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Analysis of Risk Factors for Gestational Hypertension in Pregnant Women of the II And III Trimesters in the Coastal Area, East Flores District

Maria R.J. Lamak[1], Christina R. Nayoan[2*], Pius Weraman[3]

[1]Master Program in Public Health, Nusa Cendana University, NTT, Indonesia
[2]Public Health Faculty, Nusa Cendana University, NTT, Indonesia
[3]Public Health Faculty, Nusa Cendana University, NTT, Indonesia
*Corresponding Author: Email: ovinmaria9@gmail.com

Abstract

Introduction: Gestational hypertension is a condition in which blood pressure in pregnant women increases up to 140/90 mmHg or more for the first time at the 20 weeks of gestation , without a history of hypertension before pregnancy and no proteinuria.This study aimed to analyze the risk factors for gestational hypertension in pregnant women during the second and third trimesters who lived in the coastal areas of East Flores Regency.

Method: Case control studies were used in this study. Total the case group in this study was 16 mothers, while the control group was 16 mothers. Data were analyzed using a Chi Square test.

Results: The results of the analysis showed there are significant relationships between the age of mothers (p=0.000), parity (0.000), and the history of long-use of contraception (p=0.000 with the incidence of gestational hypertension in pregnant women in the second and third trimesters in the coastal area of East Flores Regency). The most dominant and significant variable causing gestational hypertension in pregnant women during the second and third trimesters was parity (OR=22.075; 95% CI: 0.712-684.613). However, the study also found there is no relationship of gestation hypertension with consumption foods containing saturated fat, consumption of salty foods, fruit consumption and vegetables, coffee drinking habits, ANC visits, family support, and obesity.

Recommendation: It is important for the health workers to increase mother's knowledge and communities' awareness about age at risk and parity at risk. Thus, the health providers should carry out more routine monitoring and provide counseling about 4 important factors in planning pregnancy.

Keywords: Gestational hypertension , coastal area, parity, second and third trimesters

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Introduction

Gestational hypertension is a condition in which blood pressure in pregnant women increases 140/90 mmHg or more for the first time at >20 weeks of gestation , with no history of hypertension before pregnancy and no proteinuria[1]. The causes of gestational hypertension are genetic history from mother, age, history of gestational hypertension, parity and spacing of pregnancies. Pregnancy hypertension has the highest risk of death in pregnancy and is a major disease in first

pregnancies and more than four pregnancies[2].

The total maternal mortality rate (MMR) in the Province of NTT in 2020 was 149 per 100,000 live birth when compared to 2021 the number of cases of maternal death increased to 184 per 100,000 live birth. The causes of increased maternal mortality in NTT Province in 2021 are bleeding 55%, hypertension in pregnancy 24%, infection 14%. Based on the 2021 NTT Province Health Profile data, it shows that in the NTT Province the proportion of types of complications during pregnancy, namely gestational hypertension, was 17% [3].

The Maternal Mortality Rate (MMR) in East Flores Regency has increased over the past three years, where in 2020 there were 5 cases of maternal death, in 2021 there were 6 people, and in 2022 there were 9 people. Cases of death of pregnant women with gestational hypertension in the second and third trimesters in mountainous areas were 5 pregnant women. At present there is a tendency for pregnant women who live in mountainous areas to suffer more from gestational hypertension, as many as 35 pregnant women [4].

This is caused by an unhealthy lifestyle which can be seen in the East Flores Regency healthy family index for 2022, which is 0.121 (unhealthy), low education or mostly of primary school graduates/equivalent at 32.42%, the poverty line continues to increase in 2022 by 10.28%, the inadequate quality of ANC is seen in the achievement of the minimum service standards for pregnant women in East Flores Regency in 2022, as total 52.57 % of the target of 6,516 pregnant women but the realization was only 3,426 pregnant women so proper screening and communication, information, and education were still low, health services at productive age were still low (15-49 years) who received health screening in 2022 with a target of 52,468 people but only 49,928 people were realized so that the achievement is 95.16%, the level of public awareness to provide deliveries in health facilities is not yet optimal, causing the death of pregnant women during childbirth, as seen from the coverage of deliveries in East Flores Regency assisted by health workers in 2022 was 99%[5].

Research conducted by Saputra & Anam (2016) states that coastal communities have a tendency to consume high sodium, consume fish and marine animals which have high cholesterol levels [6]. According to research by Musdalifah, et al (2020) gestational hypertension in pregnant women in the second and third trimesters in coastal areas theoretically suggests that pregnant women in coastal areas have a tendency to consume high sodium, salt processed seafood, and consume processed seafood that has cholesterol levels are higher, causing a tendency for gestational hypertension [7]. This theory is supported by Fazria's research (2021) which states that hypertension in coastal areas reaches 30%, this is caused by the provision of salt to side dishes that exceed optimal standards and the lack of consumption of fruit and vegetables by pregnant women and the environmental conditions of coastal settlements that are still unorganized well [8].

Based on the problem described above, the authors are interested in conducting research on risk factors for gestational hypertension in second and third trimester pregnant women in the coastal area of East Flores Regency.

Method

This study used a case control study design. The case population of this study were all pregnant women with gestational hypertension in the second and third trimesters as many as 20 pregnant women and the control population of pregnant women in the second and third trimesters who did not experience gestational hypertension or who were pregnant at the same time as many as 20 pregnant women. However, only 16 pregnant women were eligible as case group and 16 pregnant women were control group. Data were collected through interviews using Food Frequency questionnaire with 5 question items, ANC visit questionnaire with 3 question items, family support questionnaire with 4 question items, parity questionnaire with 2 question items, obesity questionnaire with 2 questions, hormonal birth control use history questionnaire with 2 question items. Data were analyzed by Chi Square test with a

significant level of 0.05. This study has been approved by Research Ethics Commission, University of Nusa Cendana University Kupang.

Results

According to the age of mother, the proportion of cases (75.0%) was greater at risk than controls (12.5%). The results of the chi-square test obtained p=0.000, which means there is a significant relationship between age and the incidence of hypertension in pregnant women. In the group consuming saturated fat foods, the proportion of cases (6.3%) was often smaller than controls (18.8%). The results of the chi-square test obtained p=0.600, which means there is no significant relationship between consumption of saturated fat foods and the incidence of hypertension in pregnant women. In the group that frequently consumed salty foods, the proportion of cases (37.5%) was greater than controls (18.8%). The results of the chi-square test was p=0.433, which means there is no significant relationship between consumption of saturated fat foods and the incidence of hypertension in pregnant women. In the group that frequently consumed fruit and vegetables, the proportion of cases (12.5%) was same as controls (12.5%). The results of the chi-square test was p=1,000, which means there is no significant relationship between fruit and vegetable consumption and the incidence of hypertension in pregnant women. In the group who frequently drink coffee, the proportion of cases (31.3%) was smaller than controls (37.5%). The results of the chi-square test was p=1,000, which means there is no significant relationship between the habit of drinking coffee and the incidence of hypertension in pregnant women. In the non-compliant ANC visit group, the proportion of cases (25%) was smaller than controls (43.8%). The results of the chi-square test was p=0.457, which means there is no significant relationship between ANC visits and the incidence of hypertension in pregnant women. In the family support group, the proportion of cases (37.5%) was smaller than controls (43.8%). The results of the chi-square test was p=1,000, which means there is no significant relationship between family support and the incidence of hypertension in pregnant women. In the risk parity group, the proportion of cases (93.8%) was greater than controls (25%). The results of the chi-square test was p=0.000, which means there is a significant relationship between parity and the incidence of hypertension in pregnant women. In the obesity group, the proportion of cases (62.5%) was smaller than controls (81.3%). The results of the chi-square test was p=0.433, which means there is no significant relationship between obesity and the incidence of hypertension in pregnant women. In the group with a long history of using hormonal birth control, the proportion of cases (81.3%) was greater than controls (12.5%). The results of the chi-square test was p=0.000, which means there is a significant relationship between a long history of using hormonal birth control and the incidence of hypertension in pregnant women.

Table 1. Relationship between risk factors and the incidence of gestational hypertension in pregnant women in the coastal area of East Flores

Variabel	Gestational Hypertension					
	Case		Control		Total	
	N	%	N	%	N	%
Age						
At risk (<20 and >35 yrs)	12	75	2	12,5	14	43,8
Not at risk (20-35 yrs)	4	25	14	87,5	18	56,3
Total	16	100,0	16	100,0	32	100,0
Consumption of saturated fatty foods						
Often (33-54)	1	6,3	3	18,8	4	12,5
Rarely (11-32)	15	93,8	3	81,3	28	87,5
Total	16	100,0	16	100,0	32	100,0
Consumption of salty foods						
Often (15-24)	6	37,5	3	18,8	9	28,1
Rarely (5-14)	10	62,5	13	81,3	23	71,9
Total	16	100,0	16	100,0	32	100,0
Consumption of fruits and vegetables						
Often (30-48)	2	12,5	2	12,5	4	12,5
Rarely (10-29)	14	87,5	14	87,5	28	87,5
Total	16	100,0	16	100,0	32	100,0
Coffee drinking habits						
Often (3-4)	5	31,3	6	37,5	11	34,4
Rarely (1-2)	11	68,8	10	62,5	21	65,6
Total	16	100,0	16	100,0	32	100,0
ANC visit						
Disobedient	4	25	7	43,8	11	34,4
Obedient	12	75	9	56,3	21	65,6
Total	16	100,0	16	100,0	32	100,0
Family support						
No	6	37,5	7	43,8	13	40,6
Yes	10	62,5	9	56,3	19	59,4
Total	16	100,0	16	100,0	32	100,0
Parity						
At risk (> 3 children)	15	93,8	4	25	19	59,4
Not at risk (≤3 children)	1	6,3	12	75	13	40,6
Total	16	100,0	16	100,0	32	100,0
Obesity						
No (IMT ≤25)	10	62,5	13	81,3	23	71,9
Yes (> 25)	6	37,5	3	18,8	8	28,1
Total	16	100,0	16	100,0	32	100,0
Long history of hormonal birth control						
At risk (> 2 yrs)	13	81,3	2	12,5	15	46,9
Not at risk (≤ 2 yrs)	3	18,8	14	87,5	17	53,1
Total	16	100,0	16	100,0	32	100,0

Source : Primary Data 202

The most dominant variable related to the incidence of gestational hypertension in pregnant women in coastal areas is parity with OR = 22.1 (95% CI OR: 0.712 – 684.613) meaning that pregnant women with parity of more than 3 children are at risk of experiencing gestational hypertension 22.1 times higher compared to pregnant women with parity less than 3 children.

Tabel 2. Final Modeling of Multivariate Analysis in the Coastal Area of East Flores Regency

Variable	B	S.E	Forest	df	Say.	Exp(B)	95% C.I for EXP (B)	
							Lower	Upper
Age	2,997	1,505	3,962	1	,047	20,015	1,047	382,628
Parity	3,094	1,752	3,119	1	,592	,390	,012	12,270
Long history of KB hormo users	2,997	1,505	3,962	1	,047	20,015	1,047	382,628
Obesity	-,943	1,760	,287	1	,592	,390	,012	12,270
Constant	-12,119	4,973	5,938	1	,015	,000		

a. variable (s) entered on step 1: age, parity, long history of using hormonal birth control, obesity
Omnibus Test: p-value = 0.000 Nagelkerke R Square = 0.821

Discussion

Relationship between risk factors and the incidence of gestational hypertension in pregnant women in the coastal area of East Flores

Age is a measure of a woman's age which is generally a benchmark for maturity status, both in decision making based on the experiences gained during her lifetime [9].

The results of the study using the Chi-Square test showed a p-value of 0.000 where p<0.05 means there is a significant relationship between age and the incidence of gestational hypertension in pregnant women. The OR calculation results show that respondents aged <20 years and >35 years have a risk of experiencing gestational hypertension of 30.333 higher as compared to respondents aged 20-35 years experiencing gestational hypertension (95% CI 4.351-211.490).

This study is in line with research conducted at GMIM Pancaran Kasih Hospital in Manado which stated that there was a significant relationship between age and the incidence of gestational hypertension with a p-value of 0.001 [10]. This research was supported by research conducted at the PMB Eneng Cimanggu midwife, Bogor City, which stated that there was a significant relationship between age and the incidence of gestational hypertension with a p-value of 0.000 [11]. This study was also supported by research conducted in Banjarmasin which stated that there was a significant relationship between age and the incidence of gestational hypertension with a p-value of 0.05 [12].

Researchers assume that pregnant women who are at risk, aged <20 years and >35 years, should be able to control their pregnancy every week and to control their sleep because these ages are at risk due to immaturity of reproductive organs and/or decreased organ function. A screening program through history taking and physical examination as an early detection measure for signs and symptoms as well as risk factors for gestational hypertension is considered very important as well as the existence of national guidelines for managing hypertension in pregnancy in hospitals or at health centers and improving health status, one of which is creating optimal nutritional status.

Consumption of saturated fatty foods is a type of food that is consumed continuously in excess of 10% of total energy [13]. The results of the study using the Chi-Square test showed that the probability value (p-value) was 0.600 where p> 0.05 means that there is no significant relationship between the consumption of saturated fatty foods and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

This study is in line with research conducted in China which stated that there was no significant relationship between the consumption of saturated fatty foods and the incidence of gestational hypertension with a p-value of 0.769 [14]. The results of this study are also in line with research conducted in West Java Province which stated that there was no relationship between the consumption of saturated fatty foods and the incidence of gestational hypertension with a p-value of 0.601 [15].

However, this is different from research conducted in Makassar City which stated that there was a significant relationship between the consumption of saturated fatty foods and the incidence of gestational hypertension with a p-value of 0.000 [16]. The results of research conducted in DKI Jakarta states that there is no relationship between consumption of saturated fatty foods and the incidence of gestational hypertension with a p-value of 0.323 [17]. From this study, researchers assume that the importance of community-based balanced nutrition education with efforts to improve healthy living behavior in the community with the aim of making people aware of preventing disease and increasing health status, one of which is creating optimal nutritional status.

Salty foods are foods that are dominantly salty and contain sodium that is consumed by > 2000 mg per day [18]. The results of the study using the Chi Square test showed that the probability value (p-value) was 0.433 where p> 0.05 means that there is no significant relationship between salty food consumption and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

The results of this study are not in line with research conducted at dr. Doris Sylvanus Palangka Raya who stated that there was a significant relationship between the consumption of salty foods and the incidence of gestational hypertension with a p-value of 0.014 [19]. The results of this study contradict the research conducted at the North Kutai Health Center. The results of the research obtained a p-value of 0.000, which means that there is a relationship between consumption of salty foods and the incidence of gestational hypertension [20]. The results of this study also contradict the research conducted at the Bulu Health Center in Temanggung Regency, the results of which were found to be a p-value of 0.001, which means that there is a relationship between salt consumption and the incidence of gestational hypertension [21].

Researchers assume that although in this study there was no relationship between consumption of salty foods and the incidence of gestational hypertension, it is important to educate the public about the importance of reading labels and nutritional information on food products, as well as presenting nutritional information in a more attractive and clear way to increase consumer understanding of the contents nutrition of a food product, which is expected to influence the decision-making process when purchasing.

Consumption of fruits and vegetables is the amount and type of vegetables and fruit consumed by a person with a specific purpose at a certain time [22]. The results of the study using the Chi Square test showed that the probability value (p-value) was 1.000 where p> 0.05 means that there is no significant relationship between fruit and vegetable consumption and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

This research is supported by previous research conducted at the Bantul District Health Center which stated that there was no significant relationship between vegetable and fruit consumption and the incidence of gestational hypertension in pregnant women in the second and third trimesters with a p-value of 0.639 [23]. However, this research is different from research conducted at the Tampang Tumbang Anjir Health Center, Gunung Mas Regency, Central Kalimantan Province which states that there is a significant relationship between vegetable and fruit consumption and the incidence of gestational hypertension with a p-value of 0.001 [24]. Previous research was also conducted at Columbia which stated that there was a significant relationship between vegetable and fruit consumption and the incidence of gestational hypertension in pregnant women in the second and third trimesters with a p-value of 0.008 [25].

Eventhough there was no relationship between fruit and vegetable consumption and the incidence of gestational hypertension, education must always be given to the community, especially to pregnant women, repeatedly so that iron intake in pregnant women is fulfilled from an early age.

The habit of consuming coffee is a mechanism for caffeine that affects the

body, especially by blocking adenosine receptors, which can cause an increase in the secretion of catecholamines namely adrenaline, dopamine and serotonin where the effect of this is to accelerate heart rate and blood vasodilation and stimulate the central nervous system so that caffeine stimulates gastric acid secretion. , acts as a diuretic and according to some data can influence metabolic processes in the body, intensifying fat lipolysis and body thermogenesis [26]. The results of the study using the Chi Square test showed that the probability value (p-value) was 1.000 where p> 0.05 means that there is no significant relationship between coffee drinking habits and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

This research is in line with research conducted in the Work Area of the Paniki Bawah Public Health Center in Manado City which stated that there was no significant relationship between coffee drinking habits and the incidence of gestational hypertension with a p-value of 0.380 [27]. This study is also in line with research conducted in Demak Jaya, Tembok Dukuh sub-district, Bubutan District, Surabaya, which stated that there was no significant relationship between coffee drinking habits and the incidence of gestational hypertension with a p-value of 0.465 [28]. However, it is different from the research conducted at BPM Desita, S.SiT Pulo Ara Village, Kota Juang District, Bireuen Regency which stated that there was a significant relationship between coffee consumption habits and the incidence of gestational hypertension with a p-value of 0.001 [29].

According to the researchers' assumptions, even though the results of this study show no relationship between coffee consumption habits and the incidence of gestational hypertension, CIE should always be provided to the community, especially to pregnant women.

ANC visits are Antenatal Care Services (ANC) for a minimum of 6x normal pregnancies with details of 2x in Trimester 1, 1x in Trimester 2, and 3x in Trimester 3. At least 2x examined by a doctor during visit 1 in Trimester 1 and during visit 5 in Trimester 3 [30]. The results of the study using the Chi Square test showed that the probability value (p-value) was 0.457 where p> 0.05 means that there is no significant relationship between ANC visits and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

This research is in line with research conducted in the working area of the Sitiung 1 Public Health Center, Dharmasraya Regency, which stated that there was no significant relationship between ANC visits and the incidence of gestational hypertension with a p-value of 1,000 [31]. This research was also supported by research conducted at the KIA Polyclinic at Anutapura General Hospital, Palu, which stated that there was no significant relationship between ANC visits and the incidence of gestational hypertension with a p-value of 0.813 [32]. The research conducted in Palembang stated that there was no significant relationship between ANC visits and the incidence of gestational hypertension with a p-value of 1,000 [33]. The results of this study were supported by research conducted in Permis village which stated that there was no significant relationship between ANC visits and the incidence of gestational hypertension with a p-value of 0.318 [34].

According to the researchers' assumption, there is no relationship between ANC visits and the incidence of gestational hypertension because routine ANC examinations of pregnant women in mountainous areas are good enough. Even so, ANC visits need to be increased again so that non-communicable diseases such as gestational hypertension can be detected early and get treatment quickly.

Family support is a form of interpersonal relationship that includes attitudes, actions and acceptance of family members, so that family members feel that someone is paying attention [35]. The results of the study using the Chi Square test showed that the probability value (p-value) was 1.000 where p> 0.05 means that there is no significant relationship between family support and the incidence of gestational hypertension in pregnant women in the second and third trimesters. This research is in line with research conducted at the Sukaraya Health Center, Karang Bahagia

District, Bekasi Regency, where statistical test results showed that there was no significant relationship between husband's support and gestational hypertension with a p-value of 0.680 [36]. Likewise, research conducted at the Kasembon Health Center in Malang Regency stated that there was a significant relationship between family support and the incidence of gestational hypertension with a p-value of 0.002 [37]. Research conducted in Palu stated that there was a significant relationship between family support and the incidence of gestational hypertension with a p-value of 0.022 [38].

According to the researchers' assumption that the family support provided has a very important contribution. to term pregnant women in carrying out regular ANC visits even though they are experiencing hypertension in their pregnancy.

Parity is the number of children born to a mother, both live and dead [39]. Pregnancy more than three times or grande multipara can cause various pregnancy complications, one of which is gestational hypertension which will certainly affect the health status of the mother and baby [40]. The

results of the study using the Chi Square test showed that the probability p-value was obtained 0.000 where p <0.05 means that there is a significant relationship between parity and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

The OR calculation results show that respondents with parity > 3 children have a 45,000 times the risk of experiencing gestational hypertension compared to respondents with parity ≤ 3 children to experience gestational hypertension (95% CI 4,426-457,475).

This study is in line with research conducted at the Nunpene Health Center in North Central Timor District which stated that there was a significant relationship between parity and the incidence of gestational hypertension with a p value of 0.020 [41]. The results of this study are supported by research conducted at the X health center in the city of Yogyakarta which states that there is a significant relationship between parity and the incidence of gestational hypertension with a p value of 0.000 [42]. The results of this study were supported by research conducted at the Semplak Health Center in Bogor City which stated that there was a significant relationship between parity and the incidence of gestational hypertension with a p-value of 0.002 [43]. The results of this study were also supported by research conducted at Arjawinangun Hospital in Cirebon which stated that there was a significant relationship between parity and the incidence of gestational hypertension with a p-value of 0.000 [44].

The researcher assumes that the family planning program has not been maximized due to low public awareness to participate in the family planning program, difficult access to hamlets and health services, low educational background resulting in limited knowledge about reproductive health, limited facilities and infrastructure for implementing the family planning program, customs customs that demand a son as the successor to the clan, the absence of support from the family, especially the husband so that basic needs are getting higher and health care is being neglected. Obesity in pregnancy is an increase in body weight in pregnant women > 12-16 kg from normal body weight and results are not good for health, especially pregnant women, can be a cause of hypertension, hypercholesterolemia, hyperglycemia known as (3H) [45]. The results of the study using the Chi Square test showed that the probability value (p-value) was 0.433 where p> 0.05 means that there is no significant relationship between obesity and the incidence of gestational hypertension in pregnant women in the second and third trimesters. This study is not in line with research conducted at the Dpt Sumberjaya Health Center in Majalengka Regency which states that there is a significant relationship between obesity and the incidence of gestational hypertension with a p-value of 0.000 [46]. The results of this study are also not in line with research that has been conducted, at the Kedungmundu Health Center in Semarang City showing that the factor associated with the incidence of gestational hypertension is obesity with a p-value of 0.000 [47]. It is also

not in line with research conducted in the Kuningan Cibeureum Working Area showing that there is a relationship between obesity and the incidence of gestational hypertension with a p-value of 0.001 [48].

Researchers assume that even though there is no relationship between obesity and the incidence of gestational hypertension, it is very important to maintain a diet during pregnancy because obesity is caused by excess calories accompanied by excess fat so that the potential for complications is between the risk of thromboembolism, preeclampsia, eclampsia, and increased rates of induction of labor and on the fetus. result in macrosomia, shoulder dystocia and even stillbirth.

Hormonal birth control is a method used to prevent pregnancy by using devices or drugs containing estrogen and progesterone, hormonal contraception will interfere with egg cell production and interfere with uterine fertility [49].

The results of the study using the Chi Square test showed that the probability value (p-value) was 0.000 where p <0.05 means that there is a significant relationship between a long history of using hormonal birth control and the incidence of gestational hypertension in pregnant women in the second and third trimesters. The OR calculation results showed that respondents with a long history of using hormonal birth control > 2 years had a risk of 30.333 times experiencing gestational hypertension compared to respondents with a long history of using hormonal birth control ≤ 2 years to experience gestational hypertension (95% CI 4.351-211.490).

This research is in line with research conducted at the Purwokerto Utara II Health Center in Sumampir Village which stated that there was no significant relationship between a long history of using hormonal birth control and the incidence of gestational hypertension with a p-value of 0.642 [50]. However, this is different from the results of a study conducted at the Abdul Wahab Hospital in Samarinda which stated that there was a significant relationship between a long history of using hormonal birth control and the incidence of gestational hypertension with a p-value of 0.014 [51]. The results of this study were supported by previous research conducted in Yogyakarta which stated that there was a significant relationship between a long history of using hormonal birth control and the incidence of gestational hypertension with a p-value of 0.003 [52]. The results of the study were also supported by research conducted at the Dr. H. Abdul Moeloek General Hospital in Lampung Province which stated that there was a relationship between a long history of using hormonal birth control and the incidence of gestational hypertension with a p-value of 0.045 [53].

Researchers assume that there is still low education, knowledge, and husband support in choosing contraception as well as a lack of information from health workers regarding the types of contraception and the side effects of these types of contraception.

Final Modeling of Multivariate Analysis in the Coastal Area of East Flores Regency

The variable that is more dominantly associated with hypertension in pregnant women in the coastal areas of East Flores Regency is the parity variable with OR = 22.075 (95% CI 0.712-684.613) which means that pregnant women with parity of more than 3 children are at risk of experiencing gestational hypertension 22.075 times compared to mothers pregnant with parity of less than 3 children to experience gestational hypertension.

Parity is the number of live births or the number of children a woman has. Based on statistics from all world incidents, there are 5% - 8% of mothers who experience hypertension in pregnancy who are in nulliparous parity, this occurs due to Human Leukocyte Antigen G (HLA-G) releasing blocking antibodies against placental antigens that have not yet formed completely, this is inhibits the implantation process of trophoblasts into the mother's decidual tissue which causes an increase in blood pressure [54]. Repeated pregnancies more than four times have a greater chance of experiencing

hypertension in pregnancy. Stretching of the uterus will occur during pregnancy, so that if you experience more than four pregnancies there will be changes in the tissue lining the uterus and reduce its elasticity by 1.8%. [55]. Mothers with parity > 3 children will experience changes in the uterine wall (uterus) that are weaker due to repeated pregnancies so that there will be a decrease in blood flow in the mother's body which will have an impact on damage to the endothelial tissue in the blood vessels which can result in preeclampsia during pregnancy [56].

High parity can increase the risk of complications in pregnancy and childbirth, which is closely related to socio-cultural factors. There are several socio-cultural factors that influence the high rate of multiparity, such as the opinion that having many children brings a lot of fortune, the importance of having sons in the eyes of society because it will continue the family name and whether society makes a direct connection between the number of children a man has and his virility. or the value in society of being a "woman" only if she can "give" children to her partner [57].

Conclusion

The results of a case control study conducted in the coastal area in the working area of the Ile Bura Public Health Center, Ile Bura District, concluded that there was a significant relationship between age and the incidence of gestational hypertension in pregnant women in the second and third trimesters, there was a significant relationship between parity and the incidence of gestational hypertension in pregnant women in the second and third trimesters, there is a significant relationship between long history of using hormonal birth control and the incidence of gestational hypertension in pregnant women in the second and third trimesters, there is no significant relationship between consumption of saturated fatty foods and the incidence of gestational hypertension in pregnant women in the second and third trimesters , there is no significant relationship between consumption of salty foods and the incidence of gestational hypertension in pregnant women in the second and third trimesters, there is no significant relationship between the consumption of fruits and vegetables and the incidence of gestational hypertension in pregnant women in the second and third trimesters, there is no significant relationship between drinking habits coffee with the incidence of gestational hypertension in pregnant women in the second and third trimesters, there was no significant relationship between visits to ANC and the incidence of gestational hypertension in pregnant women in the second and third trimesters, there was no significant relationship between family support and the incidence of gestational hypertension in pregnant women in the second and third trimesters. III, there is no significant relationship between obesity and the incidence of gestational hypertension in pregnant women in the second and third trimesters.

Recommendation

This research provides recommendations especially for the Community Health Center, it is hoped that midwives will always provide education to adolescents from an early age which for the youth Posyandu should develop programs to increase adolescent knowledge about adolescent reproductive health, counseling can also be carried out online, via WhatsApp media, via zoom and others, so it is possible to provide counseling online, this video media can also be used as a reference for youth posyandu coordinators to provide counseling to teenagers. Likewise, it is expected that health workers provide regular counseling to the community, especially pregnant women to increase knowledge and have awareness about age at risk, parity at risk, carry out more routine monitoring and provide counseling about 4 important factors in planning pregnancy.Health workers, in this case midwives, can provide integrated and quality Antenatal Care services to improve maternal health status, as well as carry out various maternal health efforts which are promotive,preventive, curative, and rehabilitative.

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