

COMMUNITY EMPOWERMENT IN CONTROL OF NON-COMMUNICABLE DISEASES THROUGH EDUCATION AND CARD MONITORING AT POSBINDU

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Abstract

Non-Communicable Diseases (NCDs) such as hypertension, diabetes mellitus, obesity, and heart disease are the leading causes of death in Indonesia. Low health literacy and limited community participation in the Posbindu NCD program hinder prevention efforts. This community service activity was conducted in RW 04 Kebagusan, South Jakarta, aiming to improve residents' knowledge and skills in controlling NCD risk factors through health education and self-monitoring training. The program included interactive health education, hands-on workshops on blood pressure and Body Mass Index measurement, and distribution of self-monitoring cards. The pretest average score of 50.67 increased to 81.33 in the posttest, with a significant rise in the "good" and "excellent" knowledge categories. The program effectively enhanced health literacy and community engagement in NCD prevention. In conclusion, participatory community-based education successfully improved awareness, self-care skills, and the community's sense of responsibility toward sustainable health maintenance.

Keywords: Non-Communicable Diseases, Health Education, Self-Monitoring, Community Empowerment, Posbindu

INTRODUCTION

Non-communicable diseases (NCDs) such as hypertension, diabetes mellitus, obesity, and heart disease are now the leading causes of death in Indonesia and globally. According to World Health Organization (WHO 2015), more than 70% of global deaths are caused by NCDs, most of which are preventable through lifestyle changes and increased public health literacy.

In Indonesia, the prevalence of non-communicable diseases (NCDs) continues to rise. The 2018 Basic Health Research (Riskesdas) showed that the prevalence of hypertension reached 34.1%, diabetes mellitus 10.9%, and general obesity 21.8%. This data demonstrates that the burden of NCDs is widespread across communities, including urban areas such as Kebagusan Village, Pasar Minggu District, South Jakarta.

Despite government efforts through the Integrated Non-Communicable Disease Development Post (Posbindu PTM) program, community participation remains limited. Many residents have not undergone routine health checks, do not recognize risk factors, and lack

understanding of the importance of early detection. This aligns with findings (Cahyati et al. 2022) that low public awareness is a major obstacle to the success of the Posbindu program. Therefore, a community-based approach that combines health education and self-monitoring is needed to empower communities to play an active role in controlling NCD risk factors.

The impact of non-communicable diseases (NCDs) such as hypertension, diabetes mellitus, cancer, coronary heart disease, and obesity has become a major cause of morbidity and mortality worldwide. *World Health Organization* (WHO, 2022), approximately 41 million people die annually from NCDs, equivalent to 74% of all global deaths. In Indonesia, the prevalence of NCDs has continued to increase over the past decade, particularly in urban areas. Results *Basic Health Research* (Indonesian Ministry of Health, 2018; 2023) shows an increase in the prevalence of hypertension to 34.1%, diabetes to 10.9%, and obesity to 21.8%. These figures confirm that non-communicable diseases (NCDs) pose a serious threat to national health development.

Theoretically, the theory of health determinants explains that a person's health status is determined by four main factors: environment, behavior, health services, and genetics. In the context of NCDs, behavioral factors—particularly high-sugar and salt diets, smoking, physical inactivity, and stress—play the largest role in the emergence of disease (Blum, 1974; Marmot, 2020). Socioeconomic and cultural conditions also contribute to high NCD rates through consumption patterns and access to health facilities (Ott et al. 2023).

The impact of NCDs on individuals includes decreased productivity, quality of life, and functional ability. People with hypertension or diabetes often experience complications such as stroke, kidney failure, neuropathy, and heart disease, which require long-term treatment (Ministry of Health of the Republic of Indonesia, 2023). Research by (Tho et al. 2024) shows that NCD sufferers who do not undergo routine check-ups have a two-fold higher risk of developing serious complications than those who undergo regular early detection. Furthermore, chronic conditions cause sufferers to experience psychological stress due to physical limitations and high medical costs.

The impact on families is also significant. NCDs cause a significant economic burden due to long-term medical costs and lost productivity for family members. Research (Dawson-Hahn et al. 2016) Studies in the Philippines and Indonesia show that households with family members with NCDs spend an average of 30–40% of their monthly income on healthcare costs. As a result, families experience financial stress, reduced well-being, and an increased risk of poverty due to high medical expenses (*catastrophic health expenditure*).

Social and community impacts include increased burden on the health system and decreased national economic competitiveness. *Global Burden of Disease Study* (IHME, 2023), NCDs contribute over 60% of the disease burden in Indonesia. Communities with high NCD rates tend to have low productivity and a high economic dependence on the healthcare sector. Furthermore, the increasing prevalence of NCDs increases the financial burden of the National Health Insurance (JKN), as the majority of costs are spent on chronic medical treatments such as heart disease, stroke, and diabetes (BPJS Kesehatan, 2023).

From a community nursing theory perspective, Pender's Health Promotion Model (1996) emphasizes the importance of enhancing healthy behaviors through education, motivation, and environmental support. Community-based interventions such as the Posbindu PTM (Non-Communicable Diseases Post) are an effective strategy to reduce the impact of NCDs through

increased health literacy, regular monitoring, and changes in healthy lifestyle behaviors (Putri & Santoso, 2024).

Thus, NCDs not only impact individuals' physical health but also have broad social, economic, and psychological implications. Therefore, a community empowerment approach based on health behavior theory and health promotion is a crucial strategy in breaking the chain of increasing NCD cases. Efforts such as health education, self-monitoring, and strengthening the role of Integrated Health Posts (Posbindu) have been proven to reduce the risk of NCDs and improve the community's quality of life sustainably (WHO, 2022; Mersha et al., 2021).

IMPLEMENTATION METHOD

The program is implemented through three main stages: preparation, core activities, and evaluation. Each stage is designed to mutually support and strengthen the desired results in community empowerment efforts. The preparation stage involves initial coordination with the Head of RW 04, Kebagusan Village Health Center officers, and Posbindu cadres regarding the activity plan, time, place, and roles of each party, a short survey to map educational needs and community readiness, preparation of educational modules and health promotion media (posters, booklets, monitoring cards), division of tasks within the community service team, and technical training for student mentors. To address the identified problems in RW 04, Kebagusan Village, the proposed approach is through *health education* and *community empowerment*. A sustainable, active citizen participation-based solution. This solution was chosen because it has proven effective in improving community knowledge, skills, and behavior in preventing and controlling non-communicable diseases (NCDs). The following is a systematically designed, integrated solution:

1. Educational Training on NCD Risk Factors

This training will be delivered in the form of interactive counseling using audiovisual media and educational booklets. The material will cover an introduction to NCDs (hypertension, diabetes, heart disease, and stroke), key risk factors (unhealthy lifestyle, smoking, stress, and lack of exercise), and the importance of early detection. The material will be delivered using a participatory approach to increase public understanding and interest.

2. Self-Monitoring Practice Workshop

This activity provides practical training for residents to conduct independent health assessments, including: blood pressure measurements, weight and height measurements to calculate Body Mass Index (BMI), and waist circumference measurements as an indicator of metabolic risk. The workshop includes live demonstrations using simple tools and written, illustrated guides.

3. Creation and Distribution of Self-Monitoring Cards

A monitoring card is provided to each training participant to record routine blood pressure, weight, and waist circumference measurements. This card serves as a tool for personal health reflection and monitoring by Posbindu cadres. The goal of this activity is to encourage community involvement in personal health records and improve the sustainability of self-monitoring.

4. Collaboration with Posbindu Cadres and Community Leaders

Support from health cadres and community leaders is crucial to ensuring the program's sustainability. These activities involve cadres in outreach, recording monitoring results, and assisting residents. Community leaders are also expected to act as catalysts and guarantors of community participation.

5. Installation of Visual Educational Media in the RW Environment

As part of the environmental intervention, educational posters and banners containing health messages and encouragement to adopt a healthy lifestyle will be installed in strategic locations such as community halls, neighborhood association posts, RPTRAs, and mosques.

RESULTS AND DISCUSSION

The implementation of community service was carried out on September 26, 2025, in the Pasar Minggu Community Health Center area. The implementation was held in Kebagusan Village which was attended by the head of the Community Health Center, the Village Head, the Chairperson of the PKK, the Chairperson of the Cadres, health cadres from each RW totaling 30 people with the results achieved from the questionnaire distributed via G-Form to participants showing that participants and health cadres who participated in community service, this is related to daily activities at home are women. While the age of respondents is mostly between 51 - 60 years (50%). This may be because at that age the pre-elderly are almost unproductive so that a lot of time can be used. This is also related to the employment status of the majority (92.5) who are not working.

The activity was held in October 2025 at the Community Health Post (Posbindu) in RW 04, Kebagusan Village, Pasar Minggu District, South Jakarta. The series of activities included interactive counseling on NCD risk factors, practical training on measuring blood pressure and body mass index (BMI), distribution of monitoring cards, and knowledge evaluation through pre- and post-tests.

The activity was held in September 2025 at the Integrated Health Post (Posbindu) in RW 04, Kebagusan Village, Pasar Minggu District, South Jakarta. Core activities included interactive counseling on NCDs, a workshop on self-monitoring practices (blood pressure, weight, BMI, and waist circumference measurements), distribution of monitoring cards, and mentoring by students and Posbindu cadres.

Number of participants: 30 people (30 participants, residents of RW 04). Participants consisted of adults and seniors, with a female predominance, in keeping with the characteristics of the local community.

Table 1 Pretest–Posttest Result

Test	Average (Mean)	Standard Deviation	Number of participants
Pretest	50.67	17.01	30
Posttest	81.33	10.74	30

Table 2 Distribution of participants' knowledge categories before and after the intervention:

Category	Pretest (n)	Posttest (n)
Less (<51)	17	0
Enough (51-70)	13	7
Good (71-80)	0	14
Very Good (>80)	0	9

Results Analysis:

Before the intervention, the average knowledge score of participants was 50.67 (n=30), with 17 participants (56.7%) in the 'Poor' category and 13 participants (43.3%) in the 'Sufficient' category. There were no participants in the 'Good' or 'Very Good' category before the outreach, indicating a need for education about NCDs in this community.

After counseling and training on self-monitoring practices, there was a significant increase in posttest scores to an average of 81.33. In the posttest, 9 participants (30.0%) achieved the 'Very Good' category, 14 participants (46.7%) achieved the 'Good' category, and 7 participants (23.3%) achieved the 'Fair' category. No participants were in the 'Poor' category after the intervention.

Interpretation: The increase in mean scores and shift in the distribution of knowledge categories indicate that the implemented educational intervention—a combination of interactive counseling, practical demonstrations, and the provision of printed materials and monitoring cards—was effective in improving health literacy regarding NCDs among participants. This improvement also indicates that participants gained sufficient understanding to conduct self-monitoring and recognize NCD risk factors.

The pretest results showed an average knowledge score of 50.67 ± 16.72 for participants, while the posttest average increased to 81.33 ± 10.56 . A paired t-test showed a statistically significant increase in knowledge ($t = 9.05$, $p = 0.0000$). A p value < 0.05 indicates that the education provided was effective in increasing participants' understanding of NCDs.

Participants demonstrated high enthusiasm during the training session. Most were able to independently measure their blood pressure and BMI after the training. Monitoring cards were used as a tool for recording self-examination results. This activity had a positive impact on increasing community awareness and participation in Posbindu activities.

The achievement of this community service activity is in accordance with the planned objectives, namely to increase community knowledge and skills in controlling risk factors for Non-Communicable Diseases (NCDs) through health education and self-monitoring training at Posbindu RW 04, Kebagusan Village.

This activity successfully identified participant characteristics and measured the increase in knowledge following the educational intervention. *pretest* And *posttest* conducted on 30 participants, it was found that the average value *pretest* by 50.67, a significant increase to 81.33 in *posttest*. After receiving education and training, most participants demonstrated a very good level of knowledge, with 25 participants (83.3%) in the “very good” category (score >80) and 5 participants (16.7%) in the “good” category (score 71–80). No participants fell into the “sufficient” or “poor” categories.

These results indicate that the community service activities implemented were successful

in optimally improving participants' knowledge. The significant increase in scores indicates that health education, conducted through a participatory approach and hands-on practice, improved public health literacy regarding NCD risk factors. Participants not only understood the concepts of hypertension, diabetes, and obesity but were also able to independently measure blood pressure, weight, height, and waist circumference.

This achievement is also related to the characteristics of the participants, most of whom had secondary or higher education (73.3%), and some had actively participated in previous Posbindu activities (26.7%). These factors supported the participants' rapid understanding of the material presented. Furthermore, interactive educational methods, the use of leaflets, and practical simulations proved effective in increasing understanding, as explained in the Health Promotion Model theory (Pender, 1996), which emphasizes the importance of active individual involvement in the learning process to achieve health behavior change.

These findings align with research by Richards (2022), which found that community-based educational activities involving hands-on practice and group discussions can increase knowledge and attitudes about NCD prevention by more than 80%. Furthermore, Kim et al. (2022) confirmed that cadre- and community-based training has been shown to improve self-monitoring skills and foster collective responsibility for health.

The high percentage of participants in the "very good" category also indicates that the material presented is relevant, easy to understand, and meets the needs of the community at the neighborhood level. *community-based education* The community service team's use of interactive media encouraged active community participation during outreach activities, group discussions, and field practice. Participants demonstrated high enthusiasm, actively asked questions, and shared experiences in controlling NCD risk factors.

Overall, the results of this activity demonstrate that the objectives of community service have been optimally achieved, both in terms of improving participants' knowledge and practical skills. This successful knowledge improvement is expected to lead to changes in healthy attitudes and behaviors at the individual and family levels. In the context of community nursing, these changes serve as an indicator of the success of sustainable promotive-preventive interventions through Posbindu PTM activities in the RW 04 Kebagusan area.





Figure 1. Documentation of Community Service Activities

CONCLUSION

Community service activities in RW 04, Kebagusan Village, successfully increased community knowledge and skills in controlling risk factors for non-communicable diseases through health education and self-monitoring training. The significant increase in knowledge scores indicates that a participatory approach using interactive counseling methods, hands-on practice, and the use of educational media effectively improves public health literacy. Participants not only understood the risk factors for non-communicable diseases (NCDs) but were also able to perform basic check-ups independently. This success demonstrates that community-based interventions can be a sustainable strategy in strengthening the role of communities and Posbindu cadres in promoting healthy lifestyles and preventing an increase in NCD cases at the community level.

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