

# **The Relationship Between The Use Of 3-Month Injection Contraception And The Incidence Of Hypertension In The Working Area Of The Molibagu Community Health Center, South Bolaang Mongondow**

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## **ABSTRACT**

Hypertension is the third leading cause of death in Indonesia due to degenerative diseases. Utilization of contraceptive injections every three months is one of the variables that contributes to the development of hypertension. This research was conducted with the intention of determining whether or not there is a correlation between the use of three-month contraceptive injections and the prevalence of hypertension among women of reproductive age in the Molibagu Community Health Center Working Area, which is located in the South Bolaang Mongondow Regency in the year 2025. Method: The study that was conducted was of the observational analytic kind and used a cross-sectional design. The population of women of reproductive age who are using active contraception in the operating area of the Molibagu Community Health Center in the year 2025, as well as a sample of thirty women of childbearing age who are using contraception that was collected using the accidental sampling approach. To analyze the data, the chi-square test was used. A questionnaire was employed as the tool for the investigation. Results and Discussion: "The results of the study obtained a p-value of 0.000 ( $p < 0.05$ ) which means there is a relationship between the use of 3-month contraceptive injections and the incidence of hypertension. Conclusion: There is a correlation between the use of three months" contraceptive injections and the occurrence of hypertension in women of reproductive age in the Molibagu Community Health Center Working Area, which is located in the South Bolaang Mongondow Regency in the year 2025. We have high hopes that this research will serve as both a source of knowledge and a learning tool in relation to the impact of contraception on blood pressure.

***Key words: Hypertension, 3-monthly contraceptive injection.***

## INTRODUCTION

Through the use of contraception, family planning aims to reduce or manage the number of pregnancies and the spacing between them. In addition to improving the quality of human resources, the goal of family planning is to analyze the rate of population growth that occurs through births and marriages, leading to sexual maturity. (Putri et al. 2022).

Contraception is an attempt to prevent pregnancy, which can be temporary or permanent (Amimastura & Zainiyah, 2021). Contraception prevents the fertilization of an egg by a sperm cell (Nugroho & Utama, 2014). Based on the results of a study on the forms of contraception used in Indonesia, the majority of individuals who choose contraceptive methods prefer injectable contraceptives (72.9%), followed by tablets (19.4%). Contraceptive users continue to choose short-term contraceptive methods over long-term methods (including intrauterine devices, implants, monthly contraceptive pills, and monthly oral suppositories) on a yearly basis (Setyorini & Ismarwati, 2022). Some potential side effects of hormonal contraception include changes in menstrual cycles, nausea, dizziness, acne, weight gain, mood swings, breast tenderness, and an increased risk of hypertension. These are just a few of the potential side effects. The medical condition known as high blood pressure, commonly referred to as hypertension, is defined as blood pressure that is abnormally high and remains elevated over a period of several blood pressure measurements. Several risk factors that do not function properly in maintaining normal blood pressure are the cause of this increase. This increase is caused by one or more risk factors (Majid, 2018).

Disorders affecting the heart and blood vessels, often referred to as cardiovascular disease, are the leading cause of death worldwide each year. These diseases are a serious health problem in both developed and developing countries. A significant number of people in society suffer from hypertension, which is one of the most common cardiovascular disorders (Ministry of Health, 2019).

Increased blood pressure in the arteries is called hypertension, also known as high blood pressure. Hypertension is characterized by abnormally high blood pressure in the arteries. Generally, hypertension is a condition. A systolic pressure of around 120 mmHg and a diastolic pressure of around 80 mmHg are considered normal for

adults. An individual is considered to have high blood pressure if their systolic pressure exceeds 140 mmHg and their diastolic pressure exceeds 90 mmHg. (Ministry of Health, 2016).

Hypertension can be classified into two categories based on its etiology: primary hypertension and secondary hypertension. Primary hypertension is elevated blood pressure with an unknown etiology. Risk factors for primary hypertension include a family history of hypertension, obesity, increasing age, high salt intake, excessive alcohol consumption, tobacco use, and sleep disorders. In contrast, secondary hypertension is a condition characterized by elevated blood pressure caused by certain diseases. Secondary hypertension can be caused by several health conditions, including kidney disease, thyroid and parathyroid gland disorders, sleep apnea, coarctation of the aorta, obesity, and the use of medications such as contraceptives, antidepressants, and nonsteroidal anti-inflammatory drugs."(NSAID). (Edward, nd 2019)

For men, the prevalence of high blood pressure is 31.34%, while for women it is 36.85% (Risikesdas, 2018). This information is obtained from a study published by Risikesdas in 2018 regarding the prevalence of high blood pressure by gender. According to Risikesdas (2018), hormonal changes resulting from the use of contraceptives or birth control methods can cause hypertension in women who experience this condition. This is in line with the findings of research conducted by Sari (2020), which found that 52% of women who used injectable contraceptives for three months experienced high blood pressure. Hormonal contraceptives, such as DMPA injections, are associated with the possibility of causing hormonal imbalances. The use of synthetic progesterone has the potential to inhibit the production of LH (luteinizing hormone). If LH is inhibited, this will cause hormonal imbalances in the body, resulting in abnormalities at the vascular level, characterized by increased blood pressure. (Purnama Sari, Flower Midwifery Academy of Kalimantan & South Kalimantan, 2021)

## **METHOD**

This study used a cross-sectional design and analytical observation as the analysis method. In the operational area of the Molibagu Community Health Center in 2025,

the population consisted of women of childbearing age who actively used contraception. The sample consisted of thirty women of childbearing age who used contraception, and they were selected through a random sampling process. The chi-square test was used during data analysis. The questionnaire is a tool used for investigation.

## RESULTS AND DISCUSSION

### Respondent Characteristics

**Table 1. Frequency Distribution by Age**

Age	Frequency	Percentage (%)
21 - 35 Years	12	43.3
36 – 45 Years	17	56.7
Total	30	100

According to table 1. frequency distribution of respondents based on age, of the 30 respondents, the majority of respondents were aged 36-45 years, namely 17 people (56.7%), and respondents aged 21-35 years were 12 people (43.3%).

**Table 2. Frequency Distribution Based on Parity**

Parity	Frequency	Percentage (%)
Primipara	1	3.3
Multipara	28	93.3
Grandemultipara	1	3.3
Total	30	100

According to table 2. frequency distribution of respondents based on parity, the majority of respondents were multiparas, 28 people (93.3%), primiparas, 1 person (3.3%), and grandimultiparas, 1 person (3.3%).

**Table 3. Frequency Distribution Based on Education**

Education	Frequency	Percentage (%)
Elementary-Middle School	14	46.7
SENIOR HIGH SCHOOL	15	50
S1	1	3.3
Total	30	100

According to table 3. frequency distribution of respondents based on education, the majority of respondents had a high school education of 15 people (50%), respondents with elementary-junior high school education were 14 people (46.7%), and respondents with a bachelor's degree were 1 person (3.3%).

**Table 4. Frequency Distribution by Occupation**

Education	Frequency	Percentage (%)
Housewife	25	83.3
Work	5	16.7
Total	30	100

According to table 4. frequency distribution of respondents based on occupation, the majority of respondents have jobs as housewives or are not working as many as 25 people (90%), and respondents who work are 5 people (16.7%).

**Table 5. Relationship between the Use of 3-Monthly Injectable Contraceptives and the Incidence of Hypertension**

Hypertensio		P-
Yes	No	
n		Total value

KB	>1 year	25	1	26
	durat <1 year	3	1	4
ion				
Total		28	2	30 0,000

According to table 5, the relationship between the use of 3-monthly contraceptive injections and the incidence of hypertension, there were 26 women who had used contraceptives for more than 1 year."There were 25 women with hypertension and 1 woman without hypertension. Four women had used contraception for less than a year, with 3 women with hypertension and 1 woman without hypertension. The chi-square analysis found a p-value of  $0.000 < 0.05$ , indicating a relationship between the use of 3-monthly injectable contraception and the incidence of hypertension.

The findings of this study are consistent with those of a study conducted by Muktiyani in 2020. The study showed a significant association between age and the risk of developing hypertension. Based on these findings, it has been proven that women have the hormone estrogen, which functions to prevent blood clots and maintain healthy blood vessel walls. There is an imbalance in estrogen levels in individuals who use hormonal contraceptive injections. This is due to the fact that the hormones supplied through the injections inhibit estrogen synthesis in the brain, which is the main female reproductive organ. Furthermore, if this imbalance in estrogen levels persists over a period of time, it has the potential to increase blood viscosity, albeit at a moderate level, which in turn can affect blood pressure levels. (Muktiyani et al., 2020)

Although having children is considered a risk factor for hypertension, findings from a 2022 study by Suciati and Wiyoko suggest that many other factors may contribute to the development of hypertension in women. It is possible that women considered at risk due to pregnancy develop hypertension due to unhealthy lifestyle factors, such as lack of physical activity and inadequate rest. (Suciati & Wiyoko, 2022.) To minimize risk factors for hypertension, it is recommended that women of childbearing age (WCA) consult with a healthcare professional to choose a contraceptive method that suits their needs. Other risk factors for hypertension, such as hypercholesterolemia, may be included in further studies (Pertiwi et al., 2023).

According to Nurmainah and Muktiyani (2020), this 3-monthly contraceptive injection is highly effective, safe, and convenient. This type of contraception is known to be reversible, meaning fertility returns when use is discontinued.

The findings of this study align with those of a 2022 study by Widiastuti and Cahyaningrum. The study found that individuals using DMPA experienced increased blood pressure. Furthermore, this study aligns with the findings of a 2023 study by Lestari and Maylina. Their findings indicated a link between hormonal contraception and the development of hypertension in individuals using it. Specifically, individuals using hormonal contraception had a 5.972 times higher risk of developing hypertension (Nur Tri Widiastuti, 2022).

Research conducted by Ningsih in 2020 on individuals using synthetic progesterone found that synthetic progesterone has the ability to reduce the release of luteinizing hormone (LH). When progesterone levels suddenly increase after ovulation, this inhibits gonadotropin secretion, which in turn causes a decrease in LH levels."Follicle-stimulating hormone (FSH) and luteinizing hormone (LH), with LH levels remaining more dominant than FSH. LH production is suppressed. Consequently, if LH production is suppressed, this will cause hormonal imbalance in the body, which in turn will lead to abnormalities at the blood vessel level, characterized by increased blood pressure (Ningsih et al., 2022).

Through the involvement of the renin-angiotensin system, the progesterone and estrogen hormones found in contraceptives have the potential to increase the rate of cardiac hypertrophy and increase the angiotensin II pressor response. Increased production of these hormones can trigger the release of aldosterone by the adrenal cortex, which causes water and sodium retention by the renal tubules, ultimately resulting in increased blood volume in the blood vessels. (Fikriana, 2018).

When estriol is used in excessive amounts, either by injection or oral administration, it can potentially cause an increase in systolic blood pressure. This is because the estrogen receptor ER- $\beta$ , also known as estrogen receptor beta, produced in the body, becomes more active."Increased estrogen metabolism in the body causes increased blood viscosity, which ultimately leads to hypertension. Long-term use of hormonal contraceptives can increase the risk of hypertension (Pangaribuan & Lolong, 2015). In a previous study titled "The Relationship

Between Contraceptive Pill Use and Hypertension in Fertile Couples in Sangaji Nyeku Village, Tabaru District, West Halmahera Regency," researchers found that the use of combined contraceptive pills was associated with a 41.8% higher risk. These findings support the results of this study."(Pricillya, 2017).

### **CONCLUSION AND SUGGESTIONS**

From the results of the chi square analysis, a p-value of  $0.000 < 0.05$  was found, which means that there is a relationship between the use of 3-monthly contraceptive injections and the incidence of hypertension in the work area of the Molibagu Bolaang Mongondow Community Health Center."south

To minimize risk factors that can cause hypertension, it is recommended that women of childbearing age (WCA) consult with a healthcare professional to choose a contraceptive method that suits their needs. Possible factors"Other risks for hypertension, such as hypercholesterolemia, may be included in further studies.

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