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STRENGTHENING ELDERLY HEALTH PROMOTION: A COMMUNITY-BASED APPROACH TO DIABETES MELLITUS PREVENTION

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ABSTRACT

Diabetes mellitus is a growing public health concern, particularly among older adults, due to age-related metabolic changes and lifestyle factors. In Indonesia, the increasing prevalence of diabetes highlights the need for effective community-based preventive strategies, especially through health promotion at the posyandu lansia level. This study aimed to strengthen elderly health promotion by implementing a community-based health education program to improve knowledge and awareness of diabetes mellitus prevention. A community service-based intervention was conducted on January 20, 2026, in Sentulan Hamlet, Bongkot Village, Peterongan District, Jombang. The participants were elderly individuals attending the local posyandu lansia. The intervention included health education sessions on diabetes mellitus, its risk factors, symptoms, and prevention through a healthy lifestyle, followed by free blood glucose screening. Educational methods included lectures, discussions, and distribution of leaflets. Evaluation was conducted through participant engagement and responses during the session. The program was well received by participants, who actively engaged in discussions and demonstrated increased understanding of diabetes prevention. The blood glucose screening also provided early detection opportunities and increased awareness of individual health status among the elderly. The combination of education and screening proved to be an effective strategy in enhancing health awareness. Community-based health education combined with blood glucose screening is an effective approach to strengthening diabetes prevention efforts among the elderly. This model can be implemented in similar community settings to promote healthy aging and reduce the risk of chronic diseases. The evaluation process was conducted using observational assessment, participant engagement monitoring, interactive question-and-answer sessions, and feedback from elderly participants and community cadres.

Keywords: Blood Glucose Screening, Community-Based Intervention, Diabetes Mellitus, Elderly, Health Education, Health Promotion.

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INTRODUCTION

Diabetes mellitus (DM) is a major global public health challenge, particularly among older adults, due to age-related physiological changes and the accumulation of metabolic risk factors. The global prevalence of diabetes continues to rise, with older populations (≥65 years) experiencing the highest burden. It is estimated that the number of older adults living with diabetes will increase substantially in the coming decades, driven by population aging and lifestyle transitions (International Diabetes Federation [IDF], 2025). These conditions place elderly individuals at greater risk of complications, reduced quality of life, and increased mortality.

In Indonesia, the burden of diabetes has also shown a consistent upward trend. National health survey data indicate that the prevalence of diabetes has increased in recent years, in line with demographic shifts toward an aging population (Kementerian Kesehatan RI [Kemenkes RI], 2024). This epidemiological transition has led to a higher proportion of non-communicable diseases, including diabetes mellitus, particularly among individuals aged 50 years and above. Consequently, older adults represent a vulnerable group requiring targeted preventive and promotive health interventions. According to the East Java Provincial Health Profile, the prevalence of diabetes mellitus among older adults has continued to increase in several districts, including Jombang Regency, reflecting the urgent need for localized community-based prevention programs.

Lifestyle factors play a critical role in the development of type 2 diabetes mellitus, which accounts for the majority of diabetes cases in Indonesia. Unhealthy dietary patterns, physical inactivity, and increasing rates of overweight and obesity are key contributors to the rising prevalence of diabetes (Liberty et al., 2024). Therefore, interventions focusing on behavior change through health education are essential, especially for older adults who may have limited access to accurate health information and preventive services.

Community-based approaches have been widely recognized as effective strategies for promoting health and preventing chronic diseases among older populations. In Indonesia, posyandu lansia (integrated health service posts for the elderly) serve as a strategic platform for delivering health education and preventive services at the community level. Previous studies have demonstrated that health education combined with blood glucose screening can significantly improve knowledge, awareness, and early detection of diabetes among older adults (Iswandari et al., 2025; Sundoro et al., 2025). Additionally, the involvement of community health workers and cadres plays a crucial role in enhancing the effectiveness and sustainability of such programs.

Based on this background, strengthening elderly health promotion

through community-based interventions is essential to address the growing burden of diabetes mellitus. Therefore, this community service activity aims to improve the knowledge and awareness of older adults regarding diabetes prevention through health education and blood glucose screening as part of a comprehensive promotive and preventive strategy at the community level. The novelty of this program lies in integrating elderly-focused health education with direct blood glucose screening within the posyandu lansia setting, emphasizing participatory community engagement and early risk identification.

OBJECTIVES

General Purpose

The general purpose of this community-based program is to strengthen health promotion among older adults by improving their knowledge, awareness, and preventive behaviors related to diabetes mellitus through health education and blood glucose screening. This program aims to empower elderly individuals to adopt healthy lifestyles, enhance early detection of diabetes risk, and support community-level efforts in reducing the burden of non-communicable diseases, particularly diabetes mellitus.

Special Purpose

To achieve the general objective, this program is designed with the following specific purposes: The objectives were simplified to emphasize health education, lifestyle awareness, early detection, and community empowerment.

1. To increase the knowledge of older adults regarding diabetes mellitus, including its definition, risk factors, signs and symptoms, and prevention strategies.
2. To improve awareness among elderly participants about the importance of adopting a healthy lifestyle, including balanced nutrition and regular physical activity, in preventing diabetes mellitus.
3. To provide early detection of diabetes risk through blood glucose screening among older adults in the community.
4. To encourage active participation of elderly individuals in community health programs, particularly posyandu lansia, as a platform for continuous health monitoring and education.
5. To support community health workers and cadres in delivering effective health education and preventive services for diabetes mellitus at the community level.

PLAN OF ACTION

Strategy Plan

The strategy plan for this community-based program was designed to strengthen diabetes mellitus prevention among older adults through an integrated approach combining health education and early detection. The program was implemented in collaboration with community stakeholders, particularly posyandu lansia cadres, to ensure effective outreach and sustainability. The activity was conducted in Sentulan Hamlet, Bongkot Village, Peterongan District, Jombang, Indonesia. The program was preceded by a two-week preparation phase, followed by the implementation on January 20, 2026.

The first strategy involved preparatory activities, conducted over approximately two weeks, including coordination with local community leaders and health cadres, identification of target participants (elderly individuals), and preparation of educational

materials such as leaflets and presentation media. This stage aimed to ensure that the intervention was contextually appropriate, well-organized, and accessible to the target population.

The second strategy focused on the implementation of health education sessions. Educational content covered the definition of diabetes mellitus, risk factors, signs and symptoms, complications, and preventive measures through a healthy lifestyle, including balanced nutrition and physical activity. The education was delivered using interactive methods such as lectures, discussions, and question-and-answer sessions to enhance participant engagement and comprehension.

The third strategy included community-based blood glucose screening as an early detection effort. This activity allowed participants to assess their current health status, increased awareness of diabetes risk, and encouraged timely health-seeking behavior. The integration of screening with education aimed to reinforce knowledge with practical health monitoring.

The fourth strategy emphasized community participation and empowerment, encouraging elderly individuals to actively engage in posyandu lansia activities as a platform for continuous health promotion. In addition, health cadres were supported in their role as facilitators of ongoing education and monitoring within the community.

Finally, the program incorporated a simple evaluation approach, based on participant responses, engagement during the sessions, and feedback from the elderly and community cadres. This evaluation was used to assess the effectiveness of the intervention and to inform future community health promotion programs.

Overall, this strategy plan integrates promotive and preventive approaches to enhance knowledge, awareness, and early detection of diabetes mellitus among older adults in a sustainable community setting.

Implementation

The implementation of this community-based program was carried out on January 20, 2026, in Sentulan Hamlet, Bongkot Village, Peterongan District, Jombang, Indonesia, targeting older adults who attended the posyandu lansia. The activity was conducted from 08:00 a.m. until completion, following a two-week preparation phase.

The program began with an opening session, in which facilitators introduced themselves, explained the objectives of the activity, and distributed educational leaflets. This initial stage aimed to build rapport with participants and provide an overview of the importance of diabetes prevention among older adults.

The core activity consisted of a health education session focusing on diabetes mellitus. The material included the definition of diabetes, risk factors, signs and symptoms, potential complications, and preventive strategies through a healthy lifestyle. The education was delivered using a combination of lecture methods, visual media (LCD presentation), and interactive discussions to encourage active participation and improve understanding among the elderly participants. The educational session lasted approximately 60–90 minutes and was facilitated by a team consisting of nursing lecturers, students, and community health cadres. Educational materials included PowerPoint presentations, printed leaflets, and blood glucose monitoring equipment.

Following the educational session, a

question-and-answer session was conducted to assess participants' comprehension and to clarify any misunderstandings. Participants were encouraged to actively engage by asking and answering questions related to the material presented. Program evaluation was conducted through direct observation of participant engagement, attendance monitoring, participant feedback, and informal assessment during discussions and question-and-answer sessions.

As part of the preventive approach, the program also included free blood glucose screening for all participants. This activity aimed to provide early detection of potential diabetes risk and to increase awareness of individual health status. The screening process was carried out using standard blood glucose testing equipment, with guidance provided by the facilitators.

Figure 1. Documentation of Blood Sugar Examination Implementation.

The program concluded with a closing session, including feedback, reinforcement of key messages, and appreciation for participants' involvement. Overall, the implementation was carried out in a structured and participatory manner, integrating health education and screening to enhance knowledge, awareness, and preventive behavior among older adults.

Setting

This community-based program was conducted in Sentulan Hamlet, Bongkot Village, Peterongan District, Jombang, Indonesia, utilizing the posyandu lansia (integrated health service post for the elderly) as the primary setting for intervention. The activity was implemented on January 20, 2026, from 08:00 a.m. until completion, following a structured preparation phase. The posyandu lansia serves as a community-level healthcare platform that provides accessible preventive and promotive health services for older adults, particularly in rural and semi-urban areas.

The selection of this setting was based on its strategic role in delivering community health interventions and its established function in facilitating regular health monitoring and education among the elderly population. Previous studies have demonstrated that posyandu lansia programs are effective in improving elderly health outcomes through structured community participation and routine health services (Prisca & Agustina, 2024). In addition, the involvement of community health workers and cadres within posyandu plays a critical role in increasing participation, health awareness, and continuity of care among older adults (Isnanik & Rodiyah, 2024).

The setting also reflects a community-based approach, where health promotion activities are integrated into local social structures. Such an approach has been shown to enhance the effectiveness of health education and screening programs, particularly for chronic disease prevention such as diabetes mellitus (Iswandari et al., 2025). Furthermore, community-based implementation of elderly health programs enables better accessibility, cultural

adaptation, and sustainability of interventions (Parwestri & Mursyidah, 2025).

Overall, the posyandu lansia setting provides an appropriate and effective environment for implementing integrated health promotion strategies, combining education and early detection efforts to address the increasing burden of diabetes mellitus among older adults.

Target

The target of this community-based program was older adults (elderly individuals) who actively participated in posyandu lansia activities in Sentulan Hamlet, Bongkot Village, Peterongan District, Jombang, Indonesia. This group was selected due to their increased vulnerability to non-communicable diseases, particularly diabetes mellitus, which is closely associated with aging, declining physiological function, and lifestyle-related risk factors.

Older adults represent a high-risk population for diabetes mellitus due to age-related metabolic changes and the accumulation of unhealthy lifestyle behaviors over time. Studies have shown that the elderly are more susceptible to diabetes and its complications, emphasizing the need for targeted preventive interventions at the community level (Naralia et al., 2024). Furthermore, limited knowledge and awareness about diabetes prevention among elderly populations contribute significantly to the increasing prevalence of the disease (Iswandari et al., 2025).

The use of posyandu lansia as the primary platform ensures that the program reaches a population that is already engaged in community-based health services. Previous research indicates that posyandu lansia plays a crucial role in facilitating access to health education, promoting preventive behaviors, and improving participation among older adults (Asmarah & Rodiyah, 2025). Additionally, community-based interventions targeting elderly groups have been proven effective in improving knowledge, early detection, and health behaviors related to chronic disease prevention, including diabetes mellitus (Ardian et al., 2025).

In addition to elderly participants, this program also indirectly targeted community health cadres, who play a vital role in sustaining health promotion activities at the community level. Empowering these cadres enhances the continuity and effectiveness of health education programs within posyandu lansia settings.

Overall, the target population was strategically selected to maximize the impact of diabetes prevention efforts through a community-based approach, focusing on high-risk groups and leveraging existing local health service structures.

RESULTS AND DISCUSSION

The community-based program was successfully implemented with active participation from elderly individuals attending the posyandu lansia. Participants demonstrated high engagement during the educational sessions, particularly during discussions and question-and-answer activities. This indicates that the topic of diabetes mellitus prevention is highly relevant and of interest to the elderly population. Attendance and participation indicators showed that most elderly participants remained actively involved throughout the session.

Picture 2. The Process of Providing Health Education related to Healthy Lifestyles for Diabetes Mellitus Sufferers.

Following the health education intervention, participants showed improved understanding of diabetes mellitus, including its definition, risk factors, symptoms, and preventive strategies. Similar findings have been reported in previous studies, where health education significantly increased knowledge levels among elderly participants in community settings (Iswandari et al., 2025; Rahmawati et al., 2024). Increased knowledge is a crucial first step in promoting behavioral change and disease prevention.

The implementation of blood glucose screening revealed that several participants had elevated glucose levels, indicating potential risk for diabetes mellitus. This finding highlights the importance of early detection in community settings, as many elderly individuals may be unaware of their health status. Previous studies have shown that combining education with screening improves early identification of at-risk individuals and enhances awareness of chronic diseases (Retnoningrum et al., 2024). The screening activity provided immediate feedback regarding participants' health status and encouraged several elderly participants to seek further health examination at local healthcare facilities.

In addition, the involvement of community health cadres contributed positively to the program's implementation. Cadres assisted in organizing activities, facilitating communication, and encouraging participation among the elderly. Their role is essential in ensuring the sustainability of community-based health programs (Silviana et al., 2024).

The findings of this program demonstrate that community-based health education combined with blood glucose screening is an effective approach to improving knowledge and awareness of diabetes mellitus among older adults. This is consistent with previous studies showing that educational interventions in community settings significantly enhance health literacy and promote preventive behaviors among the elderly (Ardian et al., 2025).

The effectiveness of this program can be explained through the Health Belief Model (HBM), which emphasizes that individuals are more likely to adopt preventive behaviors when they perceive a disease as serious and believe that they are at risk. Through education and screening, participants were able to understand both their susceptibility and the severity of diabetes, thereby increasing motivation for behavior change. This aligns with findings that community-based interventions can improve risk perception and self-care behaviors among elderly populations with chronic diseases.

Moreover, the use of posyandu lansia as a platform enhances the accessibility and acceptability of the intervention. Community-based health services provide a familiar and supportive environment, which facilitates participation and engagement. Previous research has

demonstrated that posyandu lansia plays a strategic role in improving elderly health outcomes through regular monitoring and education (Parwestri & Mursyidah, 2025).

The integration of education and screening in this program is particularly important. Education alone may increase knowledge, but when combined with screening, it provides a tangible understanding of personal health status. This dual approach has been shown to strengthen awareness and encourage early preventive actions (Novitasari et al., 2025). Furthermore, community-based diabetes programs have been reported to improve self-management, medication adherence, and overall health outcomes among elderly populations (Ninda et al., 2024).

Despite these positive outcomes, this program has several limitations. The evaluation was primarily based on observational assessment and participant responses, without quantitative pre-test and post-test measurements. This limits the ability to objectively measure the magnitude of knowledge improvement. Future programs should incorporate structured evaluation tools to strengthen the evidence base. In addition, no structured pre-test and post-test instruments were used, and long-term behavioral follow-up was not conducted.

Overall, this study highlights the importance of strengthening health promotion efforts among older adults through community-based approaches. By leveraging existing community structures such as posyandu lansia, health education and screening programs can be effectively implemented to reduce the burden of diabetes mellitus and improve the quality of life among the elderly population.

CONCLUSION

This community-based program demonstrated that health education combined with blood glucose screening is an effective approach to strengthening diabetes mellitus prevention among older adults. The intervention successfully improved participants' knowledge and awareness regarding diabetes, its risk factors, and preventive strategies through healthy lifestyle practices. In addition, the screening activity facilitated early detection of potential diabetes risk, increasing participants' awareness of their health status. Future community service programs are recommended to incorporate structured quantitative evaluation methods, including pre-test and post-test assessments, participant characteristic documentation, and long-term follow-up monitoring to strengthen evidence of program effectiveness.

The use of posyandu lansia as a community platform proved to be strategic in promoting participation and delivering accessible health services. The involvement of community health cadres further supported the effectiveness and sustainability of the program.

However, the absence of quantitative evaluation limits the ability to measure the extent of knowledge improvement. Therefore, future programs are recommended to incorporate structured assessment tools to strengthen the evidence of effectiveness.

Picture 3. Q&A Process in Providing Health Education related to Healthy Lifestyles for Diabetes Mellitus Sufferers.

Overall, integrating health education and early detection within community-based settings is a promising strategy to reduce the burden of diabetes mellitus and promote healthy aging among older adults.

Picture 4. Joint Documentation with Village Midwives and Posyandu Cadres after Implementation of Community Service Activities.

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