

# Association Between Duration of Breastfeeding to Incidence of Maternal Hypertension

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## ABSTRACT

The hormone prolactin and oxytocin, are also related to blood pressure regulation and the risk of hypertension for women who are breastfeeding. The lactation has been associated with an increased risk for incident hypertension, but the effect of duration breastfeeding and exclusive breastfeeding is unknown. The aim of this study was to determine the relationship of duration of breastfeeding with the incidence of hypertension in Primary Health Care, Ambon City. This research is a quantitative study using a cross sectional design with a correlation description approach. The measuring instrument used was a questionnaire. The population in the study were respondents aged 36-65 years, mothers who had a history of breastfeeding. Sampling using a purposive sampling technique. The number of samples was 90 respondents. Data analysis using Kendall's Tau C test and Kendall's Tau B. The results showed that there was a significant relationship between age ( $p = 0.001$ ), education ( $p = 0.029$ ), the duration of breastfeeding ( $p = 0.032$ ) with the incidence of hypertension. There was no relationship between work ( $p = 0.138$ ), parity ( $p = 0.744$ ) with the incidence of maternal hypertension. In conclusion the duration of breastfeeding was associated with incidence of maternal hypertension. Maternal hypertension can be reduced with exclusive breastfeeding activity and continue for up to two years.

**Keywords:** Breastfeeding Duration, Hypertension, age, parity

## 1. INTRODUCTION

Hypertension is one of Non-Communicable Disease (NCD). The 10 diseases that often cause death are: stroke, ischemic heart disease, tuberculosis, malaria, cancer, diabetes mellitus, liver disease, hypertension, diarrhea, typhoid, this is a cause of death that often occurs in the world including hypertension. Hypertension is also known as the silent killer because the patient does not know that she has hypertension before having his blood pressure checked. Hypertension is a public health problem that often occurs in the world and also in Indonesia [1]. Hypertension is a major cause of high cardiovascular mortality and morbidity [2]. Women are easier risky to have hypertension with a very heavy level of hypertension because of malignancies women are high evaluation risk factors compared with men, such as using hormonal medicines while men more have hypertension at the age of 40 years up [3].

One of the events of hypertension in pregnancy is a major cause of mortality and morbidity for mothers and babies. Hypertension in pregnancy also affects about 5-15% of all pregnant women around the world and based on WHO world health data that

pregnant women who have experience hypertension around 35-55% and increases in increasing gestational age of the mother [4].

The results of the Basic Health Research [5] stated that the highest prevalence of hypertension among people aged over 18 years and was in South Kalimantan 44.1%, Indonesia at 34.1%, Maluku 32.5% and the lowest was in the Papua region 22.2%, however those diagnosed by health workers and / or history of taking medication are only 14.5%, of the total population in Indonesia, where sufferers are more common in women (36.9%). Hypertension occurs in the age group 31-44 years (31.6%), age 45-54 years (45.3%), age 55-64 years (55.2%). This shows that the majority of hypertension cases in the community have not been diagnosed and are affordable by health services [5]. Based on the Health Profile of Maluku Province sufferers of hypertension in the population over 18 years especially in Ambon city in 2015 amounted to 14.75% [6].

Analysis results of Delima, et al [7], showed that the couples of childbearing age (WUS) with age  $\geq 35$  years were 3.1 times more at risk of developing hypertension compared to WUS aged  $< 35$  years, because at the age of  $\geq 35$  years the estrogen content thinned and blood vessels became

tense so that it stimulated the rise blood pressure. In general, hypertension sufferers are people aged over 40 years, but at this time it is possible hypertension can be suffered by young people [8]

Research conducted by Agustina & Raharjo [9] suggests that the factors that influence hypertension in fertile women are genetic, habitual obesity, high salt consumption, stress. Genetic factors are very at greater risk for someone affected by hypertension compared with those who do not have genetic factors that reduce hypertension. In addition, obesity also has a risk of 3.5 times the possibility of someone affected by hypertension compared to someone who is not obese. As for the habit of consuming high salt in the food it consumes, foods that high in salt will affect the buildup of fluids in the body because it draws fluid outside the cell so that it is not released, so that it will increase in volume and blood pressure. People who consume salt more than 7 grams per day has a risk of 5.675 times affected by hypertension compared to someone who only consume salt gram less then 3 grams per day. Dietary changes are accelerated by the growing strength of foreign food culture caused by advances in information technology and economic globalization. These dietary changes result in an increasing number of residents experiencing more nutritional problems in the form of overweight and obesity [10].

Breastfeeding is a unique biological phenomenon from the mother which is beneficial for the baby and the mother. For infants, breastfeeding can not only provide nutrition for the body but can also improve nerve development, but can also prevent disease in adulthood [10].

The results of research conducted by Stube et al., [12] suggested that lactation also activates the central neuroendocrine pathway, the hormone prolactin and oxytocin, this hormone is also related to blood pressure regulation and the risk of hypertension for women who are breastfeeding. According to research conducted by Zhang et al., [13] suggested that the effects of high prolactin levels have an effect on preventing hypertension in mothers, and could be a new target for treatment.

Mothers who do not breastfeed for 3 to 12 months are more at risk of cardiovascular disease. At the age of 42-65 years mothers who have a history of breastfeeding can avoid hypertension [12] and [14]. The higher of the duration of breastfeeding, the lower the risk factors for cardiovascular disease such as hypertension, diabetes, hyperlipidemia, breast cancer and ovarian cancer [15].

Achievement of breastfeeding exclusive in eastern Indonesia in 2018 in infants 0-5 months is in Indonesia 37.3%, NTB 20.3%, NTT 21%, Papua 26% and Maluku 43%, from the data above the highest percentage of breastfeeding exclusive is in the province of Maluku with a percentage of 43% while the lowest in achieving exclusive

breastfeeding is in the province of NTB with a percentage of 20.3% [6].

Coverage of breastfeeding exclusive in infants 0-6 months according to District or City in Maluku Province in 2015 there was a decrease in the achievement of breastfeeding. The regions with the highest coverage of breastfeeding based on District / City in Maluku Province are in the Maluku Tenggara Barat area (Southeast Maluku) with coverage of breastfeeding 100%, followed in the second ranked which is in the region of Bursel (South Buru) 85.2%, the third ranked is in the area West Seram 46%, Ambon is the eighth ranked with 25% breastfeeding and the 11th lowest in breastfeeding is in the region Southwest Maluku 2.3%, based on the presentation of coverage of breastfeeding in every region in Maluku Province, it is necessary to increase breastfeeding in each region that has a low rate of breastfeeding coverage [6].

Based on the layout of the Ambon city area with the division of five districts namely nusaniwe, sirimau, baguala, ambon bay and southern leitimur. The largest area in Ambon City is Baguala sub-district with an area of 40.11 km<sup>2</sup>, therefore the working area of the health center has a high incidence of hypertension and low coverage of breastfeeding. In Primary Health Care with the incidence of hypertension 50% suffering from hypertension and for coverage of breastfeeding 20% is still very low in breastfeeding for their babies [16].

Based on the above phenomenon, researchers are interested in examining the characteristics and duration of breastfeeding with the incidence of hypertension in nursing mothers at the primary health care distric at Ambon city, Maluku Province.

## 2. METHOD

This research is a quantitative research method with descriptive correlation to look for factors between variables, research with a description of the correlation design with cross sectional design aims to see the proportion of variables characteristic of mothers with age, education, occupation, parity and duration of breastfeeding. The sampling technique used in this study was purposive sampling. Using table krejcie, in which a population of 100, have 5% with a standard error, so sample obtained respondents are 80. To avoid drop out, the sample was add 10 %.The number of samples to be researched were taken by 90 respondents. Inclusion criteria.

- a. Women who visit Puskesmas Nania aged 36-65 years.
- b. Mothers who have a history of breastfeeding
- c. Willing to be a respondent in research

Exclusion criteria: Women who did not attend at the time of data collection and mothers who were pregnant for the first time, mothers who did not have stroke, dementia.

In this study a valid test was conducted at the two primary health care at District Ambon City, Maluku Province. The study has tested the validity and reliability of both research instruments. The results of the validity test on the breastfeeding duration and hypertension questionnaire 4 questions were declared valid are all questions items had a "corrected item-total" of more than 0.361, with r tables. Coefficient value of Cronbach's Alpha for duration of breastfeeding is 0.84. So the two instruments of this research were declared reliable. The relationship between the two variables, then the statistical data analysis used are: Kendall's Tau b Test and Kendall's Tau c.

**3. RESULT**

**Table 1 Result Distribution Frequency of Characteristics**

Age	Frequency	Percentage (%)
Late adulthood	36	40.0
Early elderly	35	38.9
Late elderly	19	21.1
Total	90	100.0
Education	Frequency	Percentage (%)
Low	53	58.9
High	37	41.1
Total	90	100.0
Parity	Frequency	Percentage (%)
Primipara	27	30.0
Multi-Para	63	70.0
Total	90	100.0
Duration of Breastfeeding	Frequency	Percentage (%)
0-6 months	32	35.6
7-12 months	40	44.4
13-24 months	18	20.0
Total	90	100.0
Worked	Frequency	Percentage (%)
Yes	54	60.0
No	36	40.0
Total	90	100.0
Hypertension	Frequency	Percentage (%)
Yes	39	43.3
No	51	56.7
Total	90	100.0

(Source: Primary data that has been processed)

**Table 2 Result Relationship Characteristics and Duration of Breastfeeding with the Incidence of Hypertension**

Age	The incidence of hypertension				Total		Value
	Not		Yes		N	%	
	N	%	N	%			
Late adulthood	25	69.4	11	30.6	36	100.0	<b>0.001 *</b>
Early elderly	7	20.0	28	80.0	35	100.0	
Late elderly	7	36.8	12	63.2	19	100.0	
<b>Total</b>	<b>39</b>	<b>43.3</b>	<b>51</b>	<b>56.7</b>	<b>90</b>	<b>100.0</b>	
<b>Education</b>							
High	18	34.0	35	66.0	53	100.0	<b>0.029</b>
Low	21	56.8	16	43.2	37	100.0	
<b>Total</b>	<b>39</b>	<b>43.3</b>	<b>51</b>	<b>56.7</b>	<b>90</b>	<b>100.0</b>	
<b>Parity</b>							
Primi	11	40.7	16	59.3	27	100.0	0744
Multi	28	44.4	39	55.6	63	100.0	
<b>Total</b>	<b>39</b>	<b>43.3</b>	<b>51</b>	<b>56.7</b>	<b>90</b>	<b>100.0</b>	
<b>Worked</b>							
Yes	20	37.0	34	63.0	54	100.0	0.138
No	19	52.8	17	47.2	36	100.0	
<b>Total</b>	<b>39</b>	<b>93.3</b>	<b>51</b>	<b>56.7</b>	<b>90</b>	<b>100.0</b>	
<b>Breastfeeding Duration</b>							
0-6 months	23	71.9	9	28.1	32	100.0	<b>0.032 *</b>
7-12 months	6	15.0	34	85.0	40	100.0	
13-24 months	10	55.6	8	44.4	18	100.0	
<b>Total</b>	<b>39</b>	<b>43.3</b>	<b>51</b>	<b>56.7</b>	<b>90</b>	<b>100.0</b>	

\* Kendal know C; Kendal knows b

**4. DISCUSSION**

There is a relationship between age and hypertension in mothers at Primary Health Centre, in Ambon City, it is seen that the younger the age of a mother, the lower the incidence of hypertension. The results of this research are supported by the results of the research of Widjaya et al [17] which states that there is a relationship between age and hypertension in mothers with a p-value of 0,000. It because of the more growing age that more also increase the risk of

hypertension that caused by degenerative process. These results are consistent with the theory mentioned by Dalimartha [18], that hypertension is most dominant at the age group 31-55 years. This is because of age, blood pressure will tend increase. Maternal age at Ambon city had breastfeed their babies dominan late adulthood and early elderly. Hypertension generally develops when a person reaches middle age, which tends to increase, especially those aged over 40 years and even at the age of more than up to 60 years. In general, hypertension attacks men at the age of 31 years, while in women occurs at the age of 45 years (menopause). This is also supported by the results of a related research by Lupton et al (2013) showing that at the age of 42-65 years mothers who have a history of breastfeeding for 18 months are more able to avoid hypertension.

The relationship between education and hypertension for mothers at Primary health care at district. The results of this research are supported by the research results of Anggara & Prayitno [19] which states that there is a relationship between education and the incidence of hypertension with a p-value of 0.042. This result is inversely proportional to Riskesdas 2007 which states that hypertension tends to be high in low education and decreases according to education level. This relationship is not solely due to differences in levels of education, but the level of education affects the healthy lifestyle by not smoking, not drinking alcohol, and exercising more frequently (20). High risk of developing hypertension in low education, it possible because of lack of knowledge in a low education patient to health and difficult or slow to accept an information (counseling) that given by the person and affect to healthy life style/behavior

The parity is significant to incidence maternal hypertension. Although, parity was not found in women with hypertension but not in research of Ruqaiyah [21] stated that there was no relationship between pregnant women and hypertension with a p-value of 0.122. According to the assumptions of parity researchers there is no relationship with the incidence of hypertension. In this research primipara were not hypertensive (40.7%) and multipara (44.4%) were not hypertensive. This shows that both primipara and multipara the incidence of hypertension in pregnancy is higher, therefore to prevent hypertension in pregnant women must carry out regular antenatal care checks, take a healthy diet by consuming foods such as fruits, vegetables, low sodium foods, fish, and exercise (pregnancy exercise, a leisurely walk in the morning).

There is no relationship between work and incidence the maternal hypertension. The results of the study are inversely proportional to the research of Anggara & Prayitno [19] which states that there is a significant relationship between work and hypertension with a p-value of 0,000. However, different results were shown by Purniawaty [22]

which stated that there was no meaningful relationship between work and hypertension. Work affects the physical activity of a person. The people who do not work, not has many activities so that it can increase the incidence of hypertension. According to the assumption of occupational researchers there is no relationship with hypertension. In this research 37.0% worked without hypertension and 52.8% did not work without hypertension. This shows that people who do not work are not many activities that can increase the incidence of hypertension. Someone who works can get hypertension due to stress with work done and a lifestyle that is not in consuming high in salt food which can trigger blood pressure.

The duration of breastfeeding with incidence maternal hypertension. The results of this study are supported by the results research of Maryani & Yuli [23] states that there is a significant relationship between duration of breastfeeding with hypertension with p-value = 0,000. If you continue to breastfeed, the mother's blood pressure will gradually drop. This is also in line with the results of the research of Stube et al [12] which states there is a relationship between the duration of breastfeed with hypertension with a p-value of 0.001. Mothers who do not breastfeed for 3 to 12 months are more at risk of cardiovascular disease. At the age of 42-65 years mothers who have a history of breastfeeding can avoid hypertension. According to Stube et al., [12] suggested that lactation also activates the central neuroendocrine pathway, the hormone prolactin and oxytocin, this hormone also has to do with blood pressure regulation and the risk of hypertension for women who are breastfeeding. According to research conducted by Zhang et al., [13] suggested that the effects of high prolactin levels have an effect on preventing hypertension in mothers, and could be a new target for treatment. The major duration breastfeeding 7-12 months in this result, and dominant maternal not have hypertension (56.7%). The data show that the long duration breastfeeding can decrease for incidence maternal hypertension at late elderly.

## 5. CONCLUSION

The results of the study prove the importance of exclusive breastfeeding and continue for a period of 2 years. The higher the duration, the lower the incidence of hypertension that can occur at the age of 35 to 65 years.

Besides breastfeeding, the factors that can influence maternal hypertension are age and education. Older age and higher education will change lifestyle to be healthier.

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