not receive the results of conception and the production of the hormone progesterone is still lacking, whereas for women over 35 years, there is a high risk of antepartum hemorhage due to decreased reproductive system function from the mother to the fetus causing the red blood vessels to rupture causing retroplasenta and because sclerosis of the blood vessels of the small arteries and myometrial arterioles causes blood flow to the endometrium not evenly so that the placenta grows wider with a larger surface area, to get adequate blood flow. Antepartum hemorrhage can be detected early by carrying out antenatal care activities. WHO recommends that ANC be carried out at least 4 times to detect, identify and provide care for women during pregnancy. Non standard frequency of ANC will have an impact on the health status of mothers and babies so that they can improve Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR).

It can be concluded that antepartum hemorrhage risk factors will increase in line with increasing maternal age and parity where the age of risky mothers is women under the age of 20 years and over 35 years of age and mothers with high parity (more than three).

Antepartum bleeding can be detected early by carrying out antenatal care activities. Antenatal care is a health service received by pregnant women during their pregnancy with the intention of ensuring health for both the mother and the baby. WHO recommends that ANC be carried out at least 4 times to detect, identify and provide care for women during pregnancy. Non standard ANC will have an impact on the health status of mothers and babies so that they can improve Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR).

This study has a limitation where there is no further research into other factors that might influence the incidence of antepartum hemorrhage.
For the further research, it is still necessary to develop more on other variables that are thought to increase the risk of pregnant women experiencing Antepartum Hemorrhage such as anemia, a history of antepartum hemorrhage, a history of cesarean section, cocaine use and smoking habits.

CONCLUSION
There is a significant correlation between frequency of antenatal care (ANC), parity, age and the incidence of antepartum hemorrhage. Age is the most influential factor in the incidence of antepartum hemorrhage.
For further research, it is expected to be studied further towards other variables that can increase the risk of pregnant women experiencing Antepartum Bleeding such as anemia, history of antepartum bleeding, history of section cesarean, cocaine use and smoking habits.

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CONFLICT OF INTEREST

There is no conflict of interest regarding the publication of this paper.

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