



Factors Related to Events of Hypertension in Pregnant Mothers in Pijorkoling District at Public Health Padangsidempuan 2016

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Abstract. Pregnancy with hypertension is one of the main causes of high maternal and fetal mortality. The purpose of this study was to determine the relationship factors with incidence of hypertension in pregnant women in Puskesmas Pijorkoling Padangsidempuan City 2016. Type of analytical research with cross sectional approach. The number of samples in this study were 39 peoples. The result showed that there is influence between age and incidence of hypertension p value = 0.001 ($p = 0.001 < 0.05$), there is the influence of nutrition with hypertension in pregnant women with p value = 0.002 ($p = 0.002 < 0.05$), there is the influence of a history of hypertension and hypertension in pregnant women with p value = 0.003 ($p = 0.003 < 0.05$). For pregnant women in order to do early prevention of the risk of hypertension by always antenatal. For Puskesmas Pijorkoling Padangsidempuan City to continue to improve hypertension prevention counseling during pregnancy.

Keywords: Hipertension · Pregnancy · Relationship Factors

1 Introduction

Hypertension is blood pressure or heart rate that is higher than normal caused by narrowing of blood vessels (vasoconstriction). Pregnancy events cause changes in physiological adaptations in the cardiovascular system of pregnant women to protect normal functions, meet the body's metabolic needs during pregnancy and provide energy for fetal development and growth. Hypertension in pregnancy plays a major role in maternal and perinatal morbidity and mortality. Hypertension is estimated to be the cause of complications of about 7% to 10%. Pregnancy with hypertension is one of the main causes of high maternal and fetal mortality (Anwar 2007).

The World Health Organization (WHO) reports that 536,000 pregnant women die from hypertension during childbirth worldwide. The maternal mortality rate (MMR) in Sub-Saharan Africa is 270/100,000 live births, while in South Asia it is 188/100.00 live births and in Southeast Asia 35/100,000 (WHO 2010).

Based on the WHO report in 2010 in Indonesia the Maternal Mortality Rate is relatively high, namely 420/100,000 live births compared to ASEAN countries. MMR in Singapore is 14/100,000 Volume 1 Number 2 of 2012, ISSN: 2302-17212 live births, in Malaysia 62/100,000 live births and in Thailand 110/100,000 live births. In Vietnam 150/100,000 live births, in the Philippines 230/100,000 live births and Myanmar 380/100,000 live births (WHO 2010).

The Ministry of Health in 2009 stated that the maternal mortality rate in Indonesia was 226/100,000 live births. Reducing the maternal mortality rate in Indonesia is still too slow to reach the target. The development goal is to reduce maternal mortality by three quarters during pregnancy and childbirth. In the 2003–2009 period, the decline in MMR in Indonesia is far from the target to be achieved in 2010 and 2015 which is estimated at 125/100,000 live births and 115/100,000 live births (Depkes RI 2009).

Maternal Mortality Rate is an indicator of the success of development in the health sector. MMR refers to the number of maternal deaths starting from pregnancy, childbirth and the postpartum period. According to data from the Indonesian Demographic Health Survey (IDHS) in 2009, the MMR in Indonesia was 307/100,000 live births and in 2009, 228/100,000 live births (IDHS 2009).

North Sumatra, the Maternal Mortality Rate in the last 4 years has shown a downward trend. In 2006 there were 320/100,000 live births and became 315/100,000 live births in 2007. In 2008 there were 260/100,000 live births and in 2009 there were 248/100,000 live births (Provsu Health Office 2009).

Pijorkoling Health Center, is one of the health centers under the supervision of the Padangsidempuan City Health Office. Based on data obtained in 2014, out of 575 pregnant women who had a pregnancy check-up there were 52 people who had hypertension. Then in 2015 there was an increase, from 636 pregnant women who did pregnancy checks as many as 65 people who had hypertension.

Based on the description above, the researchers are interested in conducting research on factors related to the incidence of hypertension in pregnant women at the Pijorkoling Health Center, Padangsidempuan City in 2016.

Based on the description of the background, the formulation of the problem in this study is what are the factors related to the incidence of hypertension in pregnant women at the Pijorkoling Health Center, Padangsidempuan City in 2016?

The purpose of this study was to determine the relationship factors with incidence of hypertension in pregnant women in Puskesmas Pijorkoling Padangsidempuan City 2016.

2 Method

2.1 Research Types and Design

This type of analytical survey research with a cross sectional approach is a study to study the dynamics of the correlation between risk factors and effects, by approaching, observing or collecting data at one time with the aim of knowing the factors associated with the incidence of hypertension in pregnant women. at the Pijorkoling Health Center, Padangsidempuan City in 2016 (Notoatmodjo 2010).

2.2 Research Location and Time

This research was conducted at the Pijorkoling Public Health Center, Padangsidempuan City. The research time was carried out from March to August 2016. The research activities carried out started from submitting titles, consulting with supervisors, preliminary surveys, proposal making, proposal examinations, research, data processing and thesis results examinations.

2.3 Population and Sample

- a. The population in this study were pregnant women who visited for a pregnancy check-up at the Pijorkoling Public Health Center, Padangsidempuan City.
- b. The sample is part of the population that is considered representative of the study. The sampling technique used in this study was accidental sampling, namely sampling that happened to be found at the location when conducting research (Hidayat 2008). The number of samples found during the study were 39 people. The inclusion criteria for sampling in this study consisted of:
 - c. Pregnant women who are in the work area of the research location
 - d. Primipara, secundipara and multipara pregnant women
 - e. Pregnant women who are willing to be respondents

2.4 Data Collection Tool

The data collection tool used in this study was a questionnaire about the factors associated with the incidence of hypertension in pregnant women, totaling 10 questions. This questionnaire was made by the researcher himself and in consultation with the supervisor.

2.5 Research Data Source

1. Primary Data
Primary data were obtained directly from respondents' answers to questions posed through questionnaires.
2. Data Sekunder

Secondary data is data obtained from the Pijorkoling Public Health Center, Padangsidempuan City which relates to the number of pregnant women who visit the Puskesmas and other data that supports this research.

2.6 Data Processing

According to Hidayat (2007) in the data processing process there are steps that must be taken, namely:

- a. Editing is an activity for checking and improving the data obtained or collected. Editing is done at the data collection stage or after all data has been collected.

- b. Coding is the activity of assigning numerical codes (numbers) to data consisting of several categories.
- c. Tabulating is making data tables, according to the research objectives or what the researcher wants.

2.7 Data Analysis

a. Univariate

Univariate analysis was carried out to see the frequency distribution of each studied variable, where the independent variable was the influencing factors and the frequency distribution of the dependent variable, namely the incidence of hypertension in pregnant women.

a. Bivariate

Bivariate analysis was carried out to see whether there was a relationship between the frequency distribution of the independent variable, namely factors including age, parity, nutrition, smoking habits, history of hypertension and the frequency distribution of the dependent variable, namely the incidence of hypertension in pregnant women.

3 Research Result

3.1 Overview of Research Sites

Pijorkoling Health Center is one of the health centers under the Padangsidempuan City Health Office, which has a working area of 22.34 Km². Geographically, the Pijorkoling Health Center is bordered by:

- a. North is bordered by Pintu Padang District, Padangsidempuan City
- b. To the south, it is bordered by Pudun Jae District, Padangsidempuan City
- c. West is bordered by Southeast Padangsidempuan District
- d. East is bordered by North Padangsidempuan District

3.2 Univariate Analysis

1. Frequency Distribution by Age

Based on Table 1. It can be seen that of 39 respondents, based on the age group of pregnant women, that the majority of respondents were 20 people (51.3%) aged 20–35 years and a minority of respondents were 8 people (20.5%) > 35 years old.

2. Frequency Distribution by Parity

Based on Table 2. It can be seen that from 39 respondents, based on parity of pregnant women, that the majority of respondents were 23 people (59.0%) with parity 1 time giving birth or primipara and minority respondents as many as 5 people (12, 8%) with parity 3x delivery or multipara.

Table 1. Frequency Distribution by Age at Pijorkoling Health Center Padangsidempuan City in 2016

Age	n	%
<20 y.o	11	28,2
20–35 y.o	20	51,3
>35 y.o	8	20,5
	39	100,0

Table 2. Frequency Distribution by Parity at Pijorkoling Health Center Padangsidempuan City in 2016

Parity	n	%
1x (primipara)	23	59,0
2x (skundipara)	11	28,2
≥3x (multipara)	5	12,8
	39	100,0

3. Frequency Distribution by Nutrition

Based on Table 3. It can be seen that of 39 respondents, based on the nutrition of pregnant women, the majority of respondents, namely 28 people (71.8%) had their nutrition fulfilled during pregnancy and the minority of respondents, namely 11 people (28.2%) had their nutrition fulfilled during pregnancy.

4. Frequency Distribution by Smoking Habits

Based on Table 4. It can be seen that of 39 respondents, based on the smoking habits of pregnant women, the majority of respondents, namely 23 respondents (59.0%) have a habit of not smoking and a minority of respondents, namely 16 respondents (41.0%) have smoking habit.

5. Frequency Distribution by History of Hypertension

Table 3. Frequency Distribution by Nutrition in Pijorkoling Health Center Padangsidempuan City in 2016

Nutrition	n	%
Fulfilled	11	28,2
Not Fulfilled	28	71,8
	39	100,0

Table 4. Frequency Distribution by Smoking Habits at Pijorkoling Health Center Padangsidimpuan City in 2016

Smoking Habits	n	%
Smoke	16	41,0
No Smoke	23	59,0
	39	100,0

Table 5. Frequency Distribution by History of Hypertension at the Pijorkoling Public Health Center, Padangsidimpuan City in 2016

History of Hypertension	n	%
No	23	59,0
Yes	16	41,0
	39	100,0

Table 6. Frequency Distribution by Blood Pressure at the Pijorkoling Health Center, Padangsidimpuan City in 2016

Hypertension	n	%
≤120/80 mmHg	5	12.8
>120/80 mmHg	34	87.2
	39	100.0

Based on Table 5. It can be seen that from 39 respondents, based on a history of hypertension in pregnant women, the majority of respondents, namely 23 respondents (59.0%) had never experienced it and a minority of respondents, namely 16 respondents (41.0%) had experience.

6. Frequency Distribution by Hypertension Incidence

Based on Table 6. It can be seen that from 39 respondents based on blood pressure of pregnant women, that the majority of respondents, namely 34 respondents (87.2%) had blood pressure > 120/80 mmHg and a minority of respondents, namely 5 respondents (12.8%) had blood pressure 120 /80 mmHg.

Table 7. Relationship of Age with Hypertension Incidence in Pregnant Women at Pijorkoling Health Center Padangsidempuan City 2016

Age	Hypertension Incidence		n	P Value
	≤120/80 mmHg	>120/80 mmHg		
<20 y.o	5	6	11	0,002
20–35 y.o	0	20	20	
>35 y.o	0	8	8	
Total	5	34	39	

Table 8. Relationship of Parity with Hypertension Incidence in Pregnant Women at Pijorkoling Health Center Padangsidempuan City 2016

Parity	Hypertension Incidence		n	P Value
	≤120/80 mmHg	>120/80 mmHg		
1x (primipara)	3	20	23	0.064
2x (skundipara)	1	10	11	
≥3x (multipara)	1	4	5	
Total	5	34	39	

3.3 Bivariate Analysis

1. Age Relationship with Hypertension Incidence

Based on Table 7, It can be seen that the Chi-square test results obtained p value = 0.002 < 0.005. It can be said that there is a relationship between age and the incidence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

2. Correlation of Parity with Hypertension Incidence

Based on Table 8, It can be seen that the Chi-square test results obtained a value of $p = 0.064 > 0.05$. It can be said that there is no correlation between parity and the incidence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

3. The Relationship of Nutrition with Hypertension Incidence

Based on the Table 9, it can be seen that the Chi-square test results obtained a value of $P = 0.002 < 0.05$. It can be said that there is a relationship between nutrition and the incidence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

Table 9. The Relationship between Nutrition and Hypertension Incidence in Pregnant Women at Pijorkoling Health Center Padangsidempuan City in 2016

Nutrition	Hypertension Incidence		n	P Value
	≤120/80 mmHg	>120/80 mmHg		
Fulfilled	5	6	11	0,001
Not Fulfilled	0	28	28	
Total	5	34	39	

Table 10. The Relationship between Smoking Habits and the Incidence of Hypertension in Pregnant Women at the Pijorkoling Health Center Kota Padangsidempuan 2016

Smoking Habits	Hypertension Incidence		n	P Value
	≤120/80 mmHg	>120/80 mmHg		
Smoke	3	13	16	0,003
No Smoke	2	21	23	
Total	5	34	39	

Table 11. Correlation of Hypertension History with Hypertension Incidence of Pregnant Women at Pijorkoling Health Center Padangsidempuan City 2016

Hypertension History	Hypertension Incidence		n	P Value
	<120/80 mmHg	>120/80 mmHg		
No	3	20	23	0,001
Yes	2	14	16	
Total	5	34	39	

4. The Relationship of Smoking Habits with Hypertension Incidence

Based on the Table 10, it can be seen that the Chi-square test results obtained p value = 0.583 > 0.05. It can be said that there is no relationship between smoking habits and the incidence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

5. The Relationship of Hypertension History with Hypertension Incidence in Pregnant Women

Based on Table 11. It can be seen that the Chi-square test results obtained p value = 0.003 < 0.05. It can be said that there is a relationship between a history of hypertension and the incidence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

4 Discussion

1. Age Relationship with Hypertension Incidence in Pregnant Women at Pijorkoling Health Center Padangsidempuan City in 2016

Age or age is the length of time a person lives, since he was born or held (Hoetomo 2006). There is agreement from the researchers that the prevalence of hypertension will increase with age. This is because in old age an increased blood condition is needed to pump a certain amount of blood to the brain and other vital organs. In old age blood vessels have begun to weaken and the walls of blood vessels have thickened (Susalit 2006).

2. The Relationship between Parity and Hypertension Incidence in Pregnant Women at the Pijorkoling Health Center, Padangsidempuan City in 2016

Parity is the number of deliveries a mother has ever experienced. Parity affects the duration of labor and the incidence of complications. For mothers with primiparas (giving birth to their first baby) because they have never given birth, the abnormalities and complications experienced are quite large such as labor dystocia and also lack of information about childbirth affects the delivery process (Kusmiyati 2008).

3. The Relationship between Nutrition and Hypertension Incidence in Pregnant Women at the Pijorkoling Public Health Center, Padangsidempuan City in 2016

Based on Table 9. It can be seen that the Chi-square test results obtained a P value = 0.001 which means it is smaller than the value of (0.05). Thus it can be said that there is a relationship between nutrition and the occurrence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

4. The Relationship of Smoking Habits with Hypertension Incidence in Pregnant Women at the Pijorkoling Public Health Center, Padangsidempuan City in 2016

Several studies conclude that women who have a smoking habit are more at risk of contracting preeclampsia. In general, preeclampsia/eclampsia can be prevented with good prenatal care. However, in developing countries such as Indonesia, the incidence of preeclampsia/eclampsia is still common (Cunningham 2006).

5. Hubungan Riwayat Hipertensi dengan Kejadian Hipertensi pada Ibu Hamil di Puskesmas Pijorkoling Kota Padangsidempuan tahun 2016

A history of hypertension is a mother who had hypertension before pregnancy or before 20 weeks of gestation. Mothers who have a history of hypertension are at greater risk of developing preeclampsia, as well as increasing maternal and neonatal morbidity and mortality. The diagnosis of preeclampsia is based on an increase in blood pressure accompanied by proteinuria or anasarca edema (Cunningham 2006).

Based on Table 11. it can be seen that the Chi-square test results obtained a P value = 0.001 which means it is smaller than the value of (0.05). Thus it can be said that there is a relationship between a history of hypertension and the occurrence of hypertension in pregnant women at the Pijorkoling Health Center in 2016.

Based on the results of the study and discussion, the researchers concluded that pregnant women who have a family history of suffering from high blood pressure (hypertension) are more likely or at risk of developing hypertension, compared to pregnant women who do not have a family history of hypertension. This is due to the presence

of genes passed down by father, mother, father's brother, mother's brother, grandfather and grandmother.

This is in line with research conducted by Wijaya (2012), the presence of genetic factors in the family will cause the family to have a risk of suffering from hypertension. Individuals who have parents with hypertension are twice as likely to suffer from hypertension than individuals who do not have a family history of hypertension.

In 70–80% of cases, there is a family history of hypertension. Hypertension is also commonly found in monozygotic twins (one egg), if one of them suffers from hypertension. This assumption supports that genetic factors have a role in triggering hypertension. Statistics show that the problem of high blood pressure is higher in identical twins than in non-identical twins. A study shows that there is evidence of an inherited gene for high blood pressure problems (Witono 2012).

From the results of the study, it was stated that the role of family history in the incidence of hypertension was proven by the finding that hypertension was more prevalent in monozygotic twins (one egg cell) than heterozygous twins (different eggs). Blood pressure is closely related to a person's family history. A person whose both parents suffer from hypertension will have a 50–75% chance of becoming hypertensive. On Family history is a risk factor that cannot be controlled so that the incidence of hypertension occurs in pregnant women (Manuaba 2010).

History of illness, for offspring with hypertension, if there is a family member who suffers from hypertension, even though there is no consistent genetic test for hypertension, be careful. Because the family line must have the same genetic structure (Muhammadun 2010).

5 Conclusions and Recommendations

5.1 Conclusion

- a. There is a relationship between age and the incidence of hypertension in pregnant women at the Pijorkoling Public Health Center, Padangsidempuan City with p value = $0.002 < 0.05$
- b. There is a relationship between parity and the incidence of hypertension in pregnant women at the Pijorkoling Public Health Center, Padangsidempuan City with p value = $0.054 > 0.05$
- c. There is a relationship between nutrition and the incidence of hypertension in pregnant women at the Pijorkoling Public Health Center, Padangsidempuan City with p value = $0.001 < 0.05$
- d. There is a relationship between smoking habits and the incidence of hypertension in pregnant women at the Pijorkoling Public Health Center, Padangsidempuan City with a p value = $0.003 < 0.05$
- e. There is a relationship between history of hypertension and the incidence of hypertension in pregnant women at the Pijorkoling Public Health Center, Padangsidempuan City with p value = $0.001 < 0.05$

5.2 Recommendations

1. Pregnant women in the Pijorkoling Public Health Center, Padangsidempuan City Health Center should always carry out a pregnancy check-up to prevent hypertension during pregnancy.
2. For the Pijorkoling Public Health Center, Padangsidempuan City, it is hoped that they will continue to improve counseling on preventing hypertension during pregnancy.

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