

Implementation of Healthy Lifestyle and Balanced Diet in Pampang Village Community for Central Obesity Prevention

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Abstract: Central obesity is a primary risk factor for various non-communicable diseases (NCDs), such as type 2 diabetes mellitus and hypertension, with its prevalence steadily increasing due to sedentary lifestyles and imbalanced diets. The community in Pampang Village, Samarinda, faces challenges of nutritional transition characterized by high consumption of processed foods and low physical activity. This Community Service (PKM) activity aims to enhance nutritional literacy and community awareness of the prevention of central obesity by implementing the Isi Piringku (My Plate) balanced diet guidelines. The implementation method involved three stages: awareness through anthropometric health screening (BMI and waist circumference), capacity building through interactive counseling and local food demonstrations, and empowerment through active lifestyle mentoring. The activity involved 45 participants, predominantly from the productive age group and the elderly. Screening results revealed that 60% of participants (27 individuals) suffered from central obesity. The educational intervention significantly improved participants' knowledge, with the average score increasing from 55 (pre-test) to 88 (post-test). The study concludes that community-based health interventions utilizing personal screening and visual education are effective in enhancing community understanding of early detection and dietary changes to reduce the risk of central obesity at the village level.

Keywords: Central Obesity, Healthy Lifestyle, Isi Piringku, Nutritional Literacy, Pampang Village.

Introduction

Non-communicable diseases (NCDs) are now a serious threat to global public health, including in Indonesia. One of the main risk factors for NCDs is obesity, particularly central obesity or fat accumulation in the abdominal area (Effendy et al., 2025). Based on the latest health profile report, the prevalence of obesity among adults in Indonesia has continued to show a significant upward trend over the past five years (KEMENKES, 2025). Central obesity, which is clinically measured by waist circumference, is closely related to metabolic syndromes such as type 2 diabetes mellitus, hypertension, and dyslipidaemia (Sari et al., 2025).

Visceral fat in people with central obesity is pro-inflammatory, which can trigger insulin resistance and blood vessel damage (Helen et al., 2025). East Kalimantan Province is no exception to this challenge. Regional health data shows that lifestyle changes among urban and peri-urban communities in Samarinda and its surrounding areas tend to lead to a "Western diet" high in saturated fat, sugar, and low in fiber. This condition is exacerbated by low levels of physical activity among the community due to dependence on motorized transportation and a lack of open spaces for exercise. A sedentary lifestyle has become the main catalyst for increasing obesity rates across all age groups (Musabikhah et al., 2023). Pampang Village, located in

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North Samarinda District, is an area with unique demographic characteristics.

As a Cultural Village, its community has begun to be exposed to food modernization, marked by the proliferation of fast food consumption and packaged sweetened beverages (SSBs) (Nurohmi et al., 2024). Initial observations in the field show that many residents of productive age to the elderly have a protruding belly, but they often consider this condition to be normal or simply a "sign of prosperity." Low nutritional literacy regarding the concept of "My Plate" and ignorance of normal waist circumference limits (i.e., >90 cm for men and >80 cm for women) result in very low awareness of early detection (Fauza & Sari, 2025).

Preventive efforts through community service are a strategic step to break the chain of NCDs at the village level. Interactive health education and direct health examinations have been proven effective in improving the health beliefs of the community to change behaviour (Alberti et al., 2009). Therefore, this Community Service (PKM) activity was designed to provide education on a balanced diet based on local ingredients and healthy lifestyle practices in Pampang Village. Through this intervention, it is hoped that the community will be able to understand the risks of central obesity and independently implement a healthy lifestyle to improve their quality of life.

Method

This community service activity was designed as a preventive intervention to reduce the prevalence of central obesity in Pampang Village, Samarinda, East Kalimantan. The location was chosen based on a situation analysis that showed a shift in the consumption patterns of the village community towards a sedentary lifestyle and a high-carbohydrate diet. The implementation of education on balanced nutrition and physical activity is expected to increase residents' awareness in managing metabolic disease risks independently. As explained by Aurelya et al. (2025), community-based health interventions that involve direct physical examinations are more effective in changing health behaviours than one-way lectures alone. This activity was carried out over a period of three months, covering the preparation stage, core implementation, and sustainability evaluation for 45 residents, predominantly from the productive age group and the elderly.

The program implementation method used a Community Development approach, which was carried out systematically through three main stages of community empowerment. The first stage was Awareness, in which the team conducted initial health screenings, including Body Mass Index (BMI) and waist

circumference measurements, to provide residents with a personal understanding of their current health status. Waist circumference measurement is a key indicator because visceral fat is a strong predictor of hypertension and diabetes in urban areas (Loh et al., 2023). Next, the second stage is Capacity Building, which is realized through interactive workshops on the "Isi Piringku" (My Plate) guidelines. In this stage, participants are given technical training in preparing a balanced daily menu using local food ingredients that are easily available in East Kalimantan, accompanied by demonstrations of ideal portions using a food model to avoid misperceptions of portion sizes (Devwiyanti et al., 2024).

The third stage is Empowerment, which focuses on physical activity guidance and management of sugar, salt, and fat (SSF) consumption. The community service team provides practical guidance on the types of exercise suitable for various age groups and distributes educational media in the form of leaflets and posters that can be displayed at home as daily reminders. The use of visual aids and live demonstrations is crucial, given that public nutrition literacy is often hampered by complex medical terms (Suardi et al., 2025). The entire series of activities was carried out at the Pampang Village Meeting Hall with the involvement of local health cadres to ensure the sustainability of the program after the academic team's intervention.

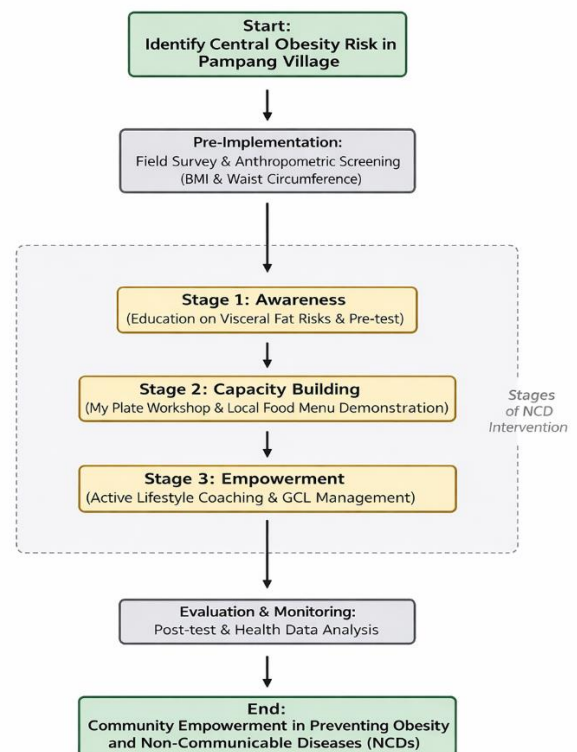


Figure 1. Flowchart of Community Service Implementation in Pampang Village

Meanwhile, the success of the program was measured using a comparative descriptive evaluation approach. The instruments used included pre-test and post-test questionnaires to measure knowledge improvement, as well as anthropometric data collection to map residents' obesity risk profiles (Nurachma et al., 2025). Data analysis was conducted by comparing participants' understanding levels before and after the intervention and evaluating residents' commitment to implementing healthy lifestyle action plans. To provide a visual overview of the systematic steps taken, the implementation flow of this community service program is comprehensively illustrated in Figure 1 below.

Result and Discussion

The PKM activity in Pampang Village began with early detection through health screening of 45 participants who were productive-age residents and elderly people. The parameters measured in depth included Body Mass Index (BMI) and Waist Circumference (WC), which are clinically recognized as key indicators for identifying central obesity. These anthropometric measurements were conducted to provide an objective picture of the nutritional status of the Pampang Village community, which is undergoing a lifestyle transition. The field measurement results showed findings that were quite alarming for the health of the village community. Most participants had a health profile that was at high risk for chronic metabolic diseases. As visualized in detail in Figure 2, 60% of participants (27 people) fell into the central obesity category with a waist circumference classification of >90 cm for men and >80 cm for women. It can be seen that this high figure indicates that visceral fat accumulation has become a latent health problem in the community.

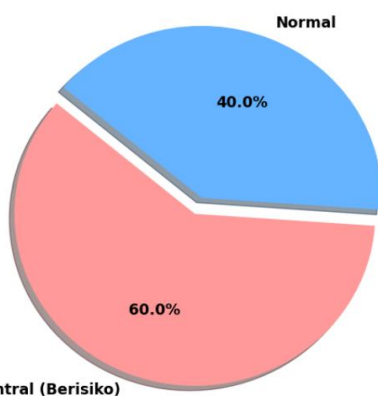


Figure 2. Distribution of Central Obesity Status in the Community of Pampang Village

Clinically, fat accumulation in the abdominal area (visceral) is far more dangerous than subcutaneous fat,

because visceral fat is highly metabolically active and triggers the release of pro-inflammatory cytokines that lead to hypertension and insulin resistance. The prevalence of central obesity in this service location is closely related to excessive carbohydrate consumption that is not balanced with adequate physical activity. These field findings are in line with the research by Rahma & Gusrianti (2019), which states that people in peri-urban areas tend to have a higher risk of visceral fat due to nutritional transition, where access to energy-dense foods is increasingly easy while manual physical activity is decreasing (Heryani et al., 2023).

To respond to the high risk of obesity, the service team conducted educational interventions through interactive counseling based on the "Isi Piringku" (My Plate) balanced nutrition guide. In addition to presenting the material, they also demonstrated balanced meal portions to correct the community's misperceptions about meal portions that are considered "filling" but unhealthy. The effectiveness of this educational intervention was measured quantitatively by comparing pre-test and post-test scores covering five key knowledge indicators. Statistical data showed a very significant cognitive change (Ardiani et al., 2021).

Before the education was provided, the average score of the participants was only 55, indicating that most residents did not understand daily consumption limits and the risks of obesity. However, after the intensive intervention, the score increased dramatically to 88. The visualization of the participants' increased knowledge on various key topics, ranging from the identification of visceral fat to the management of sugar, salt, and fat (SSF) consumption, is presented in Figure 3.

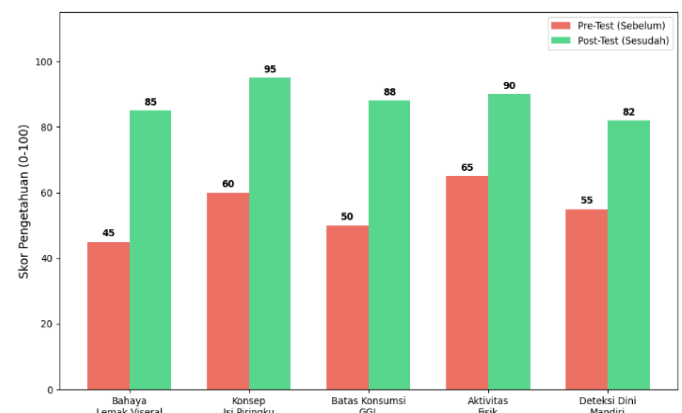


Figure 3. Comparison of Participants' Knowledge Before and After the Educational Intervention

This 33-point increase in knowledge provides a strong signal that educational methods combining visual aids (food models) with a local language-based communication approach are highly effective in translating complex health information into simpler and more applicable terms. With this new understanding,

participants are now able to identify the safe limits for daily GGL consumption (a maximum of 4 tablespoons of sugar, 1 teaspoon of salt, and 5 tablespoons of fat) and understand how to structure their meals to be dominated by fiber from vegetables and fruit to keep them feeling full longer (Alimurdianis et al., 2024).

Based on the data presented above, it can be concluded that the success of this program proves that awareness of the dangers of central obesity in Pampang Village can be effectively built through a personal screening approach. The majority of residents previously perceived that a large waist circumference was a normal part of aging, without realizing that this condition is an indicator of systemic inflammation that triggers deadly non-communicable diseases (NCDs). Through a transparent screening process, residents received a "health shock" that triggered internal motivation to immediately modify their lifestyle after learning that they were in the red zone or at high risk.

However, the implementation of a healthy lifestyle in Pampang Village still faces environmental challenges (obesogenic), especially the high availability of commercial processed foods that are high in fat and sugar around the settlement. As a practical solution, the assistance team provided demonstrations on utilizing the local potential of East Kalimantan, such as optimizing the consumption of river fish as a source of high-quality protein and fresh vegetables from residents' own gardens. This strategy is in line with the findings of Octaryana & Syarif (2025), which emphasize that the integration of local wisdom in food diversification is the key to successful obesity prevention at the rural level due to its economic affordability.

The cognitive transformation reflected in the surge in post-test scores is expected to extend beyond knowledge alone, becoming the foundation for the formation of permanent healthy behaviors. The sustainability of the results of this PKM will greatly depend on the active role of village health cadres through the Posbindu (Integrated Guidance Post) program to conduct regular and consistent waist circumference monitoring, so that Pampang Village can become a model of a healthy village with a low prevalence of NCDs in East Kalimantan.

Conclusion

In conclusion, this community service program demonstrated that a structured, community-based intervention combining early health screening, interactive nutrition education, and lifestyle empowerment was effective in increasing awareness and knowledge of central obesity risks in Pampang Village. The high prevalence of central obesity identified

through waist circumference measurements underscores the urgency of preventive action at the village level. The significant improvement in post-test scores indicates that educational approaches integrating visual media and locally relevant food practices can successfully transform complex health concepts into practical knowledge. Although environmental challenges related to unhealthy food availability remain, the incorporation of local food resources and the involvement of village health cadres provide a strong foundation for sustainable behavior change. Overall, this program highlights the potential of community empowerment strategies to reduce the risk of non-communicable diseases and improve long-term public health outcomes in peri-urban communities.

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