Journal of Asian-African focus in Health

ISSN: 2987-9418
Vol. 1 No. 3, 2023
Page: 130-136

The Relationship Between Age and Gender and the Incidence of Hypertension in the Internal Ward of Massenrempulu General Hospital, Enrekang Regency

Ricky Z[1]

[1]D-3 Nursing Study Program, Sekolah Tinggi Ilmu Kesehatan Makassar

*Corresponding Author: Ricky Z

Article Info

Article History:

Received November 3, 2023
Revised November 28, 2023
Accepted: December 15, 2023

Keywords:

Age, Gender, Incidence of Hypertension.

Abstract

Hypertension is a degenerative disease. Generally, blood pressure increases slowly with increasing age. WHO recorded that in 2012 there were at least 839 million cases of hypertension, estimated to be 1.15 billion in 2025 or around 29% of the total world population. The aim of the study was to determine the relationship between age and gender with the incidence of hypertension at Massenrempulu General Hospital, Enrekang district. The type of research used is a cross-sectional design. The population in this study were all patients in the Internal Room at Massenrempulu General Hospital, Enrekang Regency in 2015, namely 272 people. The sample studied was 51 people using the nonprobability sampling method with accidental sampling technique. The research was carried out from 14 to 31 March 2016. Data was collected using a questionnaire and then statistical analysis was carried out using the chi square test with the alternative Fisher exact test with a significance level of $\alpha = 0.05$. The results of the study showed that of the 51 respondents studied, based on age, the most respondents were high risk, namely 35 people (68.6%), based on gender, the most respondents were women, namely 27 people (52.9%), and the majority of respondents experienced hypertension, namely 36 people (70.6%). Based on the research results, it was concluded that there was a relationship between age and the incidence of hypertension, with a value of $p = 0.001 < 0.05$, and there was a relationship between gender and the incidence of hypertension, with a value of $p = 0.002 < 0.05$. It is recommended that health service officers always strive to provide information to the public by providing health education in an effort to develop strategies to prevent, reduce or control morbidity rates among hypertension sufferers in their work areas.

Introduction

Hypertension is a condition where blood pressure exceeds normal limits. People are considered to be suffering from hypertension if their systolic pressure is above 140 mmHg (millimeters of mercury) and can also be accompanied by a diastolic pressure above 90 mmHg on two or three examinations (Suheimi & Utari, 2023).

Hypertension or high blood pressure is caused by blood vessels (Mali & Elfi, 2020) which tighten, causing blood pressure to increase. Blood pressure can reach 140/90 mmHg while the normal limit for upper blood pressure is between 100-120 mmHg and lower pressure 70-85 (Prisusanti et al., 2021; Sisti et al., 2023; Ji et al., 2022). Most patients have prehypertensive blood pressure before they are diagnosed with hypertension, which occurs between the ages of the third and fifth decades (Ningtias et al., 2021; Ott & Schmieder, 2022; Moin et al., 2021).

In general, hypertension sufferers are people over 35 years old, but currently it is possible for young people to suffer from it (Carey et al., 2022). Most primary hypertension occurs at the age of 25-35 years and only 20% occurs under the age of 20 years. This is because people of

DOI: https://doi.org/10.71435/595686

productive age rarely pay attention to health, such as unhealthy diet and lifestyle such as smoking (Gangadi et al., 2021).

The prevalence of hypertension in men is the same as in women (Prajayanti & Sari, 2020). However, women are protected from cardiovascular disease before menopause (Ryczkowska et al., 2023). Women who have not experienced menopause are protected by the hormone estrogen which plays a role in increasing HDL levels (Flores et al., 2021; El Khoudary et al., 2021; Beazer & Freeman, 2022). high HDL cholesterol levels are a protective factor in preventing the process of atherosclerosis. This causes an increase in female hypertension sufferers at the age of menopause (Ghazi & Bello, 2021). Some experts still have different conclusions, there are varying comparisons between men and women.

Men often experience signs of hypertension in their late twenties, while women often experience hypertension after menopause (Duarte et al., 2022; Ghazi & Bello, 2021; Yulinda & Kusumawardani, 2023). One of the causes is due to differences in hormones between the two sexes. Production of estrogen hormones decreases during menopause, women lose their beneficial effects so blood pressure increases (Rahayu, 2021). The World Health Organization (WHO) recorded that in 2012 there were at least 839 million cases of hypertension, estimated to be 1.15 billion in 2025 or around 29% of the total world population. Around 80% of the increase in hypertension cases occurred, especially in developing countries (Mills et al., 2020).

At the national level, it is known that 24.5% of the Indonesian population over 10 years old consume salty food every day, once or more (Khoiry et al., 2022; Andarwulan et al., 2021). Meanwhile, the prevalence of hypertension in Indonesia is among the population aged 18 years and over (Sudikno et al., 2023). of that number, in 2007 as many as 31.7% suffered from hypertension, while in 2013 as many as 25.8% and some others experienced stroke complications. Meanwhile, the rest experienced heart disease, kidney failure and blindness. Hypertension is the 3rd cause of death after stroke and tuberculosis Basic Health Research, 2013 (Martini et al., 2022; Ameer, 2022).

Based on data in South Sulawesi, among residents 18 years and over in 2007 the number of hypertension sufferers was 32.0%, while in 2013 it was 30.1% (Ministry of Health, 2013). Based on the explanation above, researchers are interested in conducting research with the title "The Relationship between Age and Gender and the Incident of Hypertension at Massenrempulu General Hospital, Enrekang Regency".

Methods

The research incorporated a quantitative method and utilized a cross-sectional design to study linkages between age and gender on hypertension cases. The use of a cross-sectional design was suitable because it allows researchers to measure variables and outcomes simultaneously during a particular time to determine relationships between demographic characteristics and health outcomes. The research study took place at Massenrempulu General Hospital Internal Ward situated in Enrekang Regency during two weeks from March 14 to March 31, 2016 for data collection. All patients who received treatment at the Internal Ward of the hospital during 2015 formed the target population with a total of 272 individuals.

The researchers utilized accidental sampling as their non-probability sampling method to choose 51 individuals from the total 272 patients study group. The researchers conducted accidental sampling by choosing any participants who appeared during collection time when satisfying the study requirements thus suitable when random selection is impractical due to time limitations or barriers to accessibility. Respondents answered survey questions with a structured questionnaire that contained demographic data including individual ages and genders and educational backgrounds alongside clinical data about hypertension incidence.

DOI: https://doi.org/10.71435/595686

Researchers grouped the participants into high-risk age categories and low-risk age categories following hypertension risk criteria standards. The questionnaire divided participants between male and female categories. The research used both univariate and bivariate statistical approaches for data examination. The sample variables regarding education level and occupational status and demographic features including age group and gender together with hypertension status were assessed by univariate analysis techniques.

The evaluation used Bivariate analysis through Chi-Square test with Fisher's Exact alternative test to determine relationships between independent variables (age and gender) and dependent variable (hypertension incidence). The analytical threshold equaled $\alpha = 0.05$ so research outcomes demonstrated statistical significance whenever the associated p-value reached values under 0.05. This research design delivered a brief yet powerful framework to discover relationships between demographic characteristics and hypertension rates in the internal medical ward patients while providing useful public health information to apply in hospital-based populations.

Result and Discussion

Based on the results of data processing, the following will present univariate analysis and bivariate analysis.

Univariate Analysis

Last education

Table 1. Distribution of Respondents Based on Last Education in the Internal Room Massenrempulu General Hospital, Enrekang Regency

Last Education	n	%
Elementary School	10	19,6
Junior High School	15	29,4
Senior High School	23	45,1
College	3	5,9
Total	51	100,0

Source: Primary Data

Table 1 shows that the most recent education of respondents was high school, namely 23 people (45.1%), and the least was college, namely 3 people (5.9%).

Work

Table 2. Distribution of Respondents Based on Work in the Internal Space

Massenrempulu General Hospital, Enrekang Regency in 2016

Work	n	%
Civil servants	3	5,9
Self-employed	19	37,3
Laborer	9	17,6
IRT	13	25,5
Student	2	3,9
Doesn't work	5	9,8
Amount	51	100,0

Source: Primary Data

DOI: https://doi.org/10.71435/595686

Table 2 shows that the majority of respondents' occupations are self-employed, namely 19 people (37.3%), and at least 2 people (3.9%) still have student status.

Age

Table 3. Distribution of Respondents Based on Age in the Internal Room of Massenrempulu General Hospital, Enrekang Regency, 2016

Age	n	%
High Risk	35	68,6
Low Risk	16	31,4
Amount	51	100,0

Source: Primary Data

Table 3 shows that the age of most respondents is those with high risk, namely 35 people (68.6%), while the age of respondents with low risk is 16 people (31.4%).

Gender

Table 4. Distribution of Respondents Based on Gender in the Internal Room of RSU Massenrempulu, Enrekang Regency, 2016

Sex	n	%
Man	24	47,1
Woman	27	52,9
Amount	51	100,0

Source: Primary Data

Table 4 shows that the gender of most respondents was female, namely 27 people (52.9%), while male respondents were 24 people (47.1%).

Hypertension Occurrence

Table 5. Distribution of Respondents Based on the Incident of Hypertension in the Internal Room of RSU Massenrempulu Enrekang Regency in 2016

Hypertension Occurrence	n	%
Hypertension	36	70,6
Not Hypertension	15	29,4
Amount	51	100,0

Source: Primary Data

Table 5 shows that the majority of respondents experienced hypertension, namely 36 people (70.6%), while respondents who did not experience hypertension were 15 people (29.4%).

Bivariate Analysis

Relationship between Age and the Incident of Hypertension

Table 6. Relationship between age and the incidence of hypertension in the internal space Massenrempulu General Hospital, Enrekang Regency in 2016

Respondent's Age	Hypertension Occurrence		Total	p Value
	Hypertension	Not Hypertension		

DOI: https://doi.org/10.71435/595686

	n	%	n	%	n	%	
High Risk	30	85,7	5	14,3	35	100,0	0,001
Low Risk	6	37,5	10	62,5	16	100,0	
Amount	36	70,6	15	19,4	51	100,0	

Source: Primary Data

Table 6 shows that there were 35 respondents with high-risk age, 30 people who had hypertension (85.7), and 5 people who did not have hypertension (14.3%). Meanwhile, respondents with a low-risk age were 16 people, 10 people did not have hypertension (62.5%), and 6 people had hypertension (37.5%).

After carrying out the Fisher's exact test, the value of p = 0.001 < 0.05 was obtained, which means that there is a relationship between age and the incidence of hypertension.

Relationship between Gender and the Incident of Hypertension

Table 7. Relationship between gender and the incidence of hypertension in the internal room

Massenrempulu General Hospital, Enrekang Regency in 2016

Gender	Hypertension Occurrence				Total		p Value
	Hypertension		Not Hypertension				
	n	%	n	%	n	%	
Man	22	91,7	2	8,3	24	100,0	0,002
Woman	14	51,9	13	48,1	27	100,0	
Amount	36	70,6	15	29,4	51	100,0	

Source: Primary Data

Table 7 shows that 24 respondents were male, 22 people had hypertension (91.7), and 2 people did not have hypertension (8.3%). Meanwhile, 27 respondents were female, 14 people had hypertension (51.9), and 13 people did not have hypertension (48.1%).

After carrying out Fisher's exact test, the p value = 0.002 < 0.05, which means that there is a relationship between gender and the incidence of hypertension.

Conclusion

Based on the research results, it was concluded that there was a relationship between age and the incidence of hypertension, with a value of p = 0.001 < 0.05, and there was a relationship between gender and the incidence of hypertension, with a value of p = 0.002 < 0.05. It is recommended that health service officers always strive to provide information to the public by providing health education in an effort to develop strategies to prevent, reduce or control morbidity rates among hypertension sufferers in their work areas.

References

Ameer, O. Z. (2022). Hypertension in chronic kidney disease: What lies behind the scene. *Frontiers in pharmacology*, *13*, 949260. https://doi.org/10.3389/fphar.2022.949260

Andarwulan, N., Madanijah, S., Briawan, D., Anwar, K., Bararah, A., & Średnicka-Tober, D. (2021). Food consumption pattern and the intake of sugar, salt, and fat in the South Jakarta City—Indonesia. *Nutrients*, *13*(4), 1289. https://doi.org/10.3390/nu13041289

DOI: https://doi.org/10.71435/595686

Beazer, J. D., & Freeman, D. J. (2022). Estradiol and HDL function in women–a partnership for life. *The Journal of Clinical Endocrinology & Metabolism*, *107*(5), e2192-e2194. https://doi.org/10.1210/clinem/dgab811

Carey, R. M., Moran, A. E., & Whelton, P. K. (2022). Treatment of hypertension: a review. *Jama*, *328*(18), 1849-1861.

Duarte, C. D., Wannier, S. R., Cohen, A. K., Glymour, M. M., Ream, R. K., Yen, I. H., & Vable, A. M. (2022). Lifecourse educational trajectories and hypertension in midlife: an application of sequence analysis. *The Journals of Gerontology: Series A*, *77*(2), 383-391. https://doi.org/10.1093/gerona/glab249

El Khoudary, S. R., Chen, X., Nasr, A., Billheimer, J., Brooks, M. M., McConnell, D., ... & Rader, D. J. (2021). HDL (high-density lipoprotein) subclasses, lipid content, and function trajectories across the menopause transition: SWAN-HDL study. *Arteriosclerosis, thrombosis, and vascular biology*, *41*(2), 951-961. https://doi.org/10.1161/ATVBAHA.120.315355

Flores, V. A., Pal, L., & Manson, J. E. (2021). Hormone therapy in menopause: concepts, controversies, and approach to treatment. *Endocrine reviews*, *42*(6), 720-752. https://doi.org/10.1210/endrev/bnab011

Gangadi, M., Kalpourtzi, N., Gavana, M., Vantarakis, A., Chlouverakis, G., Hadjichristodoulou, C., ... & Karakatsani, A. (2021). Prevalence of tobacco smoking and association with other unhealthy lifestyle risk factors in the general population of Greece: Results from the EMENO study. *Tobacco Prevention & Cessation*, *7*. https://doi.org/10.18332/tpc/140242

Ghazi, L., & Bello, N. A. (2021). Hypertension in women across the lifespan. *Current atherosclerosis reports*, *23*(8), 43.

Ghazi, L., & Bello, N. A. (2021). Hypertension in women across the lifespan. *Current atherosclerosis reports*, *23*(8), 43. https://doi.org/10.1007/s11883-021-00941-4

Ji, C., Wang, N., Shi, J., Huang, Z., Chen, S., Wang, G., ... & Jonas, J. B. (2022). Level of systolic blood pressure within the normal range and risk of cardiovascular events in the absence of risk factors in Chinese. *Journal of Human Hypertension*, *36*(10), 933-939. https://doi.org/10.1038/s41371-021-00598-1

Khoiry, Q. A., Alfian, S. D., & Abdulah, R. (2022). Modifiable and Non-modifiable Factors Associated with Low Awareness of Hypertension Treatment in Indonesia: A Cross-Sectional Population-Based National Survey. *Global Heart*, *17*(1). https://doi.org/10.5334/gh.1143

Mali, W., & Elfi, T. (2020). Pengaruh Pemberian Air Kelapa Muda Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensi Di Desa Ne'otonda Kecamatan Kotabaru Kabupaten Ende. *Jurnal Keperawatan dan Kesehatan Masyarakat*, *4*(2).

Martini, S., Artanti, K. D., Hargono, A., Widati, S., Ahsan, A., & Prabandari, Y. S. (2022). Association between percentage of smokers and prevalence of smoking attributable morbidity in Indonesia: one decade after implementation of smoke-free area regulation. *BMC Public Health*, *22*(1), 2202. https://doi.org/10.1186/s12889-022-14435-8

Mills, K. T., Stefanescu, A., & He, J. (2020). The global epidemiology of hypertension. *Nature Reviews Nephrology*, *16*(4), 223-237. https://doi.org/10.1038/s41581-019-0244-2

DOI: https://doi.org/10.71435/595686

Moin, A., Mohanty, N., Tedla, Y. G., Carroll, A. J., Padilla, R., Langman, C. B., & Smith, J. D. (2021). Under-recognition of pediatric hypertension diagnosis: Examination of 1 year of visits to community health centers. *The Journal of Clinical Hypertension*, *23*(2), 257-264. https://doi.org/10.1111/jch.14148

Ningtias, N. A., Damayanti, D., & Pujiarto, P. (2023). Asuhan Keperawatan pada Pasien Hipertensi menggunakan Terapi Foot Hand Massage dengan Essensial Oil Lavender terhadap Penurunan Tekanan Darah. *Ners Akademika*, *1*(2), 33-39. https://doi.org/10.35912/nersakademika.v1i2.1965

Ott, C., & Schmieder, R. E. (2022). Diagnosis and treatment of arterial hypertension 2021. *Kidney international*, *101*(1), 36-46. https://doi.org/10.1016/j.kint.2021.09.026

Prajayanti, E. D., & Sari, I. M. (2020). Senam hipertensi dan demonstrasi jus seledri untuk penderita hipertensi di pucang sawit surakarta. *GEMASSIKA: Jurnal Pengabdian Kepada Masyarakat*, *4*(2), 137-154. https://doi.org/10.30787/gemassika.v4i2.575

Prisusanti, R. D., Ikawati, F. R., Efendi, A., & Suwito, S. (2020). Path Analysis of Factors Related to The Events of Low Born Weight Babies in Bangil Hospital.

Rahayu, S. (2021). *Faktor-Faktor Yang Berhubungan Dengan Kejadian Hipertensi Pada Lansia di Wilayah Kerja Puskesmas Barabai Kabupaten Hulu Sungai Tengah* (Doctoral dissertation, Universitas Islam Kalimantan MAB).

Ryczkowska, K., Adach, W., Janikowski, K., Banach, M., & Bielecka-Dabrowa, A. (2023). Menopause and women's cardiovascular health: is it really an obvious relationship? *Archives of medical science: AMS*, *19*(2), 458.

Sisti, G., Fochesato, C., Elkafrawi, D., Marcus, B., & Schiattarella, A. (2023). Is blood pressure 120–139/80–89 mmHg before 20 weeks a risk factor for hypertensive disorders of pregnancy? A meta-analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *284*, 66-75. https://doi.org/10.1016/j.ejogrb.2023.03.011

Sudikno, S., Mubasyiroh, R., Rachmalina, R., Arfines, P. P., & Puspita, T. (2023). Prevalence and associated factors for prehypertension and hypertension among Indonesian adolescents: a cross-sectional community survey. *BMJ open*, *13*(3), e065056. https://doi.org/10.1136/bmjopen-2022-065056

Suheimi, I., & Utari, M. D. (2023). Pengaruh Pijat Punggung Terhadap Penurunan Rasa Nyeri Kala I Persalinan Normal di RS. PMC Tahun 2019. *JURNAL PENDIDIKAN KESEHATAN*, *3*(1), 14-20.

Yulinda, N., & Kusumawardani, L. H. (2023). Effect of Complementary Therapy Combination of Progressive Muscle Relaxation and Music Therapy (RESIK) to Lower Blood Pressure in the Elderly. *Jurnal Ilmiah Ilmu Keperawatan Indonesia*, *13*(01), 34-40. https://doi.org/10.33221/jiiki.v13i01.2260

DOI: https://doi.org/10.71435/595686