

## Improving the Effectiveness of Posyandu in Preventing Non-Communicable Diseases (NCDs) among Women of Childbearing Age through Health Education and Screening in Cililin District

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### ABSTRACT

Non-communicable diseases (NCDs), particularly hypertension and diabetes mellitus, continue to increase and pose significant health risks among women of childbearing age (WCA). Integrated Health Service Posts (Posyandu) play a strategic role in the early detection and prevention of NCDs through health education and screening; however, their effectiveness is often limited by low participation and awareness. This community service activity aimed to strengthen the role of Posyandu in NCD prevention through integrated health education and screening in RT 04 RW 09, Cililin District. The activity involved 25 participants, consisting of 21 women of childbearing age and 4 elderly individuals, and was conducted in four stages: health screening (blood pressure and blood glucose measurement), pre-test, health education on NCD prevention, and post-test. The results showed that 28% of participants had severe hypertension and 16% had diabetes. Knowledge levels improved, with the proportion of participants categorized as having good knowledge increasing from 44% before the intervention to 92% after the intervention. These findings indicate that integrating health education with routine screening can enhance community knowledge and awareness of NCDs prevention. Optimizing Posyandu activities through such integrated approaches may strengthen its role as a community-based strategy for early detection and prevention of NCDs among women of childbearing age.

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## INTRODUCTION

Non-communicable diseases (NCDs), particularly hypertension and diabetes mellitus (DM), remain major public health problems with an increasing prevalence at the global and national levels. The World Health Organization reports that NCDs account for approximately 71% of all deaths worldwide, imposing not only a substantial health burden but also significant economic and social impacts due to long-term care needs and reduced productivity (WHO, 2021; Brunner & Suddarth, 2022).

In Indonesia, hypertension affects 34.1% of the population, while the number of people with diabetes is projected to reach 28.57 million by 2045. This rising trend is closely associated with lifestyle changes, including physical inactivity, obesity, and unhealthy dietary patterns characterized by high intake of sugar, salt, and fat (Indonesian Ministry of Health, 2020; Susilo et al., 2020).

Women of childbearing age (WCA) constitute a priority group in NCD prevention efforts. NCDs in this population not only affect long-term health but also increase the risk of pregnancy-related complications such as preeclampsia and gestational diabetes, which may compromise maternal and fetal outcomes. Moreover, the occurrence of NCDs during the productive age contributes to a higher chronic disease burden and reduced quality of life within the community (Purnamasari & Wahyu, 2021; Maulina & Sudaryo, 2022).

At the regional level, West Java continues to face a high prevalence of hypertension and diabetes mellitus, with a considerable proportion of cases remaining undiagnosed or untreated according to health standards. Data from the Cililin Community Health Center indicate that hypertension remains one of the leading outpatient health problems, highlighting the need for strengthened community-based prevention strategies.

Integrated Health Service Posts (Posyandu) play a strategic role in the prevention and early detection of non-communicable diseases (NCDs) through community-based health screening and health education activities that are easily accessible to the public. These activities include routine measurements of blood pressure and blood glucose levels, as well as education on healthy lifestyles to reduce NCD risk factors. Through this approach, Posyandu can serve as an effective platform for early detection and the promotion of healthy behaviors related to non-communicable diseases (Lestari & Susilo, 2021; Nugraha et al., 2020). However, the effectiveness of Posyandu in addressing NCDs is often limited by low community participation and insufficient awareness of the importance of NCD prevention services (Indonesian Ministry of Health, 2023).

Therefore, this community service activity aimed to strengthen the role of posyandu in the prevention and early detection of non-communicable diseases among women of childbearing age through integrated health education and health screening activities.

## METHOD

This community service activity was conducted in the form of health education on the prevention of non-communicable diseases (NCDs), particularly hypertension and diabetes mellitus, combined with health screening through blood pressure and blood glucose measurements. The activity was carried out at Posyandu RT 04 RW 09, Cililin District, and involved 25 participants consisting of 21 women of childbearing age and 4 elderly individuals.

Before implementation, participants were informed about the purpose and procedures of the activity, and verbal informed consent was obtained. Participant confidentiality was maintained by using anonymized data throughout the activity and analysis.

The community service activity was carried out in several stages as follows:

- Health Checkup

The initial stage involved measuring participants' blood pressure and blood glucose levels to identify their baseline health conditions related to NCDs risk factors.

- Pre-test

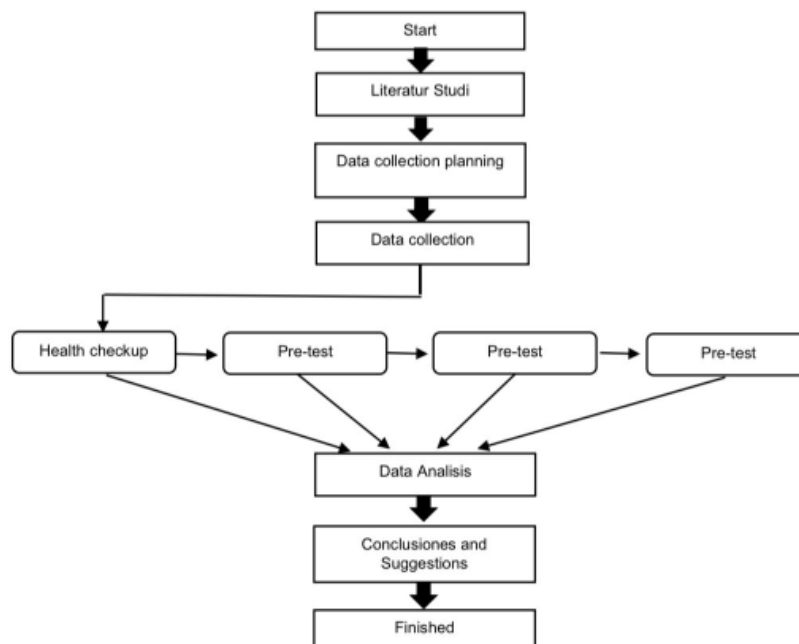
Participants' baseline knowledge of non-communicable diseases was assessed using a structured questionnaire administered before the health education session. The questionnaire consisted of questions related to the definition, risk factors, prevention, and early detection of hypertension and diabetes mellitus.

- Health Education

Health education was delivered through a counseling session covering the concept of NCDs, risk factors for hypertension and diabetes mellitus, and preventive measures through healthy lifestyle practices. The session also emphasized the importance of routine health screening and the utilization of Posyandu as a community-based facility for early detection of NCDs.

- Post-test and Evaluation

After the education session, participants completed a post-test questionnaire to assess changes in knowledge. Knowledge scores were categorized into levels of poor, moderate, and good based on the percentage of correct answers. Descriptive analysis was used to compare pre-test and post-test results and to evaluate changes in participants' knowledge levels. Screening data from blood pressure and blood glucose measurements were also summarized descriptively to support the evaluation of NCD risk within the community.



**FIGURE 1.** Community Service Activities

## RESULTS AND DISCUSSION

**TABLE 1.** Age Distribution of Respondents

Age Category	Number of Respondents	Percentage %
Women of Childbearing Age (WCA)	21	84%
Elderly	4	16%
Total	25	100%

Table 1. The age distribution shows that most participants were women of childbearing age (84%), while only 16% were elderly. This indicates that the implementation of the community service activity was aligned with its main objective, namely, strengthening the role of Posyandu in preventing non-communicable diseases (NCDs) among women of childbearing age. This group represents a productive age population that plays an important role in maintaining individual and family health; therefore, interventions targeting this group are expected to generate broader community health impacts (Anggraini et al., 2020; Hidayah et al., 2022).

**TABLE 2.** Distribution of Respondents' Education Levels

Education Level	Number of Respondents	Percentage %
Elementary School	4	16%
Junior High School	6	24%
Senior High School	15	60%
Total	25	100%

Table 2. The majority of respondents had a senior high school education (60%), followed by junior high school (24%) and elementary school (16%). This relatively adequate educational background supports the effectiveness of health education interventions, as education level influences an individual's ability to receive, process, and understand health information. These findings are consistent with Sari et al. (2021), who reported that higher education levels are associated with increased knowledge and awareness of NCD prevention through Posyandu activities.

**TABLE 3.** Blood Pressure Measurement Results of Respondents

Blood Pressure Category	Number of Respondents	Percentage %
Normal	15	60%
Mild Hypertension	3	12%
Severe Hypertension	7	28%
Total	25	100%

Table 3. Most respondents (60%) had normal blood pressure, indicating generally good cardiovascular health. However, 12% experienced mild hypertension and 28% had severe hypertension, showing that a considerable proportion of participants were at risk for hypertension. These findings emphasize the importance of routine blood pressure monitoring and early intervention for individuals with elevated blood pressure (Adnan et al., 2021).

This result is consistent with previous studies reporting that hypertension is increasingly found not

only among the elderly but also among women of childbearing age due to unhealthy lifestyle behaviors (Rahayu et al., 2019). Therefore, regular blood pressure screening through Posyandu is essential for early detection and prevention of NCD-related complications (Rahayu & Suryani, 2023).

**TABLE 4.** Blood Sugar Measurement Results of Respondents

Blood Sugar Category	Number of Respondents	Percentage %
Normal	20	80%
Pre-diabetes	1	4%
Diabetes	4	16%
Total	25	100%

Table 4. Most respondents (80%) had normal blood glucose levels, indicating normal glucose metabolism in the majority. However, 4% were categorized as pre-diabetic and 16% had diabetes mellitus, highlighting the presence of impaired glucose regulation among some participants. These findings underscore the importance of routine blood glucose monitoring and early preventive interventions to reduce the risk of diabetes progression.

This result supports the findings of Putri and Wahyuni (2020), who reported that blood glucose screening at Posyandu enables early identification of diabetes risk and increases community awareness of the importance of regular health checkups. Health education focusing on a healthy diet and physical activity remains a key component of diabetes prevention.

**TABLE 5.** Respondents' Pre-test Knowledge

Knowledge Category	Number of Respondents	Percentage %
Poor	5	20%
Fair	9	36%
Good	11	44%
Total	25	100%

Table 5. Before the intervention, only 44% of respondents had good knowledge of non-communicable diseases, while the remaining participants demonstrated fair (36%) or poor (20%) knowledge. This indicates that although some women of childbearing age had a baseline understanding of NCDs, there were still significant knowledge gaps that required structured health education.

**TABLE 6.** Respondents' Post-test Knowledge

Knowledge Category	Number of Respondents	Percentage %
Poor	0	0%
Fair	2	8%
Good	23	92%
Total	25	100%

Table 6. After the intervention, the proportion of respondents with good knowledge increased markedly to 92%, while no participants remained in the poor knowledge category. This substantial improvement demonstrates the effectiveness of health education combined with health screening in

increasing knowledge and awareness of NCDs prevention among women of childbearing age.

These results are consistent with the findings of Putri and Wahyuni (2020), which indicate that community-based health education can significantly improve the knowledge and awareness of non-communicable disease (NCDs) prevention. Health education delivered directly and accompanied by health screening activities was shown to be more effective than education without practical application.

Overall, the results of this community service activity demonstrate that health education combined with health screening can enhance knowledge among women of childbearing age and facilitate the early detection of non-communicable disease (NCDs) risk factors. These findings confirm that Posyandu functions not only as a maternal and child health service but also as a strategic platform for the prevention of non-communicable diseases (NCDs) among productive-age populations (Lestari & Susilo, 2021).

Furthermore, these findings are in line with Sari et al. (2021), who reported that optimizing the role of Posyandu through integrated health education and health screening activities can increase community participation and sustainably reduce the risk of non-communicable diseases (NCD).

## CONCLUSION

This community service activity, implemented through integrated health education and health screening at Posyandu RT 04 RW 09, Cililin Subdistrict, was effective in increasing knowledge among women of childbearing age regarding the prevention of non-communicable diseases (NCDs). Most participants belonged to the women of childbearing age group and had a secondary education background, which supported the effective delivery and understanding of health education materials.

Health screening results revealed the presence of hypertension and abnormal blood glucose levels among several participants, indicating that NCDs risk factors remain prevalent in the community. These findings highlight the importance of routine screening through Posyandu as a strategy for early detection and prevention of non-communicable diseases.

The marked improvement in post-test knowledge levels demonstrates that health education combined with direct health screening is an effective approach to increasing awareness and understanding of NCD prevention. This integrated approach strengthens the role of Posyandu not only as a maternal and child health service but also as a community-based platform for NCDs prevention among productive-age populations.

To ensure sustainability, it is recommended that Posyandu activities related to NCDs prevention be conducted regularly and integrated into routine services. Strengthening the capacity of health cadres, increasing community participation, and expanding collaboration with primary health centers are essential to optimize Posyandu's role in long-term NCDs prevention efforts. Future community service programs may also consider scaling up similar interventions to other areas to support broader public health impact.

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contribute to the sustainable development of community-based non-communicable disease (NCDs) prevention programs.

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