

## THE RELATIONSHIP OF GRAVIDA WITH THE INCIDENCE OF PRECLAMPSIA IN PREGNANT WOMEN IN THE DELIVERY of RSIA MUHAMMADIYAH PROBOLINGGO

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**ABSTRAK**

Preeklampsia adalah suatu kelainan yang ditemukan pada masa kehamilan dengan tanda-tanda seperti hipertensi, proteinuria, dan edema yang biasanya terjadi setelah usia kehamilan 20 minggu hingga 48 jam yang merupakan Tujuan dari penelitian ini adalah untuk mengetahui apakah ada hubungan antara gravida dengan kejadian preeklampsia pada ibu hamil di ruang bersalin RSIA Muhammadiyah Probolinggo. Metode penelitian yang digunakan adalah penelitian korelasi analitik dengan pendekatan cross sectional menggunakan data sekunder melalui rekam medis. Sampel yang digunakan adalah seluruh ibu hamil yang mengalami preeklampsia pada periode 1 Januari 2021 - 31 Desember 2021. Teknik pengambilan sampel yang digunakan adalah simple random sampling dengan jumlah 100 ibu hamil. Analisis menggunakan Spearman rank dengan SPSS 2.0. Hasil penelitian ini menunjukkan bahwa 47% ibu primigravida mengalami preeklamsia berat dan 15% mengalami preeklamsia ringan. Sedangkan pada multi gravida sebanyak 30% mengalami preeklamsia ringan dan 8% mengalami preeklamsia berat. Hasil perhitungan SPSS dengan menggunakan Spearman Rank dengan jumlah sampel 100, maka diperoleh nilai Sig. (2-tailed) sebesar 0,00 sebagai dasar keputusan diatas, maka dapat disimpulkan bahwa terdapat hubungan yang signifikan antara Gravida dengan kejadian Preeklampsia. Kemudian dari output di atas, diketahui bahwa nilai Correlation Coefficient adalah 0,534, sehingga nilai ini menunjukkan adanya hubungan dengan korelasi yang sedang antara Gravida dengan tingkat Pre-eklampsia. Teori ini juga menyatakan bahwa karena adanya penurunan human antigen G protein (HLA) yang berperan penting dalam memodulasi respon imun, maka ibu menolak produk hasil konsepsi

**Abstract**

*Preeclampsia is a disorder found during pregnancy with signs such as hypertension, proteinuria, and edema which usually occurs after 20 weeks to 48 hours of gestation. The incidence of pre-eclampsia can be obtained from the history of the pregnant woman's pregnancy. The purpose of this study was to determine whether there is a relationship between gravida and the incidence of preeclampsia in pregnant women in the maternity ward of RSIA Muhammadiyah Probolinggo. The research method used is an analytic correlation study with a cross sectional approach using secondary data through medical records. The samples used were all pregnant women who experienced pre-eclampsia in the period January 1, 2021 – December 31, 2021. The sampling technique used was*

simple random sampling with a total of 100 pregnant women. Analysis using Spearman rank with SPSS 2.0. The results of this study showed that 47% of primigravida mothers had severe preeclampsia and 15% had mild preeclampsia. While in multi gravida as much as 30% had mild preeclampsia and 8% had severe preeclampsia. The results of the SPSS calculation using Spearman Rank with a sample size of 100, then the value of Sig. (2-tailed) is 0.00 as the basis for the decision above, it can be concluded that there is a significant relationship between Gravida and the incidence of Pre-eclampsia. Then from the output above, it is known that the Correlation Coefficient value is 0.534, so this value indicates a relationship with a moderate correlation between Gravida and the level of Pre-eclampsia. This theory also states that due to a decrease in human antigen G protein (HLA), which plays an important role in modulating the immune response, the mother rejects the products of conception.

## Introduction

Preeclampsia is a disorder found during pregnancy with signs such as hypertension and proteinuria, and edema that usually occurs after 20 weeks of pregnancy until 48 hours after birth, eclampsia is a continuation of severe preeclampsia with additional symptoms of convulsions or coma. (Sarwono Prawiroharjo 2016). Preeclampsia and eclampsia (pe-e) have the biggest cause of death in pregnant mothers, Other than infection and bleeding. According to who, some 585,000 mothers die a year during pregnancy or childbirth and 58.1 %s are caused by preeclampsia and eclampsia. The decrepitude of mother's mortality is still far from hope.

Preeclampsia has a negative impact on both the mother and fetus. Several theories explain that in women with preeclampsia vital organ failure can occur such as liver failure, kidney failure, kidney failure, lung failure, and heart failure. If this condition continues and is accompanied by seizures

(eclampsia) it can cause coma. While the impact on the baby can occur intrauterine fetal growth restriction, placental abruption, prematurity, hypoxia, intrauterine fetal death to fetal death at birth (Sarwono Prawiroharjo 2016). One of the causes of preeclampsia/eclampsia is gravidity. The most influential gravidity is young primigravida compared to multigravida. This is thought to be because in the first pregnancy there tends to be a failure to form blocking antibodies against placental antigens, resulting in an unfavorable immune response to the ability of placental tissue formation, where the incidence of preeclampsia is more common in primigravidas, whereas in multigravidas it is associated with chronic hypertension, diabetes mellitus and Kidney illness. Primigravidas or mothers who are pregnant for the first time often experience stress during childbirth so that hypertension can occur during pregnancy or what is usually called preeclampsia/eclampsia.

Efforts that can be made in overcoming this problem include carrying out surveillance measures for pregnant women (ANC), and deliveries assisted by trained health workers. According to Sarwono (Sarwono Prawiroharjo 2016) Treatment that can be done to prevent preeclampsia is to detect it as early as possible, namely from the beginning of pregnancy to the end of pregnancy. Efforts that can be made to reduce the incidence of preeclampsia in pregnancy are: ensuring that all pregnant women check themselves from early pregnancy, looking for signs of preeclampsia and treating it immediately if found at each examination, terminating the pregnancy if possible at 37 weeks of pregnancy and above if after If treated, signs of preeclampsia cannot be eliminated.

The success of the maternal health program can be assessed through the main indicator of the maternal mortality rate. Based on data from the Ministry of Health, the number of maternal deaths reached 4,627 people in 2020. This figure increased by 10.25% compared to the previous year of only 4,197 people. The causes of maternal death in the last year included bleeding (28.29%), hypertension (23%), and circulatory system disorders (4.94%). The number of maternal deaths in West Java was recorded at the highest, namely reaching 745 people in 2020.

Meanwhile, the number of babies born in the province reached 880,250 people and those who died were 2,891 people. The province with the next highest number of maternal deaths was East Java, which reached 565 people with the number of live births was 562,006 souls (Noviani amalia et al. 2020). Based on the results of a preliminary study in the Delivery Room of RSIA Muhammadiyah Probolinggo, it showed that the incidence of mild preeclampsia in pregnant women for the period January 1 2022 to June 30 2022 was 23 cases, where the diagnosis of preeclampsia was the 5th largest diagnosis in the delivery room of RSIA Muhammadiyah in 2022. From 100% of referral cases 40% of the delivery room are referral cases with a diagnosis of preeclampsia. The main cause cannot be assessed immediately. Many factors influence the occurrence of preeclampsia, one of which is gravida. The frequency of occurrence of preeclampsia is greater in primigravida mothers than multigravidas, especially in young primigravidas (Sarwono Prawiroharjo 2016). From the description above, the researcher wanted to know the relationship between gravida and the incidence of preeclampsia in pregnant women in the Delivery Room of RSIA Muhammadiyah Probolinggo.

## Method

The research design used by researchers is an analytical correlation study, namely to determine the relationship between gravida and the incidence of preeclampsia in pregnant women. The research used by researchers aims to reveal correlative relationships between variables. Correlative relationships refer to the tendency that variations in one variable are followed by variations in other variables (Notoatmojo 2012).

In this study, a retrospective approach method is used, namely research where the dependent variable data is collected first, then the causal variables that have occurred in the past are measured, for example a year ago (Hidayat 2014). In this research, data was collected from the medical records of the Maternity Room at RSIA Muhammadiyah Probolinggo. The population in this study were all pregnant women who experienced preeclampsia in the Maternity Room at RSIA Muhammadiyah Probolinggo in the period 1 January 2021 to 31 December 2021, totaling 133 pregnant women. The sample in this study was all pregnant women who experienced preeclampsia taken randomly. The location of the research was in the Medical Records room, Maternity Room, RSIA Muhammadiyah Probolinggo

## Results

In this chapter, the results of research on the relationship between gravida and the incidence of preeclampsia in pregnant women in the Maternity Room at RSIA Muhammadiyah

Probolinggo, which were obtained from medical record data recorded from 1 January 2021 to December 2021, which was carried out from May to 28 June 2022 in the recording room, will be presented. maternity medicine RSIA Muhammadiyah Probolinggo. The data obtained is recorded in a table that has been made before, then classified according to its category.

Table 1. Characteristics of Respondents Based on Gravida in Pregnant Women Experiencing Preeclampsia at RSIA Muhammadiyah Probolinggo.

Gravida	(Frekuensi)	Persentase (%)
Primigravida	62	62 %
Multigravida	38	38 %
Jumlah	100	100%

Sumber : Secondary Data 2022

From table 1 it can be seen that of the 100 respondents who experienced preeclampsia, most of them were Primigravida mothers, 62 respondents (62%).

Tabel 2. Characteristics of Respondents Based on Preeclampsia Diagnosis in Pregnant Women Who Experience Preeclampsia at RSIA Muhammadiyah Probolinggo



Sumber : Secondary data 2022

From table 2 It can be seen that of the 100 respondents who experienced preeclampsia, the majority were diagnosed with severe preeclampsia, 55 respondents (55%).

Table 3. Cross Tabulation Between Gravida and Preeclampsia Incidence at RSIA Muhammadiyah Probolinggo.

Gravida	Preeclampsia		Jumlah
	Mild	Severe	
Primigravida	(15 %)	(47 %)	(62 %)
Multigravida	(30 %)	(8 %)	(38 %)
Jumlah	(45 %)	(55 %)	(100%)

Sumber : Secondary data 2022

From table 3 it can be seen that of the 100 respondents who experienced mild preeclampsia experienced by multigravida mothers, 30 people (30%) of the number of pregnant women who experienced preeclampsia in 2021, while pregnant women who experienced severe preeclampsia in primigravida mothers were 47 people. (47%).

The results of SPSS calculations using Spearman Rank with a sample size of 100, then the Sig value. (2-tailed) is 0.00 as is the basis for decision making above, so it can be concluded that there is a significant relationship between Gravida and the incidence of Pre-eclampsia. Then from the output above it is known that the Correlation Coefficient value is 0.534, so this value indicates a relationship with a moderate

Diagnosa	(Frekuensi)	Persentase (%)	corr
Preeklampsia			elat
Mild preeclampsia	45	45 %	ion
Severe pre-eclampsia	55	55 %	bet
Jumlah	100	100%	wee

n Gravida and the level of Pre-Eclampsia.

## Discussion

Menurut Rusfianti (2014), Gravida or pregnancy is a natural and physiological event that occurs in women which is preceded by a fertilization event that forms a zygote and eventually becomes a fetus that undergoes a process of development in the uterus until the delivery process. Women who have had 6 or more pregnancies are more likely to experience several complications. Some of the complications are: Weak contractions during labor, Bleeding after delivery, Placenta previa, and Preeclampsia. The frequency of preeclampsia is higher in primigravidas compared to multigravidas, especially in young primigravidas and increases in old age primigravidas. Preeclampsia often occurs in the first pregnancy and does not arise again in subsequent pregnancies. This can be explained that in the first pregnancy the formation of blocking antibodies against placental antigens is imperfect, which will be more perfect in subsequent pregnancies (Sarwono Prawiroharjo 2016).

According to the researchers' analysis, according to the research results, 62 people (62%) had preeclampsia, which occurred in primigravidas. This shows that gravida is one of the factors that influences the occurrence of preeclampsia. The higher the number of gravidas, the higher the complications, but in this study it was found that out of 100 pregnant women who experienced preeclampsia, 62 occurred in primigravidas, this is supported by the theory that the frequency of preeclampsia occurs higher in primigravidas, especially in young primigravidas and increases in primigravidas. old. In young primigravidas, the reproductive organs are not yet ready to accept pregnancy, which will increase the occurrence of pregnancy poisoning in the form of preeclampsia. Meanwhile, in older primigravidas there are changes in the tissues and uterine organs and the birth canal is no longer flexible. Older primigravidas tend to have other diseases in the mother's body, one of which is preeclampsia.

From the research results, 55 people (55%) of pregnant women at RSIA Muhammadiyah experienced severe preeclampsia, this shows that the incidence of severe preeclampsia is higher than the incidence of mild preeclampsia in pregnant women. Mothers who suffer from severe preeclampsia require special treatment and

treatment in hospital because severe preeclampsia can have a bad impact on the mother and fetus. In the mother, it will cause failure of vital organs which, if not treated immediately, will lead to seizures and even coma. Meanwhile, in the fetus, the supply of O<sub>2</sub> from the mother to the fetus is hampered so that the fetus lacks O<sub>2</sub> and emergencies such as fetal death in the womb and fetal death at birth can occur. Therefore, special supervision and treatment is very important to prevent further complications in the mother and fetus. The need for regular ANC visits to health workers will make it easier for mothers or health workers to detect pregnancy complications such as preeclampsia as early as possible. Therefore, the role of health workers and mothers' awareness of the importance of recognizing the danger signs of pregnancy is very necessary.

Based on research conducted by Sri Sumarni in 2014, those aged 28-35 years experienced more cases of pre-eclampsia. The theory put forward by (Bobak, 2004) is that ages <20 years and >35 years are healthy reproductive ages. In pregnancies less than 20 years, reproductive conditions that are not ready to accept pregnancy will increase the form of pre-eclampsia (MANUABA, 2013).

Preeclampsia is a disease with signs

of hypertension, edema and proteinuria that arise due to pregnancy, but can occur previously, for example in hydatidiform mole. The cause of preeclampsia cannot currently be known with certainty, even though the research carried out on this disease is very advanced. Everything is new based on the theory connected with events. That is why preeclampsia is also called "disease of theory", a health disorder that relies on theory. One of these theories is the immunological theory which says that preeclampsia often occurs in the first pregnancy and does not occur again in subsequent pregnancies. This can be explained that in the first pregnancy the formation of blocking antibodies against placental antigens was not perfect, which became more perfect in subsequent pregnancies. According to (Keman 2014) get some data that supports the existence of an immune system in people with PE-E. Some women with PE-E have immune complexes in the serum, several studies have also found activation of the complement system in PE-E followed by proteinuria. Although there is no definite theory regarding the causes of preeclampsia, several studies have concluded that a number of factors influence the occurrence of preeclampsia, one of which is gravida. Preeclampsia is more common in

primigravidas than multigravidas. The incidence is high in young primigravidas, increasing in older primigravidas. In primigravidas, the formation of blocking antibodies is incomplete, thereby increasing the risk of preeclampsia. The development of preeclampsia increases at the age of the first pregnancy and pregnancies at extreme ages, such as too young or too old (Sujiatini,2009:174).

In the delivery room of RSIA Muhammadiyah in 2021 the incidence of preeclampsia is higher in primigravidas than multigravidas, this does not rule out that age is a factor that influences the occurrence of preeclampsia. We can see this in table (5.1) of 30 (30%) pregnant women who had preeclampsia aged 16-20 years, and 54 people (54%) aged 21-35 years and 16 people (16%) aged 36-48 year. Healthy reproductive age is a safe age for pregnancy and childbirth, which is 20-30 years old. Preeclampsia and eclampsia are ongoing complications of pregnancy, therefore through antenatal care is aimed at preventing the development of preeclampsia, or at least being able to detect an early diagnosis so as to reduce the incidence of morbidity. At the initial level, preeclampsia does not give symptoms that can be felt by the patient himself, so an early diagnosis can only be made with antenatal care. If the expectant

mother makes weekly visits to the prenatal clinic during the last 4-6 weeks of her pregnancy, there is an opportunity to do a proteinuria test, measure blood pressure, and check for signs of edema. Once an early diagnosis is known, it is necessary to treat it immediately to prevent the occurrence of eclampsia. In this way, the incidence of preeclampsia can be reduced so that the morbidity and mortality rates for mothers and babies can also be reduced. Therefore it really needs active participation both pregnant women and their families or also the active role of health workers in anticipating the occurrence of preeclampsia early. It is also necessary for paramedics to provide facilities for consultation and treatment so that it makes it easier for them to get fast, precise and appropriate services.

Gravida in the mother is a condition that cannot be changed actually but can be planned for future expectations. Primigravida is the status of the mother's first pregnancy while multigravida is the status of the mother's repeated pregnancies. The first process towards an adaptive response of a mother's body to different conditions will occur in the first pregnancy (immunological theory). This happens because the first pregnancy will be the difference between the condition of a mother who was not pregnant before becoming

pregnant. Foreign body intolerance (placenta and fetus) in the first pregnancy will bring the mother closer to the risk of obstetric emergencies (preeclampsia). In multigravidas, the process towards adaptation actually occurs because the mother has to face the process of weakening of the reproductive organs due to repeated pregnancies and childbirth, resulting in the risk of preeclampsia.

The results of this study are in accordance with the theory which states that women who have just become mothers with a new partner have a six to eight times greater risk of developing preeclampsia than multigravidas. The immunologic theory clearly explains the relationship between gravida or parity with the incidence of preeclampsia. The theory states that blocking antibodies against placental antigens that are formed in the first pregnancy are the cause of preeclampsia. This theory also states that due to a decrease in the human G protein antigen (HLA), which plays an important role in modulating the immune response, the mother rejects the product of conception (MD, 2014) (Sumami, Hidayat, and Mulyadi 2014).

Efforts to overcome preeclampsia due to maternal gravida using a nursing science approach can be carried out with three levels of prevention, especially through intensive



health promotion, that first pregnant women (gravida I) and gravida III have a greater risk of developing preeclampsia. The real effort that can be made is to regulate the number of children as much as possible based on a safe level without risk, namely gravida II-III.

### **Ethics Approval and Consent to Participate**

The protocol used in this study was approved by the ethics committee for experimentation of the dr Soebandi University No.307/EC/KEPK/S2/08/2021.

### **Acknowledgment**

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