
The Effectiveness of Health Education in Increasing Knowledge of Non-Communicable Disease Prevention among Housewives in Serang Regency, Banten

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Abstract

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Non-communicable diseases (NCDs) represent a growing public health burden globally and nationally, highlighting the need for community-based preventive interventions. This study aimed to evaluate the effectiveness of a health education program in improving knowledge of NCD prevention among housewives in Serang Regency, Banten. A one-group pre-test-post-test design was conducted among 29 housewives recruited from a religious study group in Bulakan Village, Serang Regency, in January 2026. The intervention consisted of a mini-lecture supported by visual presentations on NCD risk factors and healthy lifestyle practices, complemented by blood pressure screening to promote early detection of hypertension and increase participants' awareness of their health status. Knowledge was assessed using structured pre- and post-test questionnaires, and the results were analyzed descriptively by comparing participants' knowledge levels before and after the intervention. Before the intervention, 46% of participants had poor knowledge, while only 18% demonstrated very good knowledge. After the intervention, the proportion of participants with very good knowledge increased to 69%, representing a 51-percentage-point improvement, while the proportion with poor knowledge decreased from 46% to 13%, a reduction of 33 percentage points. The blood pressure screening also enabled participants to recognize their current blood pressure status and reinforced the importance of routine health monitoring as part of NCD prevention. In conclusion, community-based mini-lecture health education combined with blood pressure screening effectively improved knowledge of NCD prevention and strengthened community awareness of early NCD risk detection.

Introduction

Non-communicable diseases (NCDs) such as hypertension, diabetes mellitus, heart disease, and cancer are the leading causes of death worldwide. According to the (World Health Organization, 2022) NCDs account for approximately 74% of total global deaths annually, with the majority occurring in low- and middle-income countries. This trend continues to increase and poses a significant burden on global health systems, particularly because it is closely linked to modifiable risk factors such as unhealthy diet, physical inactivity, and smoking (Bhuiyan et al., 2024; Rahelić et al., 2024).

In Indonesia, the burden of non-communicable diseases (NCDs) has also shown a significant increase. According to the (KEMENTERIAN, 2018), The prevalence of hypertension and diabetes mellitus continues to rise. This situation indicates that a curative approach alone is insufficient, necessitating strengthening promotive and preventive efforts through ongoing health education at the community level. Housewives play a strategic role in the family, particularly in managing the diet, lifestyle, and health habits of family members (Villa, 2019; Zahara et al., 2021). Therefore, their knowledge and awareness regarding NCD prevention significantly impact on the family's overall health behavior. However, many housewives still have a limited understanding of the risk factors and preventive measures for NCDs, potentially increasing the risk of disease within the family.

Noncommunicable diseases (NCDs) remain a significant public health concern in Banten Province. According to the Provincial Health Profile (Dinas Kesehatan Provinsi Banten, 2024), a total of 739,184 NCS cases were reported, with hypertension accounting for the largest disease burden, affecting an estimated 2,352,657 individuals, followed by 187,138 reported cases of diabetes mellitus. In Serang Regency, the burden of NCDs is also substantial, with an estimated 325,914 individuals aged > 15 years living with hypertension and a high number of diabetes mellitus patients receiving healthcare services. These findings indicate that hypertension and diabetes mellitus continue to be priority conditions for NCD control, highlighting the need to strengthen community-based health promotion and preventive intervention, including health education, early detection, and risk

factor management, to reduce morbidity and prevent disease-related complications.

In Serang Regency, public health issues related to healthy lifestyles remain a concern. Government programs such as the Healthy Living Community Movement (GERMAS) have encouraged people to increase physical activity, consume fruits and vegetables, and undergo regular health checks (KEMENTERIAN, 2018). However, the implementation of these programs at the community level continues to face challenges, including limited access to health information, low community participation, and inadequate health literacy. Although health education is widely recognized as an effective strategy for improving knowledge and encouraging healthy behaviors, there is limited evidence regarding its effectiveness among housewives in Serang Regency. Housewives play a pivotal role in shaping household health practices and lifestyle choices, yet they remain an understudied population in local non-communicable disease (NCD) prevention programs. Addressing this evidence gap is essential to developing context-specific health education interventions that can strengthen community-based NCD prevention efforts.

Health education has been proven to be an effective intervention in preventing NCDs. Recent studies have shown that health education programs, both conventional and digital, can increase knowledge, awareness, and behavioral change in NCD prevention (Karan et al., 2024). In addition, community-based educational approaches also play an important role in increasing public awareness of healthy lifestyles and reducing the risk of NCDs (Maria Braun & Lukas Fischer, 2024). In fact, the use of technology such as mobile health has proven effective in improving NCD prevention behavior in the community (Leonita et al., 2024).

Furthermore, health education not only increases knowledge but also contributes to long-term behavioral change by increasing individual awareness of risk factors and the importance of early detection (Rudwan et al., 2025). This shows that health education is a key strategy in sustainable NCD control. Based on this background, this study aims to analyze the implementation of health education to increase awareness of non-communicable disease prevention among housewives in Serang Regency, Banten. The results are expected to contribute to the development of more effective and sustainable health education strategies at the community level.

Methods

This Community-based educational study employed a one-group pretest post test design to evaluate the effectiveness of health education intervention in improving knowledge regarding the prevention of non-communicable disease (NCDs) among housewives. Health education activities were conducted through a mini-lecture program attended by housewives at a religious study group. This activity took place in Bulakan Village, Serang Regency, in January 2026. This program was part of a community service initiative aimed at increasing the awareness and knowledge of housewives regarding the prevention of non-communicable diseases (NCDs).

The Educational Intervention consisted of a 90-minute mini lecture delivered by public health academics and healthcare professionals using a PowerPoint presentation projected through an LCD projector. Interactive discussion question-and-answer sessions were incorporated to encourage participants' engagement and improve understanding.

The educational content was developed based on the Indonesian Ministry of Health recommendations for NCD prevention and focused on increasing participants awareness of modifiable risk factors and preventive behaviors.

Table 1. Framework of the Health Education Intervention

Learning Objective		Topics Covered	Educational Methods		Duration
Increase understanding of NCDs		Definition, types, and burden of NCDs	Mini Lecture with slides		15 Minutes
Identify NCD risk factors		Unhealthy diet, physical inactivity, smoking, stress, and hypertension	Lecture and interactive discussion		25 minutes
Promote healthy lifestyle behaviors		Balance nutrition, regular physical activity, smoking cessation, and stress management	Lecture, Question, and Answer		30 minutes
Encourage early detection		Importance of routine blood pressure measurement and regular health screening	Demonstration and discussion		20 minutes

A total of 29 respondents participated in this activity, with the main criteria being housewives residing in the area where the activity was implemented and willing to participate in all activities. Participants were required to attend educational sessions and complete pre- and post-tests to measure changes in knowledge before and after the intervention. Respondents who did not complete all activities were excluded from the analysis.

Participants' knowledge was assessed immediately before and after the educational session using a structured questionnaire developed from educational objectives and relevant NCD prevention guidelines. The questionnaire consisted of 10 multiple-choice questions covering basic concepts of NCDs, risk factors, healthy lifestyle behaviors, and early detection strategies. Each correct answer was scored 1, while incorrect or unanswered questions received 0, resulting in a total possible score divided by total score and multiplied by 100, ranging from 0 to 100, with higher scores indicating better knowledge. Following the education program, blood pressure checks were conducted to assess participants' health status related to the risk of hypertension, a major NCD. Blood pressure measurements were performed using a digital sphygmomanometer by trained personnel following standard procedures. The results were categorized based on the applicable blood pressure classification to determine participants' blood pressure status.

Data obtained from the pre- and post-tests were analyzed to assess participants' knowledge of NCD prevention. Blood pressure data were used to provide a baseline overview of participants' health and as a basis for providing further education on the importance of early detection and management of NCD risk factors. Descriptive statistics were used to summarize participants' demographic characteristics, knowledge scores, and blood pressure status.

Results and Discussion

This section presents the findings of the study on the effectiveness of health education in improving knowledge of non-communicable disease (NCD) prevention among housewives in Serang Regency. The results begin with a description of the respondents' demographic characteristics, followed by an analysis of changes in participants' knowledge before and after the health education intervention. These findings provide an overview of the study population and demonstrate the impact of the educational program on participants' knowledge of NCD prevention.

Tabel 2. Respondent Characteristic

Characteristics	n (%)
Age	
40-49	6 (21%)
50-60	15 (52%)
>60	8 (27%)
Level of education	
Elementary School	2 (7%)
Junior High School	5 (17%)
Senior High School	19 (65%)
College	3 (11%)
Total	29

Table 2 presents the demographic characteristics of the 29 participants. Most respondents were aged 50–60 years (52%), followed by those aged over 60 years (27%) and 40–49 years (21%). This distribution indicates that the majority of participants belonged to the middle-aged and older adult groups, which are at greater risk of developing noncommunicable diseases (NCDs), including hypertension and diabetes mellitus. Regarding educational attainment, senior high school graduates constituted the largest proportion of participants (65%), followed by junior high school graduates (17%), college graduates (11%), and elementary school graduates (7%). Overall, the participants had a predominantly secondary education background, suggesting a moderate level of educational attainment that may influence health literacy and the effectiveness of community-based health education interventions.

Tabel 3. Final Pretest and Posttest Result

Participants	Pretest	Posttest	Increased
Participants 1	90	100	10
Participants 2	60	70	10
Participants 3	50	60	10
Participants 4	30	60	30
Participants 5	50	70	20
Participants 6	70	80	10
Participants 7	50	70	20
Participants 8	80	100	30
Participants 9	70	90	20
Participants 10	60	70	20
Participants 11	80	100	20
Participants 12	70	90	20
Participants 13	80	90	10
Participants 14	60	70	10

Participants	Pretest	Posttest	Increased
Participants 15	70	80	10
Participants 16	70	90	20
Participants 17	70	80	10
Participants 18	90	100	10
Participants 19	70	80	10
Participants 20	50	60	10
Participants 21	70	90	20
Participants 22	70	100	40
Participants 23	60	70	10
Participants 24	80	90	10
Participants 25	50	70	20
Participants 26	40	60	20
Participants 27	30	50	20
Participants 28	70	90	10
Participants 29	90	100	10

Table X presents the participants' pretest and posttest scores following the health education intervention. Overall, all 29 participants demonstrated an improvement in knowledge, as indicated by higher posttest scores compared with their pretest scores. The magnitude of improvement ranged from 10 to 40 points, with most participants showing gains of 10–20 points. The largest increase was observed in Participant 22, whose score improved by 40 points (from 70 to 100), followed by Participants 4 and 8, each showing an increase of 30 points. Participants with relatively low baseline scores, such as Participants 4, 26, and 27, generally experienced greater improvements, suggesting that the intervention was particularly beneficial for individuals with limited prior knowledge. Conversely, participants with high initial scores (e.g., 80–90 points) exhibited smaller gains, reflecting a ceiling effect while still demonstrating enhanced understanding. These findings indicate that the educational intervention effectively improved participants' knowledge across varying baseline levels, with consistent positive learning outcomes observed among all participants.

Tabel 4. Summary Pretest and Posttest Result

No	Health Knowledge for Preventing NCDs	Pretest		Posttest	
		N	%	N	%
1.	Very good	7	18	17	69
2.	Good	14	36	7	18
3.	Not enough	8	46	5	13
Total		29	100	29	100

The results of health education activities related to the prevention of non-communicable diseases showed a significant increase in knowledge. Before the intervention, the majority of participants were in the poor knowledge category (46%), while after the education, the proportion of participants with very good knowledge increased from 18% to 69%. These findings indicate that the mini-lecture education method was able to improve participants' understanding of risk factors and prevention efforts for NCDs.



Figure 1. Mini lecture and Discussion with community

Figure 1 illustrates the implementation of the mini-lecture and interactive discussion session attended by housewives from the community. During the educational session, participants actively engaged by asking questions, sharing their experiences regarding lifestyle-related health problems, and discussing practical strategies for preventing NCDs within their families. The session covered the definition of NCDs, major modifiable risk factors, healthy dietary practices, the importance of regular physical activity, smoking cessation, stress management, and routine health screening. The interactive discussion encouraged participants to clarify misconceptions and strengthened their understanding of NCD prevention.

The success of this program may also be influenced by the characteristics of the target group, namely, housewives. Housewives play a central role in shaping family diets, daily activities, and members' health habits. By increasing housewives' knowledge about NCDs, it is hoped that there will be a ripple effect of changing health behaviors within the family. These findings support the concept of family-based health promotion, which positions women as agents of change in adopting healthy lifestyles.

Beyond the immediate improvement in knowledge scores, the educational session also demonstrated encouraging signs of community engagement. During the interactive discussions, many participants actively asked questions regarding healthy dietary practices, physical activity, blood pressure monitoring, and strategies for preventing NCDs within their families. Several participants expressed their intention to adopt healthier lifestyles, undergo routine health examinations, and share the information obtained with family members and neighbors through their existing social and religious networks. Although these observations were not systematically measured using a structured follow-up assessment, they suggest that the intervention fostered participants' motivation to become more actively involved in family and community health promotion. Future studies should incorporate longitudinal follow-up, behavioral assessments, or qualitative interviews to determine whether these intentions are translated into sustained lifestyle changes and broader community empowerment



Figure 2. Blood Pressure Checks

Figure 2 shows the blood pressure screening conducted immediately after the educational session as part of the community-based early detection activities. Participants voluntarily underwent blood pressure measurements performed by the implementation team using standard procedures. Following the screening, participants received individual explanations regarding their blood pressure results and were provided with recommendations on maintaining healthy lifestyles and seeking further medical evaluation when necessary. The screening

activity complemented the educational intervention by increasing participants' awareness of the importance of regular health monitoring as a preventive measure against NCDs (Jaison et al., 2025; Shah et al., 2024). Individual blood pressure measurements are not presented in this article because the screening was conducted as part of a community service activity, and participant-level clinical data were not collected for research analysis or publication.

The findings of this community-based health education program demonstrate that the mini-lecture intervention significantly improves participants' knowledge regarding the prevention of non-communicable diseases (NCDs). Before the intervention, nearly half of the participants had insufficient knowledge of NCD prevention, whereas after the educational session, most participants achieved a very good level of knowledge. These findings indicate that structured health education can effectively improve community understanding of NCD risk factors and preventive practices (Ogolla et al., 2025).

The effectiveness of the intervention can be explained by several contextual factors beyond the educational content itself. First, the program was delivered through a religious study group, which represents an established community forum characterized by strong social cohesion and mutual trust. Health messages delivered in familiar community settings are generally more acceptable because participants feel comfortable discussing health issues and actively engaging with the educator. This environment encourages open discussion, allows participants to ask questions freely, and facilitates peer learning, making the educational process more meaningful than passive information delivery alone.

Second, the educational approach incorporated interactive mini lectures and discussions rather than one-way communication. Participants were encouraged to relate the information to their own daily experiences, particularly regarding dietary habits, physical activity, and routine health checks. This interactive learning strategy likely enhanced knowledge retention and participants' confidence in applying the information to their personal and family health practices. The increased knowledge gained aligns with previous studies showing that health education is an effective intervention in improving public health literacy regarding NCDs. Karan et al. (2024) reported that health education programs can improve public understanding of NCD risk factors and encourage better preventive behaviors. Similarly, Rudwan et al. (2025) stated that health education plays a crucial role in increasing individual awareness of the importance of early detection and control of chronic disease risk factors.

The characteristics of the target population also contributed to the intervention's success. Housewives play an essential role in household decision-making related to food preparation, lifestyle practices, and healthcare utilization. Consequently, improving their knowledge has the potential to influence the health behaviors of the entire family. As primary caregivers, housewives can encourage healthier dietary choices, promote regular physical activity, remind family members to undergo routine health examinations, and disseminate health information within their social networks (Oudat et al., 2025). Therefore, strengthening the health literacy of housewives may generate broader community benefits through family-based health promotion and behavioral diffusion.

An important strength of this community services activity was the integration of health education with blood pressure screening (Poulter et al., 2026). The immediate health assessment enables participants to connect the educational content with their own health conditions, thereby increasing the relevance of the information provided. Participants who observed their blood pressure results could better appreciate the importance of early detection and regular monitoring of NCD risk factors. This combination of education and simple health screening represents a practical and feasible model for community-based NCD prevention, particularly in settings with limited access to routine health services. Similar approaches have been shown to increase awareness of personal health risks and encourage individuals to adopt preventive health behaviors.

Despite these encouraging findings, several limitations should be acknowledged. First, the study involved only 29 participants from a single community, limiting the generalizability of the findings. Second, the absence of a control group makes it difficult to attribute the observed improvement exclusively to the educational intervention. Third, knowledge was evaluated immediately after the educational session; therefore, the study could not determine whether the increased knowledge resulted in sustained behavioral changes or long-term improvements in health outcomes. Future studies should employ larger sample sizes, including comparison groups, and conduct longitudinal follow-up assessments to evaluate knowledge retention, behavioral modification, and the long-term effectiveness of integrated community-based NCD prevention programs.

Overall, the findings suggest that community-based health education delivered through trusted religious study groups, combined with simple blood pressure screening, provides an effective and practical strategy for improving knowledge of NCD prevention among housewives. The integration of health

education with basic health screening not only increases participants' awareness of their personal health status but also encourages greater engagement in preventive health practices. Given the central role of housewives in influencing family health behaviors, this integrated approach has the potential to promote the dissemination of health information within households and communities, thereby strengthening family-centered disease prevention efforts and supporting the implementation of the Healthy Living Community Movement (GERMAS) and broader community-based NCD control programs.

Conclusion

Based on the findings of this study, community-based health education delivered through structured mini-lectures effectively improved knowledge of non-communicable disease (NCD) prevention among housewives in Serang Regency. The substantial increase in participants with very good knowledge following the intervention demonstrates that educational activities conducted in trusted community settings can enhance health literacy and increase awareness of NCD risk factors and preventive practices.

Beyond improving knowledge, this study highlights the potential of integrating health education with simple health screening, such as blood pressure measurement, as a practical model for community-based NCD prevention. Delivering these interventions through existing religious study groups provides an accessible and sustainable platform for health promotion by utilizing established social networks and community trust. Because housewives play a central role in influencing household health behaviors, empowering them with health knowledge may contribute to healthier lifestyle practices within families and strengthen community participation in NCD prevention.

These findings have important implications for community health promotion and public health policy. Similar educational programs could be replicated in other communities by integrating them into routine activities organized by community groups and supported by local primary healthcare services. Collaboration between community organizations, health workers, and local health centers can facilitate regular health education, periodic screening for NCD risk factors, and appropriate referral for individuals requiring further medical evaluation. Such integration would support the sustainability of community-based prevention efforts and contribute to the implementation of the Healthy Living Community Movement (GERMAS).

Nevertheless, improving knowledge alone does not necessarily lead to sustained behavioral change. Therefore, future programs should include continuous follow-up, reinforcement sessions, and community support mechanisms to encourage long-term adoption of healthy lifestyles and regular health screening practices. Future studies should also involve larger populations, including comparison groups, and evaluate long-term behavioral and health outcomes to determine the sustained effectiveness of integrated community-based NCD prevention programs.

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