

# Relationship Between Age and Gravidity with Preeclampsia Incident among Pregnant Women at Puskesmas Cukir Jombang

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# Relationship Between Age and Gravidity with Pre-eclampsia Incident among Pregnant Women at Puskesmas Cukir Jombang

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## ABSTRACT

Pre-eclampsia is a disease that caused of maternal death. Age and gravidity are predisposing factors that caused pre-eclampsia. The aim of this study was to determine the relationship between age and Gravidity with pre-eclampsia incidence among Pregnant Women at Puskesmas Cukir Jombang. This research used retrospective approach with case control design. The study was conducted at Puskesmas Cukir Jombang in June 2015. The population were all Pregnant Women who assessed in Puskesmas Cukir Jombang, the sample of this study was 30 respondents who met with inclusion and exclusion criteria. Purposive sampling technique used to collect the samples. Independent variable in this research was age and Gravidity, dependent variable was Pre-eclampsia. The instrument of this study used questionnaire, the data were analyzed using Chi Square test and regression logistic with  $\alpha \leq 0.05$ . The results showed that there was correlation between age and incidence of preeclampsia with  $p = 0.00$  ( $p \leq \alpha$ ). Moreover, there was correlation between parity and pre-eclampsia with  $p = 0.00$  ( $p \leq \alpha$ ). However, the dominant factor with preeclampsia in this study was gravidity= 0.013, OR = 20.68). Pregnant women with age and Gravidity were more high risk to getting pre-eclampsia, so they should perform ANC regularly so it can be done early and prevent preeclampsia.

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## I. INTRODUCTION

Pregnancy is a physiological process. Most pregnancies process were run normally, but some pregnancy has a potential risk for maternal complications, including pre-eclampsia. Factors affecting pre-eclampsia are multiple pregnancies, obesity, high blood pressure or hypertension, diabetes or kidney disorders and pregnancy among adolescence (primipara) or multiparas [1]. In addition age is also a risk factor for preeclampsia, where pre-eclampsia is commonly obtained in early and late reproductive age, especially among adolescence or above 35 years old [2]. Parity 1 and high parity (over 2 of 3) were more high risk to getting maternal mortality. Primigravida have higher pre-eclamptic frequencies than multigravida, especially among young primigravids [3]. Approximately 85% of preeclampsia occurs in the first pregnancy. Women who are being new mothers or mothers with new couple are 6-8 times more susceptible to getting preeclampsia than multiparous mothers [4]. Preeclampsia is a serious complication while pregnancy, about 60.000 maternal deaths caused of Preeclampsia in the world [5]. Ranges from 0.3 to 0.7% for preeclampsia incident in developing countries. However, only 0.05 - 0.1% preeclampsia incident occur in developing countries [3]. Based on preliminary study was conducted at Puskesmas Cukir Jombang, from January to March showed that as many as 30 mothers who experienced preeclampsia in 2015. It mean that the highest incidence of preeclampsia is a problem that requires to get priority treatment.

Risk factors for preeclampsia are include race, maternal age (<20 years or > 35 years, preeclampsia history, chronic renal, chronic hypertension, molar pregnancy, multiple infant, diabetes mellitus, and genetic factors [2,6]. Pauline (1993), said that 5% -8% of pregnant mother had

preeclampsia experience worldwide, and 12% it was caused by primigravida [7]. preeclampsia or eclampsia will give impact for infant such as complete vasospasmus including spasmus in arteriolar spiral deciduae because of decreased blood flow to the placenta. Thus there is a fetoplacental circulation disorders that had function both as nutritive and oxygenation. In chronic disorder will cause disturbance of fetal growth in uterus and it caused by reduced carbohydrate, protein, and others growth factors that should be accepted by the infant [8].

Control of risk factors has an important role in prevention of preeclampsia. The best prevention is doing regular pregnancy assessment to identify at-risk mothers and early detection of preeclampsia [9]. Based on this background, researchers interested to conducting research the relationship between age and Gravidity with pre-eclampsia incidence among Pregnant Women at Puskesmas Cukir Jombang.

## II. METHOD

The research design in this study used case control, it is an analytic (survey) study that concerns to know how risk factors are studied using retrospective approach. Risk factors were measured by looking at past events to determine whether or not there are any risk factors [10]. The study was conducted at Puskesmas Cukir Jombang in June 2015. The population were pregnant mother with preeclampsia who are aged and regularly check at Puskesmas Cukir Jombang with a total sample of 30 respondents who met inclusion and exclusion criteria. The inclusion criteria in this study were: 1) Case group (Pregnant women diagnosed with preeclampsia at Cukir Jombang Public Health Center and willing to be respondent); Control group (Pregnant women without preeclampsia and willing to be respondents). Exclusion criterion is pregnant mother with preeclampsia have other complications. Sampling technique using purposive sampling. The independent variable in this study are age and gravidity, the dependent variable is preeclampsia. The instrument using questionnaire, the data were analyzed using Chi Square test and Regression Logistic with  $\alpha \leq 0,05$ .

### III. RESULT AND DISCUSSION

#### 1. Characteristic of Respondent

Tabel 1.1 Characteristic of Respondent

Number	Variabele	Frequency (N)	Percentage (%)
1.	Age		
	a. < 20; >35 years	14	46,7
	b. 20-35 years	16	53,3
2.	Education		
	a. Elementary school	1	3,3
	b. Primary high school	12	40
	c. Senior high school	14	46,7
	d. Bachelor degree	3	10
3.	Occupation		
	a. Civil servant	2	6,7
	b. Farmer	5	16,7
	c. Buruh	11	36,7
	d. Wiraswasta	8	26,7
	e. Lain-lain	4	13,3
4.	History of the disease		
	a. Hipertensi	19	63,3
	b. DM	4	13,3
	c. Obesitas	4	13,3
	d. None	3	10
5.	History of family Preeklampsia		
	a. Have	14	46,3
	b. No have	16	53,7
6.	Maternal History		
	a. Primigravida	21	70
	b. Multigravida	9	30
	c. Grandemultigravida	0	0

*Primary Data, 2015*

Table 1.1 showed that most of respondents aged 20-35 years old as many as 16 (53.3%) of respondents and a minority aged <20; > 35 years old as many as 14 (46.7%) of respondents. Almost half of respondents or 14 (46.7%) have high school as their education and a small proportion or 1 (3.3%) hold primary school as their education. Almost half of the respondents or 11 (36.7%) worked as laborers, and only 2 (6.7%) worked as civil servants. Most of respondents had hypertension history as much as 19 (63.3%). For family history, most of respondent or 16 (53.7%). did not have preeclamps family history. Moreover, mostly respondent in this study were first pregnant (primigravida) as many as 21 (70%) respondents.

2. Relationship between age with Pre-eclampsia incident among Pregnant Women at Cukir Jombang Public Health Center

Tabel 1.2 Relationship between age with Pre-eclampsia incident among Pregnant Women at Cukir Jombang Public Health Center, June 2015

No.	Age	Pre-eclampsia Incident				Total		P	OR	CI (95%)	
		Yes		No						Min	Max
		F	%	F	%	F	%				
1	Age risk	12	63,2	2	18,2	14	46,7	0,017	7,71	1,28	45,34
2	No age risk	7	36,8	9	81,8	16	53,3				
Total		19	100	11	100	30	100				

Primary data, 2015

3. Relationship between Gravida with Pre-eclampsia incident among Pregnant Women at Cukir Jombang Public Health Center

Tabel 1.3 Relationship between Gravida with Pre-eclampsia incident among Pregnant Women at Cukir Jombang Public Health Center, June 2015

No.	Gravida	Pre-eclampsia Incident				Total		P	OR	CI (95%)	
		Yes		No						Min	Max
		F	%	F	%	F	%				
1	Primigravida	17	89,5	4	36,4	21	70	0,002	14,88	2,19	100,66
2	Multigravida	2	10,5	7	63,6	9	30				
Total		19	100	11	100	30	100				

Primary data, 2015

4. Dominant Factors Relating to Pre-eclampsia incident among Pregnant Women at Cukir Jombang Public Health Center

Tabel 1.4 Dominant Factors Relating to Pre-eclampsia incident among Pregnant Women at Cukir Jombang Public Health Center, June 2015

Variable	Coefisien	p	OR	CI (95%)	
				Min	Max
Age	2,414	0,046	11,11	1,04	120,33
Gravida	3,029	0,013	20,68	1,88	225,84
Constanta	-8,478	<0,05	0,000		

Primary data, 2015

Table 1.2 showed that respondents in this study with age <20 years or age > 35 years are high risk for experienced preeclampsia as many as 12 (63.2%) respondents. Moreover, respondents with age 20-35 years old nearly half had preeclampsia 7 (36.8%) respondents. Chi Square test shows that there is a significant correlation between age with preeclampsia with significance value 0,017 ( $p < \alpha$ ) and OR = 7,71 which means that risky age (<20;> 35 years) have risk of preeclampsia about 7,71 times than aged 20-35 years.

Preeclampsia is a specific pregnancy syndrome, it was reduced organ perfusion due to vasospasm and endothelial activation which characterized by increasing blood pressure and urine protein [2]. Preeclampsia more common in early and late reproductive years of adolescence or above 35 years old [2]. Pregnant women who aged <20 years are easy to got high blood pressure and more



quickly had a seizures[11]. However, pregnant women who aged 35 years old are a predisposing factor for preeclampsia. Increasing of age is more susceptible to chronic hypertension incident and more faces a greater risk of developing hypertension due to pregnancy [2].

The results showed that respondents who experienced preeclampsia were found at age less than 20 years and more than 35 years, because age has tendency toward preeclampsia compared with respondents with age between 20-35 years old. The ideal age for a woman to get pregnant and to give birth are aged of 20-35 years, because women at that age are in a healthy reproductive period. Maternal deaths in pregnant and delivery mothers at aged <20 years old and aged > 35 years old were increased significantly. This occurs because at that age the mother exposed to both medical and obstetric complications that can threatening the mother's life [12]. The results of previous studies also showed a significant association between age and the incidence of preeclampsia [7,13].

Table 1.3 showed that almost all or 17 (89.5%)<sup>2</sup> primigravida had preeclampsia, and only 2 (10.5%) multigravida who experienced preeclampsia. Chi Square test shows that there is significant relation between gravida with preeclampsia with significance value 0,002 ( $p < \alpha$ ) and OR = 14,88 which means that primigravida mother has risk of preeclampsia 14,88 times compared to multigravida mother.

Pregnancy with preeclampsia is more common in primigravida, this is because of immunologically in the first pregnancy had a blocking antibodies against imperfect placenta so antigen will result in an unfortunate immune response to histoincompability placenta [4]. Gravida 2-3 is the safest gravida for pregnant and maternal women [3].

The results of this study showed that primigravida mothers mostly had preeclampsia and there was a relationship between gravida and the incidence of preeclampsia. This is consistent with previous studies suggesting that primigravida mothers had a risk of severe preeclampsia 2.2 times compared with multigravida mothers [7]. Other studies also showed that gravida is a factor associated with the incidence of preeclampsia [14]. The results of study conducted by Nur Djannah and Arianti (2010), also mentioned that the incidence of preeclampsia mostly obtained in primigravida parity as much as 69.5% [15]. In primipara the incidence of preeclampsia is greater than because of hormonal changes and there is a change of the uterus because of new mother experienced pregnant for the first time. In primigravida or mother who had first became pregnant often experienced stress in facing childbirth. The emotional stress that occurs in primigravida because of an increased release of corticotropic-releasing hormone (CRH) by the hypothalamus, which then causes increased cortisol. The effect of cortisol is to prepare the body to respond to all stressors by increasing sympathetic responses, including responses at increasing cardiac output and maintaining blood pressure [16].

The<sup>9</sup> results of this study showed that the dominant factor or strength of the greatest relationship with the incidence of preeclampsia was gravida with ( $p = 0.013$ , OR = 20.68), which means that gravida had a risk of preeclampsia 20.68 times compared with the age.

#### IV. CONCLUSION

The results showed: 1) <sup>1</sup> There is relationship between age and the incidence of preeclampsia; 2) There is relationship between gravida and incidence of preeclampsia and; 3) the dominant factor associated with the occurrence of preeclampsia is gravida. Therefore, pregnant women with age and gravida at risk should do the ANC regularly so that can be done early and precisely in case of preeclampsia.

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