Jurnal Kesehatan
Volume 16, Number 1, April 2025
ISSN 2086-7751 (*Print*), ISSN 2548-5695 (*Online*)
http://ejurnal.poltekkes-tjk.ac.id/index.php/JK

Correlation of Lifestyle and Gender with Hypertension Incidence

Thia Wulan Dinasti, Sri Rahayu*
Faculty of Health Sciences, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

*Corresponding author: sr642@ums.ac.id

ARTICLE INFO

Article history

Submitted:
16 Oct 2024

Revise:
17 Feb 2025

Accepted:
30 Mar 2025

Keywords:

Blood pressure;
Hospital;
Knowledge.
Patients.

ABSTRACT

Hypertension is a disease whose initial cause is unknown. Therefore, hypertension is called a silent killer. Factors suspected of causing hypertension come from unhealthy lifestyles. In addition, gender is also a factor that affects blood pressure. The purpose of this study was to determine the relationship between lifestyle and gender and the incidence of hypertension. This study used a quantitative method with a cross-sectional design. This population is based on research from a preliminary survey at Dr. Moewardi Surakarta Hospital of 10,252 patients in May 2024. A sample of 109 participants was obtained using a purposive sampling technique. Research data were collected using a lifestyle questionnaire to measure the level of the patient's lifestyle. Data analysis used univariate tests and bivariate chi-square tests. The study results obtained a p-value of 0.012 (<0.05), meaning a relationship exists between lifestyle and the incidence of hypertension. For the gender variable, a p-value of 0.013 (<0.05) was obtained, which implies a relationship exists between gender and the incidence of hypertension. The majority of 86 participants (78.9%) had a moderate lifestyle category. This study also showed that women tend to be at risk of hypertension; namely, 48 participants (44.0%) of 64 female participants suffered from hypertension. Lifestyle and gender are significantly related to the incidence of hypertension. Men and women need to increase their knowledge, such as regular exercise, eating a balanced diet, reducing daily salt intake, and not consuming alcohol about healthy lifestyles to improve hypertension prevention.

INTRODUCTION

Hypertension, also known as high blood pressure, is a common chronic disease that often occurs in society. This disease has the potential to cause dangerous complications for sufferers. Hypertension is known as an undetected killer, also called a silent killer. Although this disease does not have apparent early symptoms, it can cause serious complications such as stroke, chronic kidney failure, and kidney problems. The causes of high blood pressure are categorized into two modifiable risk factors: smoking, obesity, high-fat diets, and excessive salt and alcohol intake. Risk factors cannot be changed include age, genetics, and gender (Ina et al., 2020). High blood pressure is a silent killer, along with diabetes, hypercholesterolemia, and osteoporosis. Currently, the number of hypertension is still high and tends to increase due to the lack of patient compliance in following the right diet for hypertension caused by a lack of knowledge about it (Sinuraya et al., 2017).

Hypertension is a chronic disease that has a high prevalence and continues to increase every year in society. According to the World Health Organization (2023), an estimated 1.28 billion adults aged 30–79 years worldwide have hypertension, most (two-thirds) living in low- and middle-income countries. Based on data on the prevalence of hypertension in Indonesia, hypertension is still a challenge because this disease is most commonly found in primary health services. Hypertension also ranks first as one of the types of non-communicable chronic diseases widely experienced by the adult age group, which is 26.5%, and tends to increase with age (Atmadja et al., 2020).

The number of people with high blood pressure in Indonesia reached 185,857 people, and the current prevalence is 34.1%. This number has increased since 2013 (Fatmawati et al., 2021). Based on the results of the 2018 Riskesdas, the highest prevalence of hypertension was in Central Java, which was 37.57%. The prevalence of hypertension was higher in women (40.17%) than in men (34.83%). The prevalence of hypertension in Sukoharjo Regency, based on the 2021 report, is as follows: Number of people with hypertension: 115,801 people (43% of the total population). The highest number of sufferers was in Mojolaban District: 21,576 people. The lowest number of sufferers was in Nguter District: 1,546 people (Department Health of Central Java, 2021).

Gender has an irreversible effect on blood pressure. Gender also has a factor that affects blood pressure in general because several studies have found different results. There is an assumption that hypertension usually occurs in men, this is based on research (Gillis & Sullivan, 2016). This study shows that women have a stronger anti-inflammatory immune profile than men, which can act as a compensatory mechanism to lower increased blood pressure. Men tend to have a more pro-inflammatory immune profile than women. However, according to the 2018 Basic Health Research survey, the prevalence of blood pressure in women aged 65 years and over in 2018 was 28.8%, higher than that of men at 22.8%. The risk of women developing high blood pressure increases after menopause, usually from the age of 45. Women who have not reached menopause are protected by the hormone estrogen, a hormone that contributes to atherosclerosis and hypertension (Ghosh et al., 2016).

Many factors can cause high blood pressure. Among them are lack of physical activity, lack of fruit and vegetable intake, smoking habits, consumption of alcoholic beverages, improper diet, and high salt and fat. Various lifestyles can cause high blood pressure at productive ages (World Health Organization, 2023). According to research by Susanti et al. (2024), women are more susceptible to hypertension than men; this can be caused by hormonal factors between the two sexes and also by differences in lifestyle between the two sexes. After menopause, namely the age of 45 years, women are at higher risk of developing high blood pressure. Women who have not reached menopause are protected by estrogen, a hormone responsible for increasing High-Density Lipoprotein (HDL) levels. Low HDL cholesterol levels and high LDL cholesterol levels are seen in the development of atherosclerosis and hypertension (Ghosh et al., 2016). There are differences in the results of several previous studies, so researchers are interested in research to determine the relationship between lifestyle and gender with the incidence of hypertension.

METHOD

This study used a cross-sectional approach in quantitative research. The population was determined based on a preliminary study at the Internal Medicine Polyclinic of Dr. Moewardi Surakarta Hospital which received 10,252 patients. The sample was obtained using a purposive sampling technique from 109 participants, according to the Slovin formula calculation, with the criteria of hypertensive patients aged 20-75 years (excluding gestational hypertension patients and emergency hypertension patients).

This study was conducted at Dr. Moewardi Hospital, Jebres District, Surakarta City, and carried out in May 2024. This study used a questionnaire as a data collection technique. Univariate analysis was used to describe the data on each research outcome variable. The data is displayed in the form of a frequency table. After the characteristics of each variable in this study were known, the analysis was continued at the bivariate level to examine the relationship (correlation) between the independent and dependent variables. This study has obtained ethical clearance from the Health Research Ethics Commission of Dr. Moewardi General Hospital with the number 743/III/HREC/2024

RESULTS

Table 1 shows that most participants were female, with a percentage of (58.7%). The age of the participants was mainly in the range of 51-70 years, with as many as 40 participants (36.7%). The education level of the participants was mostly junior high school with a percentage of (38.5%). Knowledge can be obtained outside of formal school, but can also be obtained from previous experience. The most jobs were farmers, with as many as 35 participants (32.1%), followed by traders/laborers, with as many as 33 participants (30.3%), in third place participants who were not working as many as 21 participants (19.3%), then civil servants/military as many as 20 participants (18.3%).

Table 1. Distribution of participants

Variable	n	%
Gender		
Male	45	41.3
Female	64	58.7
Age		
20-30 years	14	12.8
31-40 years	19	17.4
41-50 years	35	32.1
51-70 years	40	36.7
Education		
Elementary School	34	31.2
Junior High School	42	38.5
Senior High School	26	23.9
Bachelor	7	6.4
Employee		
Not Working	21	19.3
Farmer	35	32.1
Trader/Laborer	33	30.3
Civil Servants	20	18.3

Table 2 shows that of the 109 participants, the majority had a sufficient lifestyle, 101 participants (92.7%), and some had a good lifestyle, 8 participants (7.3%).

Table 2. Frequency distribution of lifestyle categories

Variable	f	%
Poor	0	00.0
Sufficient	101	92.7
Good	8	7.3
Total	109	100.0

Table 3 shows that 15 participants (13.8%) with a sufficient lifestyle did not suffer from hypertension, while 86 participants (78.9%) with a sufficient lifestyle suffered from hypertension. Meanwhile, in participants with a good lifestyle category, 4 participants (3.7%) did not suffer from hypertension, and 4 participants (3.7%) suffered from hypertension. After the data was processed with the Chi-Square test, the results obtained a p-value=0.012 (<0.05) which means that there is a relationship between lifestyle and the incidence of hypertension based on gender.

Table 3. Relationship between lifestyle and hypertension incidence

Lifestyle	Hypertension Incident				p-value
	No hypertension		Hypertension		
	n	%	n	%	
Poor	0	0.0	0	0.0	
Sufficient	15	13.8	86	78.9	0.012
Good	4	3.7	4	3.7	

Table 4 shows that 42 male participants experienced hypertension (38.5%), while 3 participants did not experience hypertension (2.8%). 48 female participants experienced hypertension (44%), while 16 participants did not experience hypertension (14.7%). The statistical test results showed a p-value of 0.013, indicating a significant relationship with the frequency of hypertension.

Table 4. Relationship between gender and hypertension incidence

Gender	Hypertension incident				p-value
	No hypertension		Hypertension		
	n	%	n	%	
Male	3	2.8	42	38.5	0.013
Female	16	14.7	48	44.0	

DISCUSSION

Based on the results of the study indicate a correlation between gender and lifestyle with the risk of hypertension. This is different from the research of Garwahusada & Wirjatmadi (2020) which showed that more men experience hypertension. According to Bruno's (2016) study, women have healthier diets and lifestyles than men, according to the results of this study. A healthy lifestyle is a basic physiological need for humans to maintain life, including maintaining body health and preventing disease. One of the diseases that often occurs due to an unhealthy lifestyle is hypertension (Sufa et al., 2017). Another study stated that lifestyle risk factors other than caffeinated drinks and exercise can also be seen in the daily food consumed. Consuming foods containing excess salt less than 3 times a week can increase sodium concentration in the extracellular. This results in an increase in the volume of extracellular fluid, which can ultimately cause hypertension. Pratiwi and Wibisana's (2018) study showed a significant relationship between diet and the incidence of hypertension. In line with research, Wulandari (2020) states that several types of food can increase blood pressure, such as high-sodium carbohydrates and flavorings in food. The results of the study by Livana and Basthomi (2020) also support these findings. A lifestyle that consumes foods high in fat can cause obesity. People with excess fat (hyperlipidemia) risk experiencing blood clots that reduce the supply of oxygen and nutrients to the body. Obesity can increase the risk of hypertension.

A study conducted in Kendal City showed that gender is related to the risk of hypertension (Yunus et al., 2021). If high blood pressure is not treated seriously, complications such as heart failure, stroke, kidney failure, heart attack, and arrhythmia can occur. High blood pressure can be prevented by controlling unhealthy lifestyle behaviors, regulating and overcoming unhealthy lifestyle habits such as not eating enough fruits and vegetables, excessive sugar, salt, and fat intake, and suppressing People who cannot control unhealthy lifestyles will be more susceptible to various non-communicable diseases, including cardiovascular diseases such as hypertension.

CONCLUSION

This study shows a significant relationship between lifestyle and gender with the incidence of hypertension. Men and women must increase their knowledge about healthy lifestyles to prevent hypertension, such as regular exercise, eating a balanced diet, reducing daily salt intake, and not consuming alcohol.

AUTHOR'S DECLARATION

Authors' contributions and responsibilities

TWD: Collected and processed the data, conception the manuscript; **SR:** Reviewed manuscript, and check grammar.

Availability of data and materials
All data are available from the authors.

Competing interests
The authors declare no competing interest.

ACKNOWLEDGEMENT

The author would like to express his gratitude to Allah SWT for all the blessings that have been given so that he can complete this thesis. Thank you to Universitas Muhammadiyah Surakarta, the Nursing Study Program, and the supervisor for the guidance, advice, and support that are very meaningful to me. The author would like to thank the help from family, friends, and all parties who have contributed to the writing of this thesis. Hopefully, this paper will be helpful and provide a positive contribution to the healthy lifestyle of the community so that it can reduce the risk of hypertension.

REFERENCES

Atmadja, T. F. A., Yunianto, A. E., Yuliantini, E., Haya, M., Faridi, A., & Suryana, S. (2020). Gambaran sikap dan gaya hidup sehat masyarakat Indonesia selama pandemi Covid-19. *AcTion: Aceh Nutrition Journal,* *5*(2), 195-202. https://doi.org/10.30867/action.v5i2.355

Bruno, R. M., Pucci, G., Rosticci, M., Guarino, L., Guglielmo, C., Agabiti Rosei, C., ... & Pengo, M. F. (2016). Association between lifestyle and systemic arterial hypertension in young adults: a national, survey-based, cross-sectional study. *High Blood Pressure & Cardiovascular Prevention, 23,* 31-40. https://doi.org/10.1007/s40292-016-0135-6

Department Health of Central Java. (2021). Profil kesehatan provinsi Jawa Tengah tahun 2021, I-123. https://dinkes.jatengprov.go.id/buku-profil-kesehatan-v2/.

Fatmawati, BR, Suprayitna, M., & Istianah, I. (2021). Efikasi diri dan perilaku sehat dalam modifikasi gaya hidup penderita hipertensi. *Jurnal Ilmiah Stikes Yarsi Mataram, 11*(1),1-7. https://doi.org/10.57267/jisym.v11i1.73

Garwahusada, E., & Wirjatmadi, B. (2020). Hubungan jenis kelamin, perilaku merokok, aktivitas fisik dengan hipertensi pada pegawai kantor. *Media Gizi Indonesia, 15*(1), 60-65. https://doi.org/10.20473/mgi.v15i1.60-65

Ghosh, S., Mukhopadhyay, S., & Barik, A. (2016). Sex differences in the risk profile of hypertension: a cross-sectional study. *BMJ open,* *6*(7), e010085. https://doi.org/10.1136/bmjopen-2015-010085

Gillis, E. E., & Sullivan, J. C. (2016). Sex differences in hypertension: Recent advances. *Hypertension, 68*(6), 1322-1327. https://doi.org/10.1161/HYPERTENSIONAHA.116.06602

Ina, S. J., Selly, J. B., & Feoh, F. T. (2020). Analisis Hubungan Faktor Genetik Dengan Kejadian Hipertensi Pada Usia Dewasa Muda (19-49 Tahun) Di Puskesmas Bakunase Kota Kupang Tahun 2020. *Chmk Health Journal*, *4*(3), 217-221. https://cyber-chmk.net/ojs/index.php/kesehatan/article/view/861

Livana, P. H., & Basthomi, Y. (2020). Triggering factors related to hypertension in the City of Kendal, Indonesia. *Arterial hypertension,* *24*(4), 181-191. https://doi.org/10.5603/AH.a2020.0024

Pratiwi, O. M., & Wibisana, A. A. (2018). Hubungan Pola Makan Dengan Kejadian Penyakit Hipertensi Pada Lansia Di Dusun Blokseger Kecamatan Tegalsari Kabupaten Banyuwangi. *Jurnal Ilmu Kesehatan Masyarakat,* *14*(2), 77-82. https://doi.org/10.19184/ikesma.v14i2.10458

Sinuraya, R. K., Siagian, B. J., Taufik, A., Destiani, D. P., Puspitasari, I. M., Lestari, K., & Diantini, A. (2017). Pengukuran tingkat pengetahuan tentang hipertensi pada pasien hipertensi di

kota bandung: sebuah studi pendahuluan. *Jurnal Farmasi Klinik Indonesia, 6*(4), 290-297. https://doi.org/10.15416/ijcp.2017.6.4.290

Sufa, S. A. (2017). Tren gaya hidup sehat dan saluran komunikasi pelaku pola makan food combining. *Jurnal Komunikasi Profesional, 1*(7), 105-120. https://doi.org/10.25139/jkp.v1i2.473

Susanti, N., Aghniya, S. N., Almira, S. S., & Anisa, N. (2024). Hubungan usia, jenis kelamin dengan penyakit hipertensi di klinik utama paru soeroso. *Prepotif: Jurnal Kesehatan Masyarakat, 8*(2), 3597-3604. https://doi.org/10.31004/prepotif.v8i2.30438

World Health Organization. (2023). *Hypertension*. https://www.who.int/news-room/fact-sheets/detail/hypertension.

Wulandari, I. S. M. (2020). Hubungan pola makan dengan kejadian hipertensi pada anggota prolanis Di wilayah kerja Puskesmas Parongpong. *Chmk nursing scientific journal, 4*(2), 228-236. https://doi.org/10.37771/kjn.v2i1.417

Yunus, M., Aditya, I. W. C., & Eksa, D. R. (2021). Hubungan usia dan jenis kelamin dengan kejadian hipertensi di puskesmas haji pemanggilan kecamatan anak tuha kab. Lampung Tengah. *Jurnal Ilmu kedokteran dan kesehatan, 8*(3), 229-239., https://doi.org/10.33024/jikk.v8i3.5193