



THE EFFECT OF CONSUMPTION OF PORK (SUS BARBATUS) ON BLOOD PRESSURE, HEMOGLOBIN LEVEL AND TOTAL CHOLESTEROL LEVEL

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Abstract

Pork is a very difficult meat to digest because it contains a lot of fat and pork causes many diseases, namely hardening of the arteries, increased blood pressure, excruciating chest pain (angina pectoris) and inflammation of the joints and if pork is consumed it can affect the organs in the body. This study aims to determine the effect of pork consumption on blood pressure, hemoglobin levels and total cholesterol levels. This research was conducted on people who often consume pork in Baun village, Amarasi Barat sub-district, with as many as 51 respondents consisting of 20 males and 31 females. Based on the results of the study, it is known that people who often consume pork 3 to 4 times a month have hemoglobin levels within normal limits with a percentage of 66.67%, blood pressure tends to be high with a percentage of 47.06% and high total cholesterol levels with a percentage of 53%. So it can be conclude that consuming pork can increase cholesterol levels in the body blood.

Keywords: *pork; blood pressure; hemoglobin; total cholesterol*

1. Introduction

Food in Indonesia is the most basic need for humans, so the availability of food needs serious attention both in quantity and quality. Pork is a very difficult meat to digest because it contains a lot of fat. Although tender and looks so delicious and delicious, pork is difficult to digest. In addition, pork causes many diseases, namely hardening of the arteries, increased blood pressure, chest pain (angina pectoris) and inflammation of the joints (Annisa, 2019).

Pork is one type of fatty meat that is often consumed (Purwati, 2020). One of the diseases that a person can experience when consuming saturated fat foods in excess is an increase in blood pressure. Pork has many ingredients that can harm the human body, and if pork is consumed it can affect the organs in the body,

even the organs that play an important role can affect when pork is consumed. The organ that is most susceptible to damage if the food consumed has a high-fat content, namely the heart, because the main function of the heart is to pump blood throughout the body (Sudatri et al, 2016).

Among all animal meats, pork is the dirtiest food consumed by humans (Qamar & Raza, 2012). Scientific evidence proves that most unhealthy pork has various harmful agents such as Cholesterol and Fatty Acids, Bacteria and Toxins and many parasites. Pork is high in fat and cholesterol which causes cardiovascular disease, obesity, and colon cancer incidence which is associated with pork consumption. Pork is difficult to digest and can cause chronic indigestion. Pimples, boils, and cysts are commonly found in pork eaters. The excretory system of pigs excretes 2 percent of their uric acid which is harmful to human health (Qamar & Raza, 2012).

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Foods that contain fatty acids play the most role in increasing blood cholesterol levels. Saturated fat is known to be found in many animal foods such as meat, chicken and fatty milk. In addition to saturated fat, dietary fiber is also associated with blood cholesterol levels. Fiber has a good effect on blood cholesterol (Soelistijan, 2002).

Blood pressure is the pressure that is distinguished by circulating blood on the walls of blood vessels which is one of the principal vital signs. Blood pressure is measured quickly using a sphygmomanometer, the normal blood pressure reading is 120/80 mm Hg (Dita, 2016). Increased blood pressure (hypertension) itself is a degenerative disease that is a serious problem today. Hypertension is categorized as the silent disease because the patient does not know he has hypertension or does not know before checking his blood pressure (Purwati, 2020). Meat is a source of iron which plays a role in the formation of hemoglobin. The synthesis of hemoglobin requires the availability of sufficient iron and protein in the body. Protein plays a role in transporting iron to the bone marrow to form new hemoglobin molecules, so that a lack of iron intake can inhibit the formation of hemoglobin (Juli and Hidayati, 2019). However, according to Purwati (2020), consuming pork in large quantities and often can cause atherosclerosis, namely the occurrence of fat blockages in the blood vessels and make blood pressure increase.

One of the animal foodstuffs that have high nutritional value and can be processed into various types of preparations, which are sticky and nutritious is meat. Meat contains protein, water, fat, carbohydrates, vitamins and minerals. For certain people in Indonesia, pork is often consumed to meet protein needs. Most of the people of East Nusa Tenggara (NTT) raise pigs to support the fulfillment of their daily needs. In this regard, various efforts have been made to increase the production and quality of pork (Dai Tana et al, 2015). In East Nusa Tenggara (NTT) pigs are a commodity that contributes the largest consumption of meat compared to other animals (Bulu, et al., 2019) Pork is one of the livestock products consumed by the community, because it contains nutritional elements such as carbohydrates, protein vitamins and minerals (Yana, 2016).

East Nusa Tenggara (NTT) is one area with a high level of pork consumption. Based on the results of RISKESDAS in (2018), hypertension in East Nusa Tenggara (NTT) Province reached

7.2% or 76,130 cases. This figure places hypertension as the fourth highest disease in NTT province (Sakinah, et al., 2020). Based on this background, the researchers examined the Effect of Consumption of Pork (Sus Barbatus) on Blood Pressure, Hemoglobin Levels and Total Cholesterol Levels.

2. Method

This type of research is a cross-sectional analytic study with the aim of knowing the effect of consumption of pork (Sus Barbatus) on blood pressure, hemoglobin levels and total cholesterol levels. This research was conducted for approximately 3 weeks in people who met the criteria and were willing to become respondents by visiting the houses of the respondents. The inclusion criteria are people who consume pork and people who are willing to have blood drawn. The sampling technique in this study is purposive sampling, where this technique will later be used to take samples according to the criteria determined by the researcher (Swarjana, 2015). The research data obtained is processed The data from the analysis results are presented in the form of narratives and frequency distribution tables.

The population studied were those who met the criteria and were willing to become respondents in this study with a total of 51 respondents. Measurement of hemoglobin and total cholesterol levels using Nesco Multi Check 2 with POCT method and blood pressure measurement using a sphygmomanometer. A stethoscope is used to hear Korotkoff's voice when measuring blood pressure. In the use of an automatic sphygmomanometer cuff, a stethoscope is not required (Maharani, 2016). The POCT method is a simple examination method using small, easy, fast and effective samples to be carried out in areas with relatively few health facilities such as puskesmas and hospitals (Nidianti, et al., 2019).

In this study, an examination of hemoglobin levels, total cholesterol and blood pressure was carried out in people who often consume pork in Baun Village, Amarasi Barat District, precisely in Teunbaun Village, Kupang Regency, East Nusa Tenggara. This research was conducted for approximately 3 weeks on people who meet the criteria and are willing to become respondents by visiting the respondents' homes.

According to Tambunan., et al (2021) the classification of blood pressure is as follows:

Table 1. Classification of Blood Pressure

Blood pressure	Systolic	Diastolic
Normal	< 130	< 85
Normal height	130-139	85-89
Mild hypertension	140-159	90-99
Moderate hypertension	160-179	100-109
Severe hypertension	180-209	110-119
Malignant hypertension	≥210	≥120

3. Result and Discussion

The results of this study showed that 51 respondents who often consumed pork consisted of 20 male respondents or male respondents and 31 female respondents aged 25 to 65 years. This shows that women consume pork more often than men. The results of this study also show that people generally consume pork 4 to 5 times a month.

Table 2. Results of Examination of Hemoglobin Levels in People Who Consume Pork

Respondent	Hemoglobin levels		
	Low	Normal	High
Female	4 (7.84)	21 (41.18)	6 (11.77)
Male	2 (3.92)	13 (25.49)	5 (9.8)
Total	6 (11.76%)	34 (66.67%)	11(21.57%)

Table 2 shows that respondents who have low hemoglobin levels are 6 respondents with a percentage of 11.76%, respondents who have normal hemoglobin levels are 34 respondents with a percentage of 66.67% and respondents who have high hemoglobin levels are 11 respondents with a percentage 21.57% of the total 51 respondents. From the description above, it can be seen that most of the people who eat pork have normal hemoglobin levels.

Hemoglobin is a dye found in red blood which is used to transport oxygen (O₂) and carbon dioxide (CO₂) in the body (Nugroho.,et al 2022). This result is not in line with Agustina's research (2020), namely if the food consumed contains a lot of Fe or iron, the blood cells produced will increase so that the hemoglobin in the blood increases and vice versa. In pork there are various kinds of nutrients, in pork there is a high protein content also contains important vitamins and minerals. The mineral content is thiamine, selenium, zinc, vitamin B12, to iron. (Maiyena and Mawarnis, 2022). The iron content in meat can affect a person's hemoglobin level because the iron (Fe) component in meat is a micro mineral compound that has an essential function in the body to transport oxygen from the lungs to body tissues, transport electrons in

cells, and play a role in various enzyme reactions. (Alegantina.,et al 2018).

Table 3. Results of Examination of Total Cholesterol Levels in People Who Consume Pork

Respondent	Total Cholesterol Level		
	Normal	High Threshold	High
Female	3 (5.88)	4 (7.84)	24 (47.05)
Male	6 (11.78)	11 (21.56)	3 (5.88)
Total	9 (17.6%)	15 (29.4%)	27 (53%)

Table 3 shows that respondents who have normal cholesterol levels are 9 respondents with a percentage of 17.6%, respondents who have total cholesterol levels within the High Threshold are 15 respondents with a percentage of 29.4% and respondents who have high total cholesterol levels are as many as 27 respondents with a percentage of 53% of the total 51 respondents. From the description above, it can be seen that most of the people who eat pork have high total cholesterol levels.

Foods that contain saturated fatty acids play the most role in raising blood cholesterol levels. Saturated fat is known to be abundant in animal source foods such as meat, chicken and fatty milk. In addition to saturated fat, dietary fiber is also associated with blood cholesterol levels (Annisa, 2019).

Pork has many ingredients that can harm the human body, and if pork is consumed it can affect the organs in the body, even organs that play an important role can affect when pork is consumed. The organ that is most susceptible to damage if the food consumed has a high fat content, namely the heart, because the main function of the heart is to pump blood throughout the body (Sudatri et al, 2016). Scientific evidence proves that most unhealthy pork has various harmful agents such as Cholesterol and Fatty Acids, Bacteria and Toxins and a number of parasites. Pork is high in fat and cholesterol which causes cardiovascular disease, obesity, the incidence of colon cancer which is associated with pork consumption (Qamar & Raza, 2012).

Table 4. Results of Blood Pressure Examination of People Who Consume Pork

Respondent	Blood pressure		
	Low	Normal	High
Female	4 (7.84)	13 (25.49)	14 (27.45)
Male	2 (3.92)	8 (15.69)	10 (19.61)
Total	6 (11.76%)	21 (41.18%)	24 (47.06%)

Table 4 the results of this study show that from 51 respondents who consumed pork, 6 respondents (11.76%), then 21 respondents (41.18%) had normal blood pressure and 24 respondents (47.06%) experienced an increase in blood pressure. It can be seen that most of the respondents have high blood pressure. The results of this study are in line with Purwati's research (2019) where people who consume pork experience an increase in blood pressure, both those who consume wild boar and raised pork.

Factors that influence changes in blood pressure are heredity, age, gender, physical and psychological stress, obesity (obesity), unhealthy eating, high salt consumption, lack of physical activity, alcohol consumption, caffeine consumption, other diseases, and smoking. (Sasmalinda, (2013). Even though meat is highly nutritious, it is difficult to digest because it contains a lot of saturated fat. In addition, pork can cause several diseases such as hardening of the arteries, increased blood pressure (hypertension), gripping chest pain (angina pectoris) and inflammation of the joints (Annisa, 2019). the function of the body's organs will experience disturbances such as disturbances in the process of forming urine in the kidneys or the formation of cerebrospinal fluid and others (Anggara and Prayitno, 2013).

4. Conclusion and Suggestion

We can conclude that there is an effect of pork consumption on increasing cholesterol levels and increasing blood pressure of people who often consume pork but there is no effect between pork consumption and hemoglobin levels because in general it is still within normal limits. Further research needs to be done on the hematocrit value or hematological picture in people who often consume pork with a higher intensity of pork consumption and a larger number of respondents.

5. Acknowledgments

I would like to say a big thank you to Dr. R.H Kristina, SKM, M., Kes., as the Director of the Health Polytechnic of the Kupang Ministry of Health, especially the DIPA section of the Health Polytechnic of the Kupang Ministry of Health with grand number KN.01.03/2/0289/2022 and Mrs. Agustina W. Djuma, S.Pd., M.Sc., as the Head of the Medical Laboratory Technology Study Program Health Polytechnic of the Ministry of Health of Kupang who has given me

the opportunity to do research for novice lecturers.

6. References

- Agustina, R. (2020). Gambaran Kadar Hemoglobin Pada Supir Bus Di Pangkalan Bun Berdasarkan Durasi Tidur. Gambaran Kadar Hemoglobin Pada Supir Bus Di Pangkalan Bun Berdasarkan Durasi Tidur.
- Alegantina, S., Isnawati, A., Winarsih, W., Ernawati, F., Imanningsih, N., & Setyorini, H. A. (2018). Kandungan gizi mikro (besi, seng), nitrit dan formalin pada daging sapi dari pasar tradisional dan swalayan. *Jurnal Kefarmasian Indonesia*, 55-63.
- Anggara, F. H. D., & Prayitno, N. (2013). Faktor-faktor yang berhubungan dengan tekanan darah di Puskesmas Telaga Murni, Cikarang Barat tahun 2012. *Jurnal ilmiah kesehatan*, 5(1), 20-25.
- Annisa, A. (2019). Pengaruh Konsumsi Daging Babi (*Sus barbatus*) terhadap Kadar Kolesterol Total Dan Gambaran Histopatologi Jantung Mencit (*Mus musculus*) (Doctoral dissertation, Universitas Islam Negeri Alauddin Makassar).
- Bulu, P. M., Wera, E., & Yuliani, N. S. (2019). Manajemen Kesehatan Pada Ternak Babi di Kelompok Tani Sehati Kelurahan Tuatuka, Kecamatan Kupang Timur, Kabupaten Kupang NTT. *Jurnal Pengabdian Masyarakat Peternakan*, 4(2).
- Dai Tana, E., Kale, P. R., & Malelak, G. E. M. (2015). Kandungan Lemak, Kolesterol, Jumlah Total Bakteri Dan Rasa Bakso Babi Yang Diberi Lapisan Penutup Kitosan, Karagenan Dan Gelatin. *Jurnal Nukleus Peternakan*, 2(2), 186-191.
- Dita, N. (2016). Hubungan Antara Tingkat Kecukupan Lemak Dan Natrium Dengan Tekanan Darah Pada Lansia Di Panti Tresna Werdha Semarang. Kti.
- Juli Karyani, T., & Hidayati, I. L. (2019). Perbedaan Konsumsi Daging, Ikan, Dan Telur Antara Remaja Putri Anemia Dan Non Anemia Di SDN Totosari Dan Tunggulsari I, II Surakarta (Doctoral dissertation, Universitas Muhammadiyah Surakarta).
- Maharani, L. (2016). Implementasi Pengukuran Dan Klasifikasi Tekanan Darah Berdasarkan Pulse Transit Time Menggunakan Metode Transformasi Wavelet Dan Support Vector Machines

- (Doctoral dissertation, Institut Teknologi Sepuluh Nopember).
- Maiyena, S., & Mawarnis, E. R. (2022). Kajian Analisis Konsumsi Daging Sapi dan Daging Babi Ditinjau dari Kesehatan. *Jurnal Pendidikan Tambusai*, 6(1), 3131-3136.
- Nidianti, E., Nugraha, G., Aulia, I. A. N., Syadzila, S. K., Suciati, S. S., & Utami, N. D. (2019). Pemeriksaan Kadar Hemoglobin dengan Metode POCT (Point of Care Testing) sebagai Deteksi Dini Penyakit Anemia Bagi Masyarakat Desa Sumbersono, Mojokerto. *Jurnal Surya Masyarakat*, 2(1), 29-34.
- Nugroho, R. F., Hindaryani, N., & Saputri, K. (2022, January). Pengaruh Edukasi Gizi Seimbang Terhadap Pengetahuan Gizi Pada Lansia Di Desa Botoputih, Kecamatan Tikung Kabupaten Lamongan, Jawa Timur. In *Prosiding Seminar Nasional Pengabdian Kepada Masyarakat* (Vol. 1, No. 1, pp. 107-113).
- Purwati, K. (2020). Perbandingan Kadar Lemak Daging Babi Landrace Dan Babi Hutan Terhadap Kejadian Hipertensi Di Wilayah Kelurahan Pasar Teluk Dalam Tahun 2019. *Zona Kedokteran: Program Studi Pendidikan Dokter Universitas Batam*, 10(1), 98-103.
- Qamar, M. F., & Raza, I. (2012). Scientific Evidences that Pig Meat (Pork) is Prohibited for Human Health. *Scientific Papers. Series D. Animal Science*, 55.
- Sakinah, S., Ratu, J. M., & Weraman, P. (2020). Hubungan antara karakteristik demografi dan pengetahuan dengan self management hipertensi pada masyarakat suku timor: penelitian cross sectional. *Jurnal Penelitian Kesehatan" SUARA FORIKES"(Journal of Health Research" Forikes Voice"*), 11(3), 245-252.
- Sasmalinda, L. (2013). Faktor-faktor yang Mempengaruhi Perubahan Tekanan Darah Pasien di Puskesmas Malalo Batipuh Selatan dengan Menggunakan Regresi Linier Berganda. *Journal of Mathematics UNP*, 1(2).
- Sudatri, N. W., Setyawati, I., Suartini, N. M., & Yulihastuti, D. A. (2016). Penurunan fungsi hati tikus betina (*rattus norvegicus* l) yang diinjeksi white vitamin c dosis tinggi dalam jangka waktu lama ditinjau dari kadar SGPT, SGOT serta gambaran histologi hati. *Metamorfosa: Journal of Biological Sciences*.
- Swarjana, I. K., SKM, M., & Bali, S. T. I. K. E. S. (2015). *Metodologi Penelitian Kesehatan [Edisi Revisi]: Tuntunan Praktis Pembuatan Proposal Penelitian untuk Mahasiswa Keperawatan, Kebidanan, dan Profesi Bidang Kesehatan Lainnya*. Penerbit Andi.
- Tambunan, F. F., Nurmayni, N., Rahayu, P. R., Sari, P., & Sari, S. I. (2021). Hipertensi (Si Pembunuh Senyap).
- Tiara, U. I. (2020). Hubungan Obesitas Dengan Kejadian Hipertensi. *Journal of Health Science and Physiotherapy*, 2(2), 167-171.
- Yana, N. Y. D., Dharma, B., & Nugroho, R. A. (2016). Karakterisasi dan Identifikasi Bakteri dari Tamba Daging Babi (*Sus sp.*) Hasil Fermentasi Spontan. *BIOPROSPEK: Jurnal Ilmiah Biologi*, 11(2), 53-60.