

SADARI program: community-based early detection of hypertension and diabetes through health screening and fun walk

Raditya Salman Hakim¹, Prima Bakti Maulina¹, Fanny Mutia Putri¹,
Fajri Ramadhan¹, Reysah Davina¹, Izanatul Nafsia¹, Juli Suprianti¹,
Yunizah Nurul Jana¹, Alif Rahma Aulia¹, Dzar Al Banna^{1*}, Rhafidilla Vebrynda²

¹Universitas 'Aisyiyah Yogyakarta, Indonesia

²Universitas Muhammadiyah Yogyakarta, Indonesia

*Author korespondensi: dzar.albanna@muhammadiyah.or.id

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ABSTRAK

Purpose: to facilitate early screening of hypertension and diabetes mellitus and increase community awareness of healthy lifestyle practices through an integrated health screening, health education, and fun walk program.

Method: the SADARI program involved 59 residents in RW 22, Nogosaren Village, through a health walk followed by blood pressure and random blood glucose screening, health education, and follow-up guidance.

Findings: the program involved 59 participants, all of whom underwent blood pressure and random blood glucose screening. Blood pressure screening showed that 51 participants (86.44%) were categorized as at risk, while 8 (13.56%) had normal results. Random blood glucose screening identified 28 participants (47.46%) as at risk and 31 (52.54%) within the normal range.

Conclusion: the SADARI program supported early detection of hypertension and diabetes risks and promoted community awareness of healthy lifestyles and routine health monitoring.

Contribution: the program contributed to improving community awareness, promoting healthy lifestyles, and encouraging early detection and follow-up of NCD risks.



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Introduction

Noncommunicable diseases (NCDs) have become an important public health concern because they generally develop gradually and persist over long periods, often without noticeable symptoms in the early stages (Suharsono et al., 2025). If not detected and managed

appropriately, NCDs may result in serious complications and reduce individuals' quality of life (Yarmaliza & Zakiyuddin, 2019). Among the major NCDs, hypertension and diabetes mellitus require particular attention because both conditions can remain undetected for extended periods while progressively increasing the risk of organ damage and other health problems (Adhyka et al., 2026). Hypertension, in particular, is frequently asymptomatic, making routine health screening an important component of prevention and early detection (Alfiah, 2022). Preventive efforts therefore need to emphasize not only treatment but also early identification of risk factors, regular health monitoring, healthy dietary practices, adequate physical activity, and weight management (Budreviciute et al., 2020).

Hypertension and diabetes mellitus are closely associated with modifiable lifestyle and behavioral factors, including unhealthy dietary patterns, physical inactivity, and excess body weight (Al-Jawaldeh & Abbass, 2022; Ojangba et al., 2023). Uncontrolled hypertension may increase the risk of cardiovascular disease, stroke, and kidney problems, while persistently elevated blood glucose levels in people with diabetes may contribute to various long-term complications (Sinulingga et al., 2023). The World Health Organization (WHO) defines hypertension as systolic blood pressure of ≥ 140 mmHg and/or diastolic blood pressure of ≥ 90 mmHg based on measurements taken on two separate days (Kandil et al., 2023; Nolde et al., 2022). Consequently, blood pressure measurement conducted during a community health activity should be understood as a screening procedure rather than a definitive diagnosis (McEvoy et al., 2024). Similarly, blood glucose testing can serve as an initial method for identifying individuals who may be at risk of diabetes, particularly those who have not received regular health examinations (Nova & Hasni, 2022). Individuals with abnormal screening results should subsequently undergo repeat testing and professional medical evaluation to establish an appropriate diagnosis and management plan (Perkins et al., 2023).

Previous community-based health initiatives have demonstrated the importance of providing health education and screening to improve public awareness of hypertension and diabetes (Aghdash et al., 2025; Fritz et al., 2024; Ogolla et al., 2025; Shubrook et al., 2024). Health education can help communities recognize risk factors, understand the importance of regular health examinations, and adopt healthier behaviors (Alfiah, 2022; Sinulingga et al., 2023). However, a gap remains in translating awareness into accessible and engaging community-based preventive activities that simultaneously encourage health screening and physical activity. Community members may be less motivated to participate in screening activities when these are conducted as stand-alone medical examinations, particularly when hypertension and diabetes do not produce obvious symptoms. Integrating health screening with a recreational physical activity, such as a fun walk, may therefore provide a more approachable strategy for increasing community participation while simultaneously promoting physical activity. This approach is consistent with the broader emphasis on early prevention of NCDs through community participation and healthy lifestyles (Yarmaliza & Zakiyuddin, 2019).

This need was identified through a preliminary survey conducted by students of UNISA Community Service Program (KKN) Group 72 in RW 22, Nogosaren Village, which indicated that a considerable number of residents had hypertension. This finding highlighted the need for an accessible community-based intervention that could facilitate early identification of hypertension and diabetes while strengthening residents' awareness of NCD prevention. In response, the SADARI program, an acronym for "Awareness of Hypertension

and Diabetes,” was developed as a community service initiative. The program was implemented in conjunction with the commemoration of the 81st Anniversary of the Republic of Indonesia and consisted of free health screening activities following a fun walk. The integration of these activities was intended to create an engaging setting that could encourage residents to participate in health screening while also incorporating physical activity into the intervention.

The primary objective of the SADARI program was to facilitate early community-based screening for hypertension and diabetes while increasing residents’ awareness of the importance of routine health monitoring and healthy lifestyle practices. In addition to measuring blood pressure and blood glucose levels, the program provided education regarding risk factors, healthy dietary practices, regular physical activity, routine health checkups, and appropriate actions for individuals whose screening results indicated potential health risks. Through this integrated approach, the program is expected to contribute to increased community engagement in NCD prevention, improved awareness of individual health status, and greater willingness to undertake follow-up examinations when abnormal screening results are identified. More broadly, SADARI is expected to demonstrate how community service programs can combine screening, health education, and enjoyable physical activity as a practical approach to strengthening preventive health behavior at the community level.

Method

The SADARI program was implemented in RW 22, Nogosaren Village, as a community-based health promotion and screening activity. A preliminary survey was conducted from August 4 to 13, 2026, involving 150 households in RW 22. The survey was conducted to obtain an initial overview of the community’s health conditions and to identify the need for early detection of hypertension and diabetes mellitus. The findings from the preliminary survey indicated the presence of residents with hypertension, providing the basis for implementing a community-based screening and health education program.

The SADARI program was conducted at the RW 22 badminton court following a health walk organized to commemorate the 81st Anniversary of the Republic of Indonesia. The activity involved students from UNISA’s Community Service Program Group 72 in collaboration with members of the local community. The health screening was open to residents who participated in the health walk and other members of the surrounding community. Particular attention was given to adults and older adults, residents with a previous history of hypertension or diabetes mellitus, and individuals who had not undergone regular health checkups.

The SADARI program employed an integrated community-based approach that combined physical activity, health screening, health education, and follow-up guidance. The activity began with a group health walk involving community members. The walk was designed not only as part of the Independence Day commemoration but also as a simple strategy to encourage physical activity and promote healthy lifestyle practices. Following the walk, participants proceeded to the registration area, where they were recorded and informed about the health screening procedures.

Blood pressure and blood glucose measurements were subsequently performed by trained students participating in the KKN program. For blood pressure measurement, participants were instructed to rest before the examination to minimize the influence of

recent physical activity on the measurement. Blood pressure was measured using a sphygmomanometer, and the results were recorded for each participant. Blood glucose levels were also assessed using the available blood glucose testing equipment. Because the screening was conducted in a community setting, blood glucose measurements were recorded according to the participant's actual condition at the time of examination, including whether the participant had fasted or consumed food before testing.

Health education was provided after the screening process using educational leaflets prepared by the students. The educational materials addressed the risk factors associated with hypertension and diabetes mellitus, the importance of regular health monitoring, healthy dietary practices, physical activity, weight management, and preventive behaviors. Participants were also informed that screening results obtained during the activity were intended for early identification of potential health risks and did not constitute a definitive medical diagnosis.

Participants with elevated blood pressure or blood glucose results were provided with consultation and follow-up recommendations. They were encouraged to repeat the examination at an appropriate healthcare facility and seek further evaluation from healthcare professionals when necessary. This approach was intended to ensure that participants understood the importance of confirming abnormal screening results through appropriate clinical assessment rather than interpreting a single community-based measurement as a diagnosis.

All screening results and participant information obtained during the activity were recorded systematically by the organizing team. Program evaluation focused on several indicators, including the number of residents participating in the activity, the number of participants undergoing blood pressure and blood glucose screening, the distribution of screening results, and feedback from community members regarding the implementation of the program. The evaluation was used to assess community participation and the implementation of the SADARI program and to identify aspects that could be improved in future community-based health promotion and screening activities.

Results and Discussion

The SADARI program involved 59 community members who participated in the health screening following the community health walk commemorating the 81st Anniversary of the Republic of Indonesia. All 59 participants underwent both blood pressure and random blood glucose measurements. Integrating the screening with a community health walk created an informal and accessible setting in which residents could participate in preventive health activities without having to attend a separate clinical appointment. In addition to the screening procedures, participants received explanations regarding their individual results and basic information about the prevention and management of hypertension and diabetes mellitus.

The educational component generated active interaction between the participants and the student facilitators. Questions raised by residents mainly concerned foods that should be limited, the recommended frequency of blood pressure monitoring, the importance of physical activity, and the relationship between hypertension and diabetes mellitus. This interaction indicates that the screening activity functioned not only as a measurement activity but also as an opportunity for individualized health communication. Community-based interventions that combine screening, education, lifestyle advice, and community

participation have been identified as important components of hypertension and diabetes prevention in Southeast Asian settings. A realist synthesis of community-based interventions in Southeast Asia identified community health workers, educational activities, physical exercise, lifestyle advice, empowerment, and referral services as important components of interventions addressing hypertension and diabetes.

The blood pressure screening results showed that 8 participants (13.56%) had measurements within the normal range, whereas 51 participants (86.44%) had measurements categorized as at risk according to the screening criteria used in the SADARI program. The distribution of the blood pressure screening results is presented in Table 1.

Table 1 distribution of blood pressure test results among participants in the SADARI program

Category	Criteria	Frequency	Percentage (%)
Normal	Systolic < 140 mmHg and/or diastolic < 90 mmHg	8	13.56
At risk	Systolic ≥ 140 mmHg and/or diastolic ≥ 90 mmHg	51	86.44
Total		59	100.00

Source: primary data, processed.

As shown in Table 1, a substantial proportion of participants had blood pressure measurements requiring further attention. This finding is particularly relevant because hypertension is frequently asymptomatic, and individuals may remain unaware of elevated blood pressure until it is measured. Therefore, community-based screening can provide an important opportunity to identify individuals who may otherwise not seek health services. However, the findings should be interpreted as screening results rather than a prevalence estimate or clinical diagnosis of hypertension. A single measurement obtained during a community activity, particularly after physical activity such as a health walk, cannot independently establish a diagnosis. Participants with elevated measurements should therefore undergo repeated measurements under appropriate conditions and receive further clinical assessment.

The high proportion of elevated blood pressure measurements in this activity may partly reflect the characteristics of the participants who voluntarily attended the screening, including individuals who already had a history of hypertension or concerns about their health. Consequently, the proportion observed among the 59 participants should not be generalized to the entire population of RW 22. Nevertheless, the finding provides an important indication of the need for continued blood pressure monitoring and preventive interventions in the community. Evidence from low- and middle-income countries suggests that community health workers can contribute to cardiovascular risk-factor identification and management, including screening for hypertension, supporting lifestyle modification, and promoting physical activity.

Random blood glucose screening identified 31 participants (52.54%) with results below 200 mg/dL and 28 participants (47.46%) with results at or above 200 mg/dL according to the screening categorization applied in the program. The distribution of random blood glucose results is presented in Table 2.

As presented in Table 2, nearly half of the participants had random blood glucose measurements at or above the screening threshold used in the activity. This finding reinforces the importance of providing accessible opportunities for blood glucose screening, particularly for community members who do not routinely undergo health examinations. Nevertheless, the results should be interpreted cautiously. Random blood glucose testing

conducted during a community event does not by itself establish a diagnosis of diabetes mellitus, particularly because participants may have different fasting and postprandial conditions. Participants with elevated results should therefore be encouraged to undergo repeat testing and appropriate diagnostic evaluation at a healthcare facility.

Table 2 distribution of random blood glucose test results among participants in the SADARI program

Category	Criteria	Frequency	Percentage (%)
Normal	Random blood glucose < 200 mg/dL	31	52.54
At risk	Random blood glucose ≥ 200 mg/dL	28	47.46
Total		59	100.00

Source: primary data, processed

The relatively large proportion of participants with elevated random blood glucose results also highlights the importance of combining screening with health education. Screening can identify individuals who may require further assessment, but its long-term public health value depends on whether individuals receive appropriate follow-up and are supported in adopting healthier behaviors. Evidence from community-based interventions indicates that trained community health workers can support cardiometabolic disease prevention through risk identification, health education, and lifestyle counseling. A systematic review of community health worker training programs in low- and middle-income countries found that training can improve workers' knowledge and skills related to identifying cardiometabolic risk factors and supporting healthy lifestyle behaviors.

Discussion

One of the important features of the SADARI program was the integration of health screening with a community health walk. Rather than presenting screening as an isolated medical activity, the program embedded it within an existing social and physical activity event. This approach may reduce practical and psychological barriers to participation because residents could access screening in a familiar community environment while simultaneously engaging in physical activity. Community-based interventions addressing hypertension and diabetes have similarly emphasized the importance of combining multiple components rather than relying on a single intervention. These components may include physical activity, education, lifestyle counseling, empowerment, social support, and referral mechanisms.

The health walk also provided an opportunity to introduce physical activity as a practical component of NCD prevention. Physical activity is particularly relevant to hypertension and diabetes prevention because sedentary lifestyles and inadequate physical activity are important modifiable risk factors. Evidence from a systematic review of community health worker-led physical activity interventions indicates that community-based health promotion can improve several physical activity-related outcomes, although the effects vary according to intervention design, duration, and population characteristics (Contento et al., 2022; Lorenzo et al., 2025). Therefore, the health walk in the SADARI program should not be viewed merely as an accompanying recreational activity; it can be considered an entry point for communicating the broader message that regular physical activity should become part of everyday NCD prevention.

The active questions raised by participants further demonstrate the importance of the educational component. Residents' questions about dietary restrictions, physical activity, blood pressure monitoring, and the relationship between hypertension and diabetes indicate that screening may create a meaningful "teachable moment," in which individuals become more receptive to information after receiving information about their own health status. Previous evidence also supports the role of community-based education in improving health knowledge and self-management behaviors. A systematic review of community health worker interventions in diabetes care found that such interventions can have beneficial effects on diabetes knowledge, self-care behaviors, and several health outcomes, although the magnitude of benefit varies across intervention designs (Chen et al., 2026; Trump & Mendenhall, 2017).

The combination of screening and education is also relevant from a health-system perspective. Community screening can identify individuals who may require further assessment, while community-based education can encourage them to seek appropriate follow-up care (Menhas et al., 2023). However, the effectiveness of such a model depends on the availability of a functional referral pathway. Community health workers have been shown to have potential in identifying cardiovascular risk factors and supporting healthy behaviors in low- and middle-income countries, suggesting that collaboration between community volunteers, health workers, students, and primary healthcare services can strengthen the continuity of preventive care.

Community engagement and sustainability

The SADARI program demonstrates that community service activities can be designed to integrate early detection, physical activity, health education, and referral guidance within a single community event. The high proportion of participants with elevated screening results emphasizes the need for continued monitoring, but it should not be interpreted as evidence that 86.44% of the local population has hypertension or that 47.46% has diabetes. The participants were self-selected, the sample was relatively small, and measurements were obtained during a single community screening event. These limitations are important when interpreting the findings and should be considered when planning subsequent activities.

For sustainability, the SADARI model could be incorporated into existing community-based health activities, particularly Posbindu NCD and other routine community health programs. Periodic screening could be combined with structured health education and referral follow-up so that residents with abnormal screening results are not only identified but also encouraged to complete confirmatory examinations and, when necessary, receive appropriate treatment. Community-based interventions in Southeast Asia suggest that stakeholder involvement, access to health services, community support, education, and referral mechanisms are important contextual elements for sustaining interventions targeting hypertension and diabetes (Fritz et al., 2024; Pardoel et al., 2022; Utaising et al., 2026).

Future implementation could also strengthen the role of trained community health volunteers by providing standardized procedures for blood pressure and blood glucose screening, participant education, documentation, and referral. Evidence from systematic reviews indicates that community health workers can contribute to cardiometabolic disease prevention when they receive appropriate training and are integrated into broader health

services (Knowles et al., 2023; Seneviratne et al., 2022). In diabetes care specifically, longer-term community health worker interventions have also demonstrated potential to improve glycemic control when integrated with conventional healthcare, although the evidence varies according to intervention characteristics and setting (Hilel et al., 2024; Phuwilert et al., 2026).

Overall, the SADARI program illustrates the potential value of using a socially engaging community activity as an entry point for NCD prevention. The program moved beyond one-time measurement by combining screening with direct health communication and follow-up recommendations. Its principal contribution lies in bringing preventive health services closer to residents and creating an opportunity for individuals to recognize the importance of monitoring their blood pressure and blood glucose. To maximize its public health impact, however, future implementation should emphasize repeated screening, standardized measurement procedures, systematic referral, follow-up of participants with abnormal results, and evaluation of changes in knowledge and health behaviors over time.

Conclusions

The SADARI program achieved its primary objectives by providing accessible community-based screening for hypertension and diabetes mellitus while simultaneously promoting physical activity and health awareness. A total of 59 community members participated in the program, and all participants received blood pressure and random blood glucose screening followed by health education and individual guidance. The screening identified a substantial proportion of participants with blood pressure and random blood glucose measurements requiring further attention, demonstrating the importance of providing accessible opportunities for early identification of potential NCD risks at the community level. The integration of health screening with a health walk also created an engaging and participatory environment that facilitated community involvement in preventive health activities.

The program contributed not only to the early identification of potential health risks but also to strengthening community awareness regarding healthy dietary practices, physical activity, routine health monitoring, and appropriate follow-up of abnormal screening results. The active participation and questions raised by residents indicate the potential of combining screening with health education as a practical promotive and preventive approach to NCD control. To sustain these contributions, the SADARI model can be integrated into existing community health activities, such as Posbindu NCD, through periodic screening, continuous health education, standardized measurement procedures, and referral follow-up. Thus, SADARI provides a community-based model that can support ongoing efforts to promote early detection and preventive health behaviors related to hypertension and diabetes mellitus.

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