



# The Effect of Health Education on the Behavior of Elderly with Hypertension

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**Abstract:** Education is one way that can be used to increase one's knowledge. Education can be given in various fields, including health. The purpose of this study was to determine the effect of Health Education on increasing the knowledge, attitudes and behavior of elderly people with hypertension in the Pangkajene Health Center area in 2023. This type of research used a quantitative method with a pre-experimental design study with pre-test and post-test design treatment, while the population was patients 90 people who suffer from hypertension at the Pangkajene Health Center use total sampling. The results of this study used the Wilcoxon test analysis. Knowledge was -8.132 and a significant value was 0.000 ( $p < 0.05$ ), Attitude was -8165 and a significant value was 0.000 ( $p < 0.05$ ), and Behavior was -8267 and a significant value was 0.000 ( $p < 0.05$ ), there was a significant difference in the results of the Health Education pretest and posttest on the attitudes of the elderly with hypertension in the Pangkajene Health Center area. The results of this study indicate that there is an effect of Health Education on the attitude of the elderly who experience hypertension in the Pangkajene Health Center area. The conclusion of the study showed that there was an effect of Health Education on the knowledge, attitudes and behavior of elderly people with hypertension in the Pangkajene Health Center area. It is expected that the puskesmas will carry out home care because elderly people with hypertension cannot carry out health checks because there is no family to take them to health services because they are busy with their daily activities.

**Keywords:** Attitudes; Behavior Health Education; Hypertension; Knowledges

## Introduction

An estimated 1.28 billion adults aged 30-79 years worldwide suffer from hypertension, the majority (two-thirds) live in low- and middle-income countries. 46% of adults with hypertension are unaware that they have the condition. Less than half of adults (42%) with hypertension are diagnosed and treated. About 1 in 5 adults (21%) with hypertension can control it. Hypertension is the main cause of premature death worldwide (Robles & Macias, 2015). One of the global targets for non-communicable diseases is to reduce the

prevalence of hypertension by 33% between 2010 and 2030. According to the age group, according to the age group, the 2018 Basic Health Research in Indonesia + 75 years as much as 69.5%, second age 65-74 years 63.2%, third age 55-64 years as much as 52.2%. The above data is in line with research conducted Sierra, (2017) that the proportion of hypertension at age  $\geq 40$  years is higher than the proportion of hypertension at age  $< 40$  years. The results of this study are also in line with the results of Martell Claros, (2023), proving that the older a person is, the greater the risk of developing hypertension. The results of the research analysis show that respondents

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aged  $\geq 60$  years are at risk of 5,216 times experiencing hypertension (Ministry of Health, 2018) (“National High Blood Pressure Education Program Working Group Report on Hypertension in the Elderly. National High Blood Pressure Education Program Working Group,” 1994). Hypertension is in percentage The second cause of maternal death is (24%), seizures may occur in patients with high blood pressure uncontrolled hypertension during labour. Hypertension can occur due to pregnancy and will return to normal when the pregnancy is over. But there are also things that don't return to normal after baby born. This condition will be more severe if hypertension had suffered by the mother before the period pregnancy (Yusriani et al., 2021a).

Based on data from the Pangkajene District Health Office in 2021 by looking at the 10 biggest diseases, hypertension is the disease that ranks first with the most number of 2292 cases, then ISPA with 638 cases, diabetes mellitus with 356 cases, diarrhea with 269 cases, influenza with 94 cases (DHO, 2021) (Banegas & Gijón-Conde, 2017). Data for Hypertension Sufferers at the Pangkajene Health Center in 2020 were 176 people, in 2021 there were 180 people while in 2022 until May There were 90 people (Pangkajene Health Center Profile) (Zhang & Safar, 2013).

Public knowledge about hypertension management is still lacking. Education is one way that can be used to increase one's knowledge. Education can be given in various fields, including health. (Estrada et al., 2020). Health education is the same as education in general, which requires methods and media in conveying information. The choice of media and method is very important so that the delivery of information becomes more interesting and more easily understood by the recipient of the information. There are several media or methods that can be used in conveying health education, for example with visual, audio, audiovisual media, the FGD (Focus Group Discussion) method of lectures, booklet posters and bulletin boards. Each method can be applied has its own advantages and disadvantages (Upoyo et al., 2021). Hypertension is the most common preventable risk factor for cardiovascular disease (CVD; including coronary heart disease, heart failure, stroke, myocardial infarction, atrial fibrillation and peripheral artery disease), chronic kidney disease (CKD) and cognitive impairment, and is the leading single contributor to all-cause death and disability worldwide (Oparil et al., 2018).

Based on the results of the initial study, it showed that out of 5 sufferers there were 4 people who did not know about hypertension, did not know the triggering factors for hypertension, had an indifferent attitude in maintaining heart fitness, did not want to avoid foods that trigger hypertension, besides that sufferer do not want to hear an explanation from health workers. From this problem, according to researchers, it is important to

carry out Health Education in the working area of the Pangkajene Health Center so that people with hypertension realize the importance of maintaining a healthy lifestyle (Hasanuddin, 2019). The study from Robert M carey found Hypertension affects approximately 116 million adults in the US and more than 1 billion adults worldwide and is a leading cause of CVD morbidity and mortality. First-line therapy for hypertension is lifestyle modification, consisting of weight loss, dietary sodium reduction and potassium supplementation, healthy dietary pattern, physical activity, and limited alcohol consumption. When drug therapy is required, first-line therapies are thiazide or thiazidelike diuretics, angiotensin-converting enzyme inhibitor or angiotensin receptor blockers, and calcium channel blockers Carey et al., 2022).

## Method

This study used quantitative methods with a pre-experimental study design with pretest and posttest design treatments. This research was conducted by first measuring the indicators of the variables studied, then providing Health Education to the subjects to increase their knowledge, attitudes, behavior and motivation, and afterward measuring the indicators of the variables studied again. (Bakar et al., n.d.). Quantitative research methodology has traditionally dominated, with an empirically driven approach involving statistical analysis. Drawing upon artifacts and verbal data collected from in-depth interviews or participatory observations (Im et al., 2023)

## Result and Discussion

This research was conducted in the Work Area of the Pangkajene Health Center, Pangkajene District, Pangkajene and Islands District in 2023. The research results can be seen in Table 1. Hypertension health education was given to the elderly, totaling 90 respondents to measure knowledge before and after with an individual approach method such as individual counseling of respondents in their respective homes. Before being given health education with individual counseling methods about hypertension to the elderly, the knowledge of the elderly was in the less category, in terms of education, the elderly in the working area of the Pangkajene Health Center were still in the last education category, not attending school and elementary school (35.6%), although high school education (12.2%) does not guarantee someone will understand something especially about hypertension, because material or understanding of hypertension is never given at school whereas according to (Vicario & Cerezo, 2020) that knowledge is everything that is known based on human experience itself and knowledge will increase according

to the process of experience what he experienced.(Vigil Medina & García Carretero, 2020).

**Table 1.** Distribution of Respondents in the Work Area

| Characteristics    | Total (n) | Percentage (%) |
|--------------------|-----------|----------------|
| Age                |           |                |
| 55-59              | 24        | 26.7           |
| 60-64              | 30        | 33.3           |
| >64                | 36        | 40.0           |
| Sex                |           |                |
| Man                | 55        | 61.1           |
| Woman              | 35        | 38.9           |
| Education          |           |                |
| No School          | 32        | 35.6           |
| Elementary School  | 32        | 35.6           |
| Junior High School | 8         | 8.9            |
| Senior High School | 11        | 12.2           |
| Degree             | 7         | 7.8            |
| Working            |           |                |
| Civil Servant      | 4         | 4.4            |
| self-employed      | 86        | 95.6           |

Unlike after being given health education to the respondents, there was a positive increase in that knowledge increased from 170 before the pretest to 194 after the posttest showed that the health education method with an individual counseling approach was very effective in increasing the respondents' knowledge. According to Nindrea & Hasanuddin, (2023) that the basis for using this individual approach is because everyone has different problems or reasons regarding this acceptance or new behavior. The forms of this approach include: guidance and counseling, and interviews. According to Bozza et al., (2016) that the purpose of Health Education is to change people's mindsets is something of value for survival, enabling communities, groups or individuals to be able to independently apply healthy living behaviors through various activities, and support the development and utilization of facilities appropriate health care infrastructure. According to research Upoyo et al., (2021) that health promotion actions have an effect on increasing respondents' knowledge about hypertension. The conclusion in this study is that counseling (health promotion) activities about hypertension are associated with an increase in the level of knowledge. Same with research Lolo & Dewiyanti, (2022) that there is an effect of health education on the level of adherence to taking precautions to increase blood pressure in the elderly with hypertension (Zilberman, 2018).

Results should be clear and concise. The discussion should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

**Table 2.** Analysis of respondents based on the minimum maximum value in the Work Area

| Knowledge | Total (n) | Min | Max | Cov   |
|-----------|-----------|-----|-----|-------|
| Pretest   | 90        | 5   | 13  | 8.83  |
| Posttest  | 90        | 9   | 15  | 11.97 |
| Attitude  |           |     |     |       |
| Pretest   | 90        | 30  | 50  | 35.56 |
| Posttest  | 90        | 45  | 58  | 53.03 |
| Behavior  |           |     |     |       |
| Pretest   | 90        | 5   | 8   | 6.67  |
| Posttest  | 90        | 9   | 15  | 11.07 |

**Table 3.** Respondent normality test based on pretest and posttest

| Variabel           | Statistic | Sig.  |
|--------------------|-----------|-------|
| Pretest Knowledge  | 170       | 0.000 |
| Posttest Knowledge | 194       | 0.000 |
| Pretest Attitude   | 319       | 0.000 |
| Posttest Attitude  | 200       | 0.000 |
| Pretest Behaviour  | 345       | 0.000 |
| Posttest Behaviour | 159       | 0.000 |

The results of the analysis test, a significant value was obtained of 0.000 ( $p < 0.05$ ), there was a significant difference from the results of the pretest and posttest of health education on the knowledge of elderly hypertension in the Pangkajene Health Center area.

These results prove that  $H_0$  is rejected and  $H_a$  is accepted, which means that there is an effect of health education on increasing the knowledge of elderly hypertension in the Pangkajene Health Center area. Hypertension health education was given to the elderly, totaling 90 respondents to measure attitudes before and after using an individual approach method such as individual guidance in their respective homes. Before being given health education with individual counseling methods about hypertension to the elderly, attitudes were in the less category, due to the fact that the majority of the elderly worked as entrepreneurs whose activities became habitual from morning to evening such as gardening, looking for wood in the forest, trading, most of the respondents said that work what is occupied is a habit from youth which becomes an economic result for daily needs (Watt, 1989). So that respondents let and are not disciplined in carrying out tests such as TTV (checking blood pressure), another factor is the culture/belief of respondents who view that a disease can be cured by blowing water through prayers (Elavally et al., 2020).

Attitude is also an evaluation or reaction of feeling favorable or unfavorable to a particular object (Arbe et al., 2018) The increase in knowledge and changes in attitude after the implementation of health education with an individual counseling approach showed that it was easier for experimental respondents to understand knowledge and adopt attitudes with the help and guidance of respondents. According to (Fujiwara et al., 2022) that the results of the study showed that the post-



test on both experimental and control group variables was 0.0001 ( $p$  (0.0001) < 0.05), so providing health education was able to increase knowledge and attitudes towards hypertension in menopausal women. From the results of the analysis test in this study, a value of 0.000 ( $p$  < 0.05) was obtained, there was a significant difference from the results of the pretest and posttest of health education on the attitudes of elderly hypertension in the Pangkajene Health Center area (Yusriani et al., 2021b).

These results prove that  $H_0$  is rejected and  $H_a$  is accepted, which means that there is an effect of health education on the attitude of elderly hypertension in the Pangkajene Health Center area. Hypertension health education was given to the elderly, totaling 90 respondents to measure changes in behavior before and after with an individual approach method such as individual guidance in their respective homes (Yusriani et al., 2021b).

Prior to being given health education using individual counseling methods about hypertension to the elderly, the behavior of the elderly was in the less category, meaning that the level of education and knowledge of the respondents, most of whom did not attend school, had an effect on behavior (Barrera, 2018). The lower the respondent's understanding, the less positive behavior towards his own health, as well as towards risk factors for hypertension such as lack of physical activity, smoking, consuming excessive salt etc. According to the view of According to Conangla-Planes et al., (2018) that the risk factors for the occurrence of hypertension consist of, Smoking, Lack of physical activity, Consumption of Alcohol, Habits of Drinking Coffee, Habits of consuming foods that contain lots of salt and Habits of consuming fatty foods. According to Skinner in Garcia, (1959) behavior is a person's response or reaction to a stimulus from outside. According to the researcher's assumption that improving the behavior of the elderly is very important to maintain growth in old age, if the respondent diligently checks and controls his health regularly, the respondent can find out what is happening and can prevent it early so it does not cause excessive complications. In line with research Mediavilla García et al., (2003); Rossi et al., (2020) the low knowledge and behavior of the elderly about healthy living has an impact on the high prevalence of hypertension, besides that diet and physical activity also have a significant relationship to the behavior of the elderly in controlling hypertension (Pickering, 1965). From the results of the analysis test, a significant value of 0.000 ( $p$  < 0.05) was obtained, there was a significant difference from the results of the pretest and posttest of health education on the behavior of elderly hypertension in the Pangkajene Health Center area.

## Conclusion

There is an influence of Health Education on the knowledge, attitudes, behavior of elderly hypertensives in the Pangkajene Health Center area it is expected to do home care because the elderly with hypertension cannot check their health on the grounds that there are limitations such as no family to accompany them to health services and are busy with their daily activities.

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## Author Contributions

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## Conflicts of Interest

There is no conflict of interest.

## References

- Arbe, G., Pastor, I., & Franco, J. (2018). Aproximación diagnóstica y terapéutica de las crisis hipertensivas. *Medicina Clínica*, 150(8), 317-322. <https://doi.org/10.1016/j.medcli.2017.09.027>
- Bakar, A., Butarbutar, D. J. A., Hasanudin, A., Mukhlisah, N., & Sakiana, D. (n.d.). *PENGARUH PROMOSI DAN AKREDITASI TERHADAP MINAT MAHASISWA BARU*.
- Banegas, J. R., & Gijón-Conde, T. (2017). Epidemiología de la hipertensión arterial. *Hipertensión y Riesgo Vascular*, 34, 2-4. [https://doi.org/10.1016/S1889-1837\(18\)30066-7](https://doi.org/10.1016/S1889-1837(18)30066-7)
- Barrera, L. (2018). High Blood Pressure prevention and control: From evidence to action. *Colombia Médica*, 49(2), 137-138. <https://doi.org/10.25100/cm.v49i2.3940>
- Bozza, R., Campos, W. D., Barbosa Filho, V. C., Stabelini Neto, A., Silva, M. P. D., & Maziero, R. S. B. (2016). High Blood Pressure in Adolescents of Curitiba: Prevalence and Associated Factors. *Arquivos Brasileiros de Cardiologia*. <https://doi.org/10.5935/abc.20160044>
- Carey, R. M., Moran, A. E., & Whelton, P. K. (2022). Treatment of Hypertension: A Review. *JAMA*, 328(18), 1849. <https://doi.org/10.1001/jama.2022.19590>
- Conangla-Planes, M., Serres, X., Persiva, O., & Augustín, S. (2018). Diagnóstico por imagen de la hipertensión portal. *Radiología*, 60(4), 290-300. <https://doi.org/10.1016/j.rx.2017.12.010>

- Elavally, S., Ramamurthy, M., Subash, J., Meleveedu, R., & Venkatasalu, M. (2020). Effect of nurse-led home-based biofeedback intervention on the blood pressure levels among patients with hypertension: Pretest-posttest study. *Journal of Family Medicine and Primary Care*, 9(9), 4833. [https://doi.org/10.4103/jfmpe.jfmpe\\_210\\_20](https://doi.org/10.4103/jfmpe.jfmpe_210_20)
- Estrada, D., Sierra, C., Soriano, R. M., Jordán, A. I., Plaza, N., & Fernández, C. (2020). Grado de conocimiento de la hipertensión en pacientes hipertensos. *Enfermería Clínica*, 30(2), 99-107. <https://doi.org/10.1016/j.enfcli.2018.11.033>
- Fujiwara, T., McManus, R. J., & Kario, K. (2022). Management of hypertension in the digital era: Perspectives and future directions. *Hipertensión y Riesgo Vascular*, 39(2), 79-91. <https://doi.org/10.1016/j.hipert.2022.01.004>
- García, H. (1959). [Hypertension]. *Revista Medica De Chile*, 87(2), 87-91.
- Hasanuddin, A. (2019). *Analisis Masalah Kesehatan Di Kabupaten Sukoharjo*.
- Im, D., Pyo, J., Lee, H., Jung, H., & Ock, M. (2023). Qualitative Research in Healthcare: Data Analysis. *Journal of Preventive Medicine and Public Health*, 56(2), 100-110. <https://doi.org/10.3961/jpmph.22.471>
- Martell Claros, N. (2023). Importance of adherence in the management of hypertension. *Hipertensión y Riesgo Vascular*, 40(1), 34-39. <https://doi.org/10.1016/j.hipert.2022.06.002>
- Mediavilla García, J. D., Sabio Sánchez, J. M., & Fernández-Torres, C. (2003). [Current treatment of hypertension]. *Medicina Clínica*, 120(3), 108-116.
- National High Blood Pressure Education Program Working Group Report on Hypertension in the Elderly. National High Blood Pressure Education Program Working Group. (1994). *Hypertension (Dallas, Tex.: 1979)*, 23(3), 275-285.
- Nindrea, R. D., & Hasanuddin, A. (2023). Non-modifiable and modifiable factors contributing to recurrent stroke: A systematic review and meta-analysis. *Clinical Epidemiology and Global Health*, 20, 101240. <https://doi.org/10.1016/j.cegh.2023.101240>
- Oparil, S., Acelajado, M. C., Bakris, G. L., Berlowitz, D. R., Cifková, R., Dominiczak, A. F., Grassi, G., Jordan, J., Poulter, N. R., Rodgers, A., & Whelton, P. K. (2018). Hypertension. *Nature Reviews Disease Primers*, 4(1), 18014. <https://doi.org/10.1038/nrdp.2018.14>
- Pickering, G. (1965). Hyperpiesis: High blood-pressure without evident cause: essential hypertension. *BMJ*, 2(5469), 1021-concl. <https://doi.org/10.1136/bmj.2.5469.1021>
- Robles, N., & Macias, J. (2015). Hypertension in the Elderly. *Cardiovascular & Hematological Agents in Medicinal Chemistry*, 12(3), 136-145. <https://doi.org/10.2174/1871525713666150310112350>
- Rossi, G. P., Bisogni, V., Rossitto, G., Maiolino, G., Cesari, M., Zhu, R., & Seccia, T. M. (2020). Practice Recommendations for Diagnosis and Treatment of the Most Common Forms of Secondary Hypertension. *High Blood Pressure & Cardiovascular Prevention*, 27(6), 547-560. <https://doi.org/10.1007/s40292-020-00415-9>
- Sierra, C. (2017). La hipertensión arterial en el anciano. *Hipertensión y Riesgo Vascular*, 34, 26-29. [https://doi.org/10.1016/S1889-1837\(18\)30072-2](https://doi.org/10.1016/S1889-1837(18)30072-2)
- Upoyo, A. S., Setyopranoto, I., & Pangastuti, H. S. (2021). The Modifiable Risk Factors of Uncontrolled Hypertension in Stroke: A Systematic Review and Meta-Analysis. *Stroke Research and Treatment*, 2021, 1-11. <https://doi.org/10.1155/2021/6683256>
- Vicario, A., & Cerezo, G. H. (2020). El impacto cognitivo-conductual de la hipertensión. *Hipertensión y Riesgo Vascular*, 37(3), 125-132. <https://doi.org/10.1016/j.hipert.2020.04.003>
- Vigil Medina, L., & García Carretero, R. (2020). Respuesta hipertensiva al ejercicio: ¿tiene implicaciones pronósticas? *Revista Clínica Española*, 220(4), 246-247. <https://doi.org/10.1016/j.rce.2019.07.002>
- Watt, G. (1989). Comparison of high-risk and mass strategies for the prevention of high blood pressure: *Journal of Hypertension*, 7(Supplement 1), S29-S32. <https://doi.org/10.1097/00004872-198902001-00008>
- Yusriani, Y., Alwi, M. K., & Agustini, T. (2021a). Komunikasi Petugas Kesehatan Mempengaruhi Perilaku Ibu Hamil Dalam Mencegah Hipertensi. *An-Nadaa: Jurnal Kesehatan Masyarakat*, 8(2), 196. <https://doi.org/10.31602/ann.v8i2.5711>
- Yusriani, Y., Alwi, M. K., & Agustini, T. (2021b). Komunikasi Petugas Kesehatan Mempengaruhi Perilaku Ibu Hamil Dalam Mencegah Hipertensi. *An-Nadaa: Jurnal Kesehatan Masyarakat*, 8(2), 196. <https://doi.org/10.31602/ann.v8i2.5711>
- Zhang, Y., & Safar, M. E. (2013). High blood pressure: Can we do better in the future? *Future Cardiology*, 9(5), 603-605. <https://doi.org/10.2217/fca.13.52>
- Zilberman, J. M. (2018). Menopausia: Hipertension arterial y enfermedad vascular. *Hipertensión y Riesgo Vascular*, 35(2), 77-83. <https://doi.org/10.1016/j.hipert.2017.11.001>