RPCPE
ISSN 2613-943X (print)
ISSN 2620-5572 (online)
Journal Homepage:
https://jurnal.ugm.ac.id/rpcpe
Review of Primary Care Practice and Education
(Kajian Praktik dan Pendidikan Layanan Primer)

The Impact of Health Education Training on Knowledge of Prevention and Control of Hypertension among Youth Groups

Yogi Fitriadi[1], Imam Khoirul Fajri[2], I Dewa Putu Pramantara[3]

[1]Department of Family and Community Medicine; Faculty of Medicine, Public Health, and Nursing; Universitas Gadjah Mada; Indonesia
[2]Primary Care Family Medicine Specialist Study Program; Faculty of Medicine, Public Health and Nursing; Universitas Gadjah Mada; Indonesia
[3]Department of Internal Medicine; Faculty of Medicine, Public Health and Nursing; Universitas Gadjah Mada; Indonesia

Corresponding Author:
Yogi Fitriadi. Department of Family and Community Medicine, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada Indonesia
Email: yogifitriadi92@mail.ugm.ac.id

To cite this article:
Fitriadi Y, Fajri IK, Pramantara IDP. The impact of health education training on knowledge of prevention and control of hypertension among youth groups. Rev Prim Care Prac and Educ. 2024;7(2):58-61.

ABSTRACT
Introduction: Hypertension is a serious issue that can lead to various complications if not prevented and managed, starting from adolescence and young adulthood. Education on non-communicable diseases related to hypertension has been limited in schools, with little focus on community settings. This study aims to examine the impact of health education for adolescents and young adults on changes in knowledge and behavioral practices for the prevention and control of hypertension. **Methods:** This study employs a quasi-experimental design with pretest and posttest without a control group. Subjects were obtained through purposive sampling, resulting in a total of 32 respondents. Demographic characteristics and Kirkpatrick Level I evaluations were analyzed univariately. The comparison of knowledge scores before and after the intervention was analyzed bivariate, taking data normality into account. **Results:** After receiving health education for adolescents and young adults, there was a significant increase in knowledge scores regarding hypertension prevention and control before and after the intervention ($p<0.001$). The evaluation of the training program yielded very good scores, with the highest percentage from the facilitator evaluations. **Conclusion:** There was an increase in knowledge scores related to hypertension prevention and control among adolescents and young adults after receiving health education interventions from health professionals.

Keywords: *Health education, hypertension, Kirkpatrick, knowledge, youth group*

INTRODUCTION

Hypertension is a global issue with similar prevalence rates across various income groups. In high-income countries, the prevalence of hypertension reaches 32% among adults aged 30 to 79 years, while low-income countries report a prevalence of 34%. According to the Global Report on Hypertension, the number of adults with hypertension nearly doubled over three decades, rising from 650 million in 1990 to 1.3 billion in 2019[1]. In Indonesia, non-communicable diseases, including hypertension, remain a challenge, with a national prevalence of 30.8%[2].

Several factors contribute to this issue, such as lifestyle and demographic status. Significant lifestyle changes, smoking behavior, poor sleep quality, and lack of physical activity can lead to the incidence of hypertension[3]. Additionally, obesity plays a role as a risk factor for hypertension and cardiovascular diseases, accounting for 5.87% of deaths due to cardiovascular issues[4]. Known as "The Silent Killer," hypertension often presents no clear symptoms and remains a significant health concern. Complications from hypertension can include heart disease, brain disorders, and kidney damage[5].

Hypertension can be prevented through proactive measures, not only starting in adulthood but also from adolescence and young adulthood. Lifestyle interventions and treatments aimed at reducing blood pressure in younger individuals, such as exercise and weight loss, have proven effective[6]. Moreover, multidimensional interventions that include patient education have a positive impact on medication adherence in patients with hypertension[7].

Health education practices for adolescents and young adults have begun in schools and universities; however, there is still limited implementation in community settings. While health education has been shown to positively impact knowledge, its effects are constrained when conducted solely in school or university environments. There is a need for further health education efforts regarding the prevention and control of hypertension, involving multidisciplinary teams for adolescents and young adults in community settings, particularly in youth organizations. Such initiatives aim to enhance the participation of adolescents

and young adults in health education for their surrounding communities.

The objective of this study is to determine the impact of health education related to the prevention and control of hypertension on the knowledge and behavioral practices of youth in Cupuwatu I hamlet.

METHODS

This study employs a quasi-experimental design using a one-group pretest and posttest approach. The research was conducted among the youth organization members in Cupuwatu I hamlet, Purwomartani Village, Kalasan District, Sleman Regency from July until September 2024. Respondents were selected using purposive sampling with the following inclusion and exclusion criteria:

Inclusion Criteria:
1. Must be a member of the Cupuwatu I youth organization for at least six months.
2. Willing to sign informed consent and participate in the study until completion.

Exclusion Criteria:
1. Did not complete the intervention.
2. Has communication disorders that hinder understanding of conversations.

From this selection process, 32 respondents met the inclusion and exclusion criteria. Before the intervention commenced, data on knowledge and behavioral practices were collected using a pretest questionnaire.

The development of the health education intervention model considered input from adolescents during meetings with the youth organization. The research team conducted a needs analysis to determine the topics needed by the youth, suitable information delivery methods, and how to make the health education model more engaging. Adolescents suggested delivering health education through material presentations using PowerPoint, accompanied by illustrations and straightforward explanations. Additionally, they recommended conducting workshop sessions that include hands-on practice, such as measuring blood pressure and counseling based on blood pressure results among peers.

The intervention consisted of a health education training workshop for adolescents and young adults who are members of the youth organization, with the aim of empowering them as agents of change in their communities. The training lasted for three hours, including two hours of presentations and discussions on an introduction to hypertension and preventive measures that adolescents can take to control hypertension in their communities. The final hour included practical exercises focused on the prevention and control of chronic diseases, specifically hypertension, conducted by the adolescents through simulations of community health monitoring activities.

After the intervention, training participants were given a posttest questionnaire to assess their knowledge and behavioral practices regarding hypertension prevention and control. Demographic characteristics were analyzed descriptively using univariate analysis. The relationship between knowledge scores related to hypertension prevention and control before and after the health education intervention was analyzed using bivariate analysis. The normality of the distribution of knowledge scores before and after the intervention was tested using the Shapiro-Wilk test, as the number of respondents was less than 50. If both datasets were normally distributed, bivariate analysis was conducted using the paired t-test; if the data were not normally distributed, the Wilcoxon signed-rank test was used[8].

Evaluation of the training program's success was also conducted using Kirkpatrick Level I (Reaction) evaluation model, assessing participant responses to the training program across seven evaluation aspects (material, facilitator, method, venue, time consumption, facilities, and administrative services)[9,10]. The evaluation results were presented descriptively. Data analysis was performed using SPSS 27 software.

RESULTS

The average age of respondents participating in the training program was 19.00 (SD 5.13). The majority of respondents were in the adolescent age group (53.1%) and male (65.6%). Most respondents had completed junior high school and were working as students. The demographic characteristics of the study respondents are shown in Table 1 below.

Table 1. Respondent Characteristics

Characteristic	N(%)	Mean (SD) / Median (Min-Max)
Age		19.00 (5.13) / 17 (13-33)
Adolescents (13-17 years)	17 (53.1)	
Young Adults (18-26 years)	12 (37.5)	
Adults (>26 years)	3 (9.4)	
Gender		
Male	21 (65.6)	
Female	11 (34.4)	
Education		
Elementary school	3 (9.4)	
Junior High School	16 (50)	
Senior High School	9 (28.1)	
Diploma/University	4 (12.5)	
Occupation		
Unemployed	5 (15.6)	
Student	20 (62.5)	
Employee	3 (9.4)	
Self-employed	4 (12.5)	

Based on the demographic characteristics, it can be seen that most training participants were aged between 13 and 17 years (53.1%), followed by young adults aged 18 to 26 years (37.5%), and finally adults over 26 years (9.4%). The majority of participants were male, with the highest percentage at 65.6%. Most training participants had a junior high school education (50%). In terms of occupation, the

majority of participants were students (62.5%).

From the interventions conducted, pretest and posttest results were obtained, as shown in Table 2 below.

Table 2. Knowledge Scores on Hypertension Prevention and Control Before and After Health Education

Score	Median Score (Before)	Median Score (After)
Knowledge	9.5 (4-12)	11.5 (7-12)
P =0.000 (p <0.001)*		

*Wilcoxon signed-rank test

From the posttest results, an increase in knowledge scores was observed in 23 respondents who participated in the training activities. There were 5 individuals who showed a decrease in scores after the training, while 3 others maintained their knowledge scores before and after the training.

The pretest and posttest results indicate that the intervention successfully improved participants' knowledge. The average score before the training was 9.5, ranging from 4 to 12. After the training, this score increased to 11.5, with a range of 7 to 12. These results demonstrate a statistically significant improvement, as indicated by a p-value of < 0.001. This shows that the intervention had a positive impact on participants' knowledge, making the training effective in enhancing their understanding.

In addition to evaluating the training program by comparing participants' knowledge scores related to hypertension prevention and control before and after the education session, program evaluation was also conducted using the Kirkpatrick Level I (Reaction) evaluation model. The results of the Kirkpatrick Level I (Reaction) evaluation are presented in Table 3 below:

Table 3. Kirkpatrick Level I Training Program Evaluation

Training Item	Evaluation N(%)			
	Very Good	Good	Fair	Poor
Training Material	20 (62.5)	12 (37.5)	-	-
Facilitator	22 (68.7)	10 (31.3)	-	-
Training Method	19 (59.4)	12 (37.5)	1 (3.1)	-
Venue	19 (59.4)	13 (40.6)	-	-
Consumption	17 (53.1)	14 (43.8)	1 (3.1)	-
Time	14 (43.8)	9 (28.1)	9 (28.1)	-
Timeliness	18 (56.3)	13 (40.6)	1 (3.1)	-
Facilities	18 (56.3)	13 (40.6)	1 (3.1)	-
Administrative Services	18 (56.3)	14 (43.8)	-	-

Based on the evaluation results from the training program conducted using the Kirkpatrick Level I (Reaction) model, most participants responded positively to the training materials provided. No participants rated any category of training elements as "poor." From the table above, it can be seen that training materials and facilitators received high ratings, with over 60% of participants giving a "Very Good" score. This indicates that the content of the training and the facilitators' delivery were effective and met participants' expectations. However, there are some areas for improvement, such as time management, which still requires attention. Overall, the training program met participants' expectations in many aspects, although there are still areas for quality improvement, such as timeliness and some aspects of facilities.

DISCUSSION

The results of this study indicate that the health education provided had a significant impact on improving the knowledge of youth members regarding the prevention and control of hypertension. This aligns with previous research showing that health education through counseling on hypertension can enhance participants' knowledge, which is expected to lead to changes in community health behaviors[11]. Increasing health literacy through health education and empowerment programs enhances individuals' ability to understand, access, and utilize health information for blood pressure management. The combination of health education and empowerment, which encompasses cognitive and social skills, can help mitigate hypertension, particularly uncontrolled hypertension[12].

Therefore, it is hoped that the youth members who have improved their knowledge about hypertension can become agents of education within their communities. This is consistent with research conducted by Torres et al. (2022), which indicated that community-led medication adherence interventions effectively improve treatment compliance and clinical outcomes in patients with hypertension[13].

In several previous studies, there were some differences noted compared to this research, where training did not correlate with increased knowledge among adolescents. According to a study by Kebede et al. (2022), health education is more focused on behavior change rather than merely increasing knowledge[14]. While knowledge about hypertension is a crucial component in its management, tangible behavioral changes—such as regular exercise and healthy eating—are essential factors for effective hypertension control[15,16].

Several strengths of this study include the development of health education materials based on previous literature reviews (evidence-based). Additionally, the content was designed in collaboration with youth groups, ensuring that the material was more targeted[17]. Another advantage is that this study conducted program evaluation using an established evaluation model, allowing for the identification of training components that need to be addressed in future training sessions.

However, a limitation of this study is that it did not conduct a more in-depth qualitative analysis, which would have provided insights into participants' perspectives regarding the training provided. Exploring participants' views could help gauge their acceptance of the program and offer suggestions for improving future training and scaling up the program[18].

Future research could focus on examining the sustainability of this study by testing the effectiveness of health education delivered by youth groups to target communities, particularly among hypertension patients. Future studies could also aim to increase scalability by involving a larger number of respondents and employing randomized controlled trial (RCT) techniques.

CONCLUSION

The study demonstrates that the provision of health education training is associated with increased knowledge regarding the prevention and control of hypertension. This suggests that a community-based education approach involving youth groups as "agents of change" can contribute to reducing hypertension prevalence in the future. Health education targeting adolescents and young adults is deemed crucial as a foundation for broader community behavior change.

Acknowledgment

We express our gratitude to the Health Demography Surveillance System (HDSS) Sleman team for their assistance in data collection process. Special thanks to Regita Rahma Maharatri for her participation in helping create the Google Form for data collection and to all of the participants who participate in this study.

Author Contribution

This manuscript was conceptualized by YF and IDPP. YF and IKF drafted the manuscript. YF, IKF, IDPP contributed to data collection. YF, IKF, IDPP contributed to data analysis. IDPP revised the manuscript. The final manuscript was read and approved by all the authors

Ethical Approval and Informed Consent

This study received ethical approval from the FK-KMK UGM Ethics Committee under the number EC KE/FK/0553/EC/2024.

Funding

This research received funding support from the FK-KMK UGM Community Service grant for 2024.

Availability of Data and Material

Data uses primary data by filling out a questionnaire.

Conflict of Interest

The authors declare that they have no Conflicts of Interest.

REFERENCES

1. World Health Organization. Global report on hypertension: The race against a silent killer.
2. Badan Pusat Statistik. BPS profil-statistik-kesehatan-2023.
3. Alfaqeeh M, Alfian SD, Abdulah R. Factors associated with hypertension among adults: A cross-sectional analysis of the Indonesian Family Life Survey. Vasc Health Risk Manag. 2023;19:827-36. doi: 10.2147/VHRM.S438180.
4. Kementerian Kesehatan Republik Indonesia. PROFIL KESEHATAN INDONESIA TAHUN 2023.
5. Yang F-F, Berhubungan K, Hipertensi D, Wilayah K, Puskesmas K, Bekasi JL. Associated with hypertension in the working area health center of Jati Luhur Bekasi. 2019.
6. Hinton TC, et al. Investigation and treatment of high blood pressure in young people: Too much medicine or appropriate risk reduction? Hypertension. 2020 Jan 1. doi: 10.1161/HYPERTENSIONAHA.119.13820.
7. Maniki PT, Chaar BB, Aslani P. Impact of interventions on medication adherence in patients with coexisting diabetes and hypertension. Health Expect. 2024 Oct 1. doi: 10.1111/hex.70010.
8. Imam A, Usman M, Chiawa MA. On consistency and limitation of paired t-test, sign and Wilcoxon sign rank test. IOSR J. 2014. Available from: www.iosrjournals.org
9. Alsalamah A, Callinan C. The Kirkpatrick model for training evaluation: Bibliometric analysis after 60 years (1959–2020). 2021. Emerald Group Holdings Ltd. doi: 10.1108/ICT-12-2020-0115.
10. Prasetyo A, #1 U, Priskila K, #2 T. Evaluasi pelatihan dengan metode Kirkpatrick analysis. J Telematika. 2023;9(2).
11. Comm A, Priladani DS, Purnama D, Susanti RD. Hypertension health education to revitalize non-communicable diseases. Health Nurs. 2023;1:1-9. doi: 10.29253/achnr.2023.5997.
12. Barni R, Chaimongkol N, Janchai N, Deoisres W. Improving health literacy using the health education and health empowerment program. Pacific Rim Int J Nurs Res.
13. Torres-Robles A, et al. Effectiveness of a medication adherence management intervention in a community pharmacy setting: A cluster randomised controlled trial. BMJ Qual Saf. 2022;31(2):105-15. doi: 10.1136/bmjqs-2020-011671.
14. Kebede T, Taddese Z, Girma A. Knowledge, attitude and practices of lifestyle modification and associated factors among hypertensive patients on-treatment follow up at Yekatit 12 General Hospital in the largest city of East Africa: A prospective cross-sectional study. PLoS One. 2022 Jan;17(1):e0262780. doi: 10.1371/journal.pone.0262780.
15. Bansode B, Marbaniang SP, Prasad JB. Risk factors of diabetes and hypertension among women in Karnataka. Diabetes Metab Syndr. 2021;15(4):1003-8. doi: 10.1016/j.dsx.2021.05.012.
16. Hu L, et al. Prevalence and risk factors of prehypertension and hypertension in Southern China. PLoS One. 2017;12(1):e0170238. doi: 10.1371/journal.pone.0170238.
17. Benz C, et al. Community-based participatory-research through co-design: Supporting collaboration from all sides of disability. Res Involv Engagem. 2024;10(1):17. doi: 10.1186/s40900-024-00573-3.
18. Pratomo RY, Shofwan I. Implementation of education and training program evaluation. Edukasi. 2022 Nov;16(2):63-77. doi: 10.15294/edukasi.v16i2.39863.