

## Article

# The Habits of the Indonesian People by Drinking Coffee with the Incidence of Hypertension

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**Abstract: Introduction:** Blood pressure is described as the ratio of systolic pressure to diastolic pressure, with its normal values ranging from 100/60 to 140/90. For the risk of blood pressure, both men and women have the possibility of developing hypertension. The habits of people who consume coffee will impact increasing blood pressure. The frequency of drinking coffee over 3 cups per day can affect blood pressure, although fact, only because of this habit that a person has an increase in blood pressure. **Aims:** This study aims to determine the relationship between coffee drinking habits and increased blood pressure in the community. **Method:** This type of research uses an analytical description research method with a cross-sectional design of e population of the community around Pontianak city the habit of drinking coffee. The samples in this study were 50 people with a sampling technique using Probability sampling, namely with the Stratified Random Sampling technique. Data collection for coffee drinking habits using questionnaire sheets and observation sheets using a sphygmomanometer. Data analysis used Person Chi-Square and obtained p-value = 0.312 ( $p > 0.05\%$ ). **Result:** These results showed that there was between coffee drinking habits and an increase in blood pressure. **Conclusion:** Researchers advise health workers to provide health promotion about coffee drinking rules and coffee drinking doses that are good for health.

**Keywords:** Hypertension; drinking coffee

## BACKGROUND

High blood pressure or hypertension often occurs in communities that increase every year. Several factors can result in hypertension, such as ethnicity, hormonal contraceptives, smoking, drugs (Narcotics, psychotropics, and addictive substances), alcohol, and caffeine, lifestyle changes, chronic degenerative diseases, and as we age (Astannudinsyah, 2020). For the risk of blood pressure, men and women both have trouble with hypertension compared to women when they are 65 years old. They are at risk of hypertension (Bistara, 2018).

Hypertension itself can be triggered by the consumption of foods that contain fat. Because many people love these foods, it is not surprising that hypertension has a chance of contracting it in everyone. Alcohol, smoking, and drinking coffee can stimulate blood vessels' constriction, easing blood pressure (Jamini, 2018).

Caffeine can stimulate the heart to work faster, draining more fluids every second. The habit of drinking coffee obtained from one cup of coffee contains 75–400 mg of caffeine, so drinking coffee more than four cups a day can increase systolic blood pressure by about 10 mmHg and diastolic blood pressure by about eight mmHg (Jannaim, 2018).

The habits of people who consume coffee will impact increasing blood pressure. In the defrag & Yadis study (2018), from 40 respondents who drank coffee, the results of the survey showed that respondents who had stage 1 hypertension (17.5%) and those who experienced set 2 hypertension were obtained, namely (2.5%). This indicates that coffee drinking habits do not cause blood pressure instability in Oktavia's study (2021) also from 58 anglers diagnosed with hypertension in the work area of the Gresik Health Center. It shows that most respondents have the habit of drinking coffee (heavy), have a level of hypertension of degree 2 (severe), are aged 45-55 years and are male, and are a group that has a risk of hypertension as they get older.

Coffee is one of the most popular and famous drinks in all circles, and considered that coffee is regarded as a drink that must be enjoyed every day among the elite and the lower middle class. People also carry out this habit with their parents. This habit of starting from a glass of coffee to drinking more than four cups daily can increase systolic blood pressure by about 10 mmHg and diastolic blood pressure by about 8. On the other hand, coffee is often associated with many risk factors for coronary heart disease, including increasing blood pressure and blood cholesterol levels because coffee contains polyphenols, potassium, and caffeine. Caffeine is said to be the cause of various diseases, especially hypertension, in many circles (Negara, 2018).

Bishara's research (2018) showed that out of 58 anglers diagnosed with hypertension, there was a relationship between coffee drinking habits and hypertension levels in the Gresik Health Center work area in February 2016. With the degree of Correlation, the relationship  $r = 0.809$ , which means the Correlation is robust. A review of 34 studies showed that 200-300 mg of caffeine from coffee, roughly the amount consumed in 1.5-2 cups, resulted in an average increase of 8 mm Hg and 6 mm Hg, respectively, in systolic and diastolic blood pressure. This effect is observed up to three hours after ingestion, and the results are similar in people with normal blood pressure at the beginning and people with pre-existing high blood pressure.

Regular coffee consumption is not associated with the impact on blood pressure that may be due to the caffeine tolerance that develops when a person gets used to drinking coffee. A slight increase in blood pressure can occur after drinking a cup of coffee, especially if you rarely drink it (Samin, 2018). So it can be concluded that if a person is used to consuming coffee over time, the body becomes tolerant of the stimulant effects of caffeine in coffee so that it does not cause an increase in blood pressure.

## METHOD

Research design is something that is very important in research, allowing maximum control of several factors that can affect the accuracy of an outcome. The research design

is the final result of a decision stage made by the researcher related to how a study can be applied (Nursalam, 2014). Based on the problems studied, this study uses an analytical description research method with a cross-sectional design design. The cross-sectional approach is a type of research that emphasizes the time of measurement or observation of independent and dependent variable data only once. The design in this study was used to analyze the relationship between coffee drinking habits and increased blood pressure in the community.

## RESULT

### *Characteristics of Respondents*

**Table 1.** Criteria.

Criteria	F	%
<b>Age</b>		
20-30	7	24.0
31-40	11	22.0
41-50	20	40.0
51-60	12	14.0
<b>Gender</b>		
man	30	66.0
woman	20	40.0
<b>Education</b>		
Primary school	3	6.0
Junior high school	15	30.0
Senior high school	22	44.0
Diploma	2	4.0
Bachelor	8	16.0
<b>Work</b>		
Farmer	20	40.0
Civil servants	11	22.0
Self-employed	12	24.0
Private Employees	2	4.0
Village Apparatus	5	10
<b>Income</b>		
<2.300.000	33	66.0
>2.300.000	17	34.0
<b>History of Hypertension</b>		
Exist	12	24.0
None	25	50.0
Uncertain	13	26.0
<b>Total</b>	50	100

As per the table above, 50 Clients were obtained by the majority of Clients in the age group of 41-50 years, as many as 20 people (40.0%) and a minority aged 20-30 years more than 7 people (14.0%). According to gender, it was found that the majority were 30 males (60.0%) and females, 20 Souls (40.0%).

## Analysis

*Frequent drinking of coffee by the people of Pontianak***Table 2.** Frequently drinking community coffee in Pontianak City, West Kalimantan in 2022.

Coffee drinking habits	f	%
Low	7	14.0
Medium	35	70.0
High	8	16.0
<b>Total</b>	<b>50</b>	<b>100</b>

Client frequency based on client coffee drinking habits found that the majority of respondents had moderate coffee drinking habits, as many as 35 people (70.0%), and who had low coffee drinking habits 7 people (14.0%) and high whether 8 people (16.0%).

*Blood Pressure Levels in Pontianak society***Table 3.** Frequency of Increasing Community Blood Pressure in Pontianak City, West Kalimantan in 2022.

Blood pressure	f	%
No improvement	31	62.0
Improving	19	38.0
<b>Total</b>	<b>50</b>	<b>100</b>

Table 3 above found an increase in TD in the number of clients who did not experience an increase in blood pressure or normal = <120 mmHg / <80 mmHg. As many as 31 people ( 62.0%) experienced a rise in blood pressure = ≥140 mmHg. There were 19 people (38.0%).

*The Relationship between Coffee Drinking Habits and Hypertension***Tabel 4.** Hasil Hubungan Kebiasaan Minum Kopi dengan Peningkatan Tekanan Darah di Kota Pontianak Kalimantan Barat Tahun 2022.

Coffee Drinking Habits	Blood pressure						
	Not Experiencing An Increase in Blood Pressure		Experiencing An Increase in Blood Pressure		Total	p-Value	
	F	%	F	%	F		%
Low	4	44.4	5	55.5	9	100	0,411
Medium	22	64.7	12	35.2	34	100	
High	5	71.4	2	28.5	7	100	

Based on the table above, the relationship between coffee drinking habits and an increase in blood pressure in 2019 In general, there are 22 people out of 35 people (64.7%) with moderate drinking habits. People. (35,2%) There is an increase in blood pressure. It has increased blood pressure. Based on the results of the chi-square person statistical test, it was found that the p-value = 0.411 ( $p > \alpha$  0.05%), so it seems that there is no relationship between coffee drinking habits and increased blood pressure.

**DISCUSSION***The coffee-drinking habits of the people of Pontianak*

Based on the responses from the questionnaire, it was found that most clients drank coffee every day as much as 1-2 cups a day for 5 years and some clients felt dizzy after

drinking coffee, and some clients were enthusiastic. Do activities after drinking coffee. This habit of drinking client coffee will not cause long-term losses because it is still a safe Negara to drink coffee not to harm the respondent's health.

According to Bistara's (2018) study of 40 clients questioned, most respondents had the habit of drinking coffee with moderate criteria: 200 mg-300 mg per day (for example, 4 cups of coffee per day) did not affect the long-term effects. Habits are behaviors carried out repeatedly, both intentional and involuntary, and those habits or behaviors are formed from childhood to adulthood. Three factors influence behavior: environmental factors, age, and social/associated experience.

According to the International Food Information Council Foundation (IFIC), it is Negarad that the safe limit of caffeine consumption that enters the body in a day is 100-150 mg or 1.73 mg, while for children, it is less than 14-22 mg. . The safe recommendation to drink coffee for healthy people is 2-3 cups. Coffee contains caffeine which has an anti-pain effect; however, this effect can be observed if consumed in excessive amounts, for example, by drinking more than 2-3 cups of espresso coffee or 5-6 cups of regular coffee per day, while most respondents only drink 1. -2 cups of coffee a day. Coffee can also help protect against type 2 diabetes.

SHBG controls the biological activity of sex hormones in the body (testosterone and estrogen), which play a role in the development of type 2 diabetes. One of the study authors said d There is an "inverse relationship" between coffee consumption and the risk of type 2 diabetes.

Type 2 diabetes researchers from the Harvard School of Public Health (HSPH) collected data from three studies. In this study, participants' diets used questionnaires every 4 years, with participants reporting having type 2 diabetes and completing more questions. A total of 7,269 study participants had type 2 diabetes. In addition to protecting against type 2 DM, coffee has many benefits, such as Parkinson's disease, liver disease, and liver cancer, helps prevent premature ejaculation death, can reduce mortality, protect against cirrhosis, and reduce risk. Multiple sclerosis protects against colorectal cancer.

Coffee is the primary source of most antioxidants in developed countries, including the United Negaras, Italy, Spain, and Norway. Coffee beans contain phenolic antioxidant compounds. The antioxidant activity of coffee depends on the composition of the coffee content. The relationship between coffee and health has been examined in more than 8,000 peer-reviewed medical studies over the past 40 years. Current research suggests that moderate coffee is a safe drink and may provide some health benefits.

The safe recommendation for drinking coffee for healthy people is 2-3 cups (Bistara, 2018). Coffee contains coffee that has pain-relieving properties, but this effect can be observed if it is consumed too much, for example, by drinking more than 2-3 cups of espresso coffee or 5-6 cups of regular coffee per day, while most respondents only drink 1 - 2 cups of coffee a day.

#### *Increased blood pressure among the public*

A study conducted by researchers found that up to 19 people (38%) in the community experienced an increase in hypertension. According to Negara's (2020) research, hypertension has been found to influence age and lifestyle significantly. The results of a study conducted by researchers in Pontianak City, West Kalimantan, revealed that of the 50 respondents, the majority had the habit of drinking moderate coffee and did not experience an increase in blood pressure. blood or normal < 120 mmHg / <80 mmHg. So it seems that the respondent's blood pressure is still within normal limits, despite drinking coffee daily. After all, it is not only the habit of drinking coffee that can increase blood pressure unless there are other factors.

The results of bistara blood pressure research (2018) reported that out of 40 respondents, most of the respondents had normal blood pressure. This shows that the habit of drinking coffee alone does not cause blood pressure instability. According to Negara

(2021), age factors can also affect blood pressure. The risk of hypertension entering pre-elderly age can be more significant, so the prevalence of hypertension in old age is relatively high, around 40%, with the highest number of deaths over the age of 65.

Research conducted by Bistara (2018) Negaras that drinking coffee > 4 cups per day can tolerate the effects of coffee in coffee, so it does not cause an increase in blood pressure. Most of the respondents in this study had the habit of drinking coffee for more than 5 years and consumed coffee within the standard limit of 1-2 cups per day.

This is different from Firmansyah (2017) research on 68 hypertension sufferers who visited the Palembang Pembina Health Center, which showed that there was a relationship between the habit of drinking coffee and the blood pressure of hypertension sufferers at Palembang Health Center. In this study, most of the respondents did not have a history of high blood pressure or hypertension, despite drinking coffee every day.

Complications of hypertension are influenced not only by genetics, complications of the disease, or other underlying factors. The reproductive organs are also affected by an increase in blood pressure and a decrease in glucose tolerance, such as diabetes mellitus (DM), dyslipidemia (high blood cholesterol), obesity (obesity), psychological stress, stress, high cholesterol, lack of exercise and physical abnormalities of pregnant women can also cause hypertension (Negara, 2021).

A review of 34 studies found that 200-300 mg of coffee extract — the approximate amount consumed in 1.5-2 cups- increases systolic and diastolic blood pressure by 8 mm Hg and 6 mm Hg. These effects were seen within three hours of ingestion, and the results were similar in people with normal and pre-existing high blood pressure, respectively. Regular coffee consumption is not associated with the effect on blood pressure, which may be due to the coffee tolerance that develops when a person drinks coffee regularly. A slight increase in blood pressure can occur after drinking coffee, especially if you rarely drink it

#### *Correlation of coffee drinking habits to hypertension in Pontianak city community*

Based on the chi-square statistical test results conducted in this study, the p-value = 0.411 ( $p > 0.05\%$ ). So it seems that drinking coffee has nothing to do with an increase in the blood pressure of Pontianak. Therefore, the alternative hypothesis formulated in the study was rejected. This may be because most respondents who have the habit of drinking coffee every day and drinking it 1-2 cups a day will not cause long-term harm since it is a safe recommendation for coffee to consume. Drink for a healthy person is 2-3 glasses.

Hamima (2020) found that there was no significant relationship between the behavior of smoking, drinking coffee, and blood pressure. Some evidence suggests that coffee consumption does not increase the risk of high blood pressure, heart disease, or heart attack. One leading study looked at more than 85,000 women over ten years and found no increased risk of infection, even among women who drank more than six cups of coffee daily. The Joint National Committee, specifically Negarad, says there is no evidence linking coffee and high blood pressure. While some recent studies have shown a weak link between caffeine and increased blood pressure, the results are complex and only considered in the short term.

Many interacting factors can cause hypertension or high blood pressure. In addition to age and coffee drinking habits, which affect a person's blood pressure, etc., some risk factors are race or ethnicity, genetic or hereditary factors, overweight or obesity, lack of exercise, high cholesterol, and smoking (Saputra, 2019).

Factors such as anxiety and fear can influence the vasoconstrictor response to vasoconstrictor stimuli, causing vasoconstriction of blood vessels through a decrease in blood flow and renin production, which inhibits angiotensin I or angiotensin energy II. Vasoconstrictors activate the secretion of aldosterone. Causes sodium and air retention in the renal tubules causes sodium and air retention in the renal tubules and causes hypertension (Negara, 2021).



The small amount of coffee usually consumed by a person is adjusted for lower side effects. Several pharmacological therapies for the treatment of hypertension are widely circulated in the market. Still, people should be wiser in choosing antihypertensive drugs because of several side effects that accompany them while taking these drugs. Negara (2018) that consuming cucumber juice can reduce blood pressure. Of course, this is a natural antihypertension alternative.

Coffee can cause your blood pressure to rise even if you don't have high blood pressure. Some scientists do not believe caffeine inhibits hormones that help dilate blood vessels. Some researchers claim that caffeine causes the adrenal glands to relax and adrenaline to increase, thus forcing blood pressure to rise. Some people who drink caffeinated beverages regularly have a higher average blood pressure than those who don't. People who regularly consume coffee can develop a tolerance to coffee. Thanks to this, coffee does not have a long-lasting effect on blood pressure.

## CONCLUSION

There were 35 people (70.0%) among clients who had the habit of drinking moderate coffee, Clients who did not experience an increase in blood pressure or normal values = < 120 mmHg / <80 mmHg with a total of 31 people (62.0%), Results Based on statistical tests of Chi-square people, p-value = 0.411 (p>0.05%). So it shows no significant relationship between coffee drinking habits and an increase in blood pressure.

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