



Screening and Education on Obesity at the Siko Community Health Center in Ternate City

**Eko Sudarmo Dahad Prihanto^{1*}, Rabiatul Adawiyah Sidi Umar², Asilia Ayunda
Purnawan³**

Universitas Khairun, Indonesia^{1,3}

Puskesmas Siko, Indonesia²

Email: ekosudarmodp@gmail.com^{1*}, radawiah323@gmail.com²,
asiliapurnawan11@gmail.com³

Keywords

Obesity; Central Obesity;
Screening; Education

Abstract

Obesity is a serious global health problem with increasing prevalence, posing risks of metabolic complications such as diabetes mellitus, hypertension, and cardiovascular disease. Delayed diagnosis and lack of public knowledge are common challenges in obesity management. This community service initiative aims to perform early screening for obesity and central obesity among outpatients at the Siko Community Health Center in Ternate City, followed by educational guidance to achieve optimal treatment outcomes and prevent complications. Screening for obesity and central obesity was conducted among 50 outpatients, followed by personalized education using informational leaflets. The results showed that 26 participants (52%) had obesity, and 29 (58%) had central obesity. Metabolic comorbidities associated with obesity were found in 44% of cases, with hypertension being the most prevalent (26%). In conclusion, this community service activity revealed high prevalence rates of obesity and central obesity, and education on obesity management was successfully provided to all participants.

INTRODUCTION

Obesity is a public health problem that continues to increase in various countries, including Indonesia (Bagiastra & Griadhi, 2019). This condition is no longer seen simply as a matter of excess weight, but has become a chronic metabolic disease closely related to changes in modern lifestyles. Consumption patterns of high-calorie, low-fiber foods, and decreased physical activity are the main factors triggering the increase in obesity incidence (Restuastuti & Ernalina, 2016). In addition, urbanization, technological developments, and sedentary lifestyle habits have also accelerated the increase in obesity prevalence in adults and the elderly. Obesity occurs due to an imbalance between energy intake and energy expenditure over a long period of time, resulting in the accumulation of excess fat in the body (Telisa et al., 2020).

Globally, the incidence of obesity shows a trend that continues to increase from year to year. The World Health Organization (WHO) reported in 2022 that approximately 2.5 billion adults are overweight and approximately 890 million of them are categorized as obese (MAHARANI, 2025). In Indonesia, the increase in obesity prevalence is also quite significant. Data from the 2023 Indonesian Health Survey (SKI) shows that the prevalence of obesity in adults increased from 21.8% in 2018 to 23.4% in 2023 (Nursalam et al., 2025). In addition, the

prevalence of overweight in the adult group reached 43% and obesity at 16%. These data indicate that obesity has become a health problem that requires serious attention because it can increase the burden on health services and reduce people's quality of life (Hecker et al., 2022; Stephenson et al., 2021; Williams et al., 2015).

Obesity is generally diagnosed by measuring body mass index (BMI), which is the result of dividing body weight in kilograms by the square of height in meters. Based on national guidelines, BMI is classified as underweight (<18.5), normal ($18.5\text{--}22.9$), overweight ($23.0\text{--}24.9$), and obesity (≥ 25) (Lontoh et al., 2025). In addition to general obesity, there is also central obesity, characterized by fat accumulation in the abdominal area and assessed using waist circumference measurements. Central obesity has a stronger association with various metabolic and cardiovascular diseases than obesity based on BMI alone (Kamal & Nadira, 2025). Therefore, waist circumference measurements are an important part of the screening process to detect health risks early (Darsini et al., 2020; Piqueras et al., 2021; Ramírez-Manent et al., 2023).

The increasing incidence of obesity is closely related to a high risk of various non-communicable diseases, such as type 2 diabetes mellitus, hypertension, dyslipidemia, coronary heart disease, stroke, osteoarthritis, respiratory disorders, and several types of cancer (Mufidah et al., 2024). The risk of these complications increases with age and a higher body mass index. Previous research has shown that the 40–59 age group has a relatively high prevalence of obesity and central obesity, especially among women and individuals with low physical activity. This condition indicates that obesity not only impacts individual health but can also pose a significant economic and social burden if not optimally managed. (Thahir & Masnar, 2021).

Obesity management requires a comprehensive and sustainable approach. These efforts include dietary adjustments, increased physical activity, healthy lifestyle changes, and control of other associated risk factors (Sudargo et al., 2018). In certain circumstances, medical and even surgical treatment may be considered based on the patient's clinical indications. However, the success of obesity management depends not only on medical therapy but also on the level of public knowledge and awareness regarding the dangers of obesity and how to prevent it. This lack of public understanding often leads to obesity not being detected early, resulting in patients presenting when complications have already occurred.

Health education is a crucial step in raising public awareness about obesity and its impact on health. Education is necessary not only for patients but also for healthcare professionals to provide appropriate and sustainable treatment. Screening activities accompanied by education have been shown to help the public identify obesity risk factors early and encourage behavioral changes toward a healthier lifestyle (Nuraeni et al., 2026). With proper education, the public is expected to understand the importance of maintaining an ideal body weight, adopting a healthy diet, and increasing physical activity to prevent complications of metabolic disease. Based on these conditions, promotive and preventive efforts are needed through screening activities and education about obesity in primary health care facilities. Community health centers (Puskesmas), as the first level of health care, play a crucial role in early detection of obesity cases while providing education to the community (Anala Agusnur, 2025). Therefore, this community service activity was carried out at the Siko Community Health Center in Ternate City with the aim of screening obesity and central obesity in outpatients and providing

personal education about obesity prevention and management. Through this activity, it is hoped that the community will have a better understanding of obesity and thus be able to prevent complications of metabolic diseases in the future.

METHOD

This community service activity involved direct health screening and education for outpatients at the Siko Community Health Center in Ternate City. The program took place from May 12–16, 2026, involving healthcare workers from the Siko Community Health Center and a community service team from the Faculty of Medicine and Health Sciences, Khairun University. The program targeted all outpatients who came for treatment during the program period and agreed to participate in the screening and health education related to obesity.

The method used in this activity consists of two main stages: screening for obesity and central obesity and providing personalized health education. Screening is conducted to identify risk factors and detect obesity cases early in the community. The examination includes collecting participant characteristics such as gender and age, measuring height, weight, body mass index (BMI), and waist circumference, and identifying metabolic comorbidities, such as diabetes mellitus and hypertension.

Height was measured using a stadiometer, while weight was measured using a digital scale. Next, body mass index was calculated using the formula weight in kilograms divided by the square of height in meters (kg/m^2). Obesity classification refers to the national guidelines for adult obesity management, namely underweight (<18.5), normal ($18.5\text{--}22.9$), overweight ($23.0\text{--}24.9$), and obesity (≥ 25). Additionally, waist circumference was measured to determine central obesity, which is an important indicator of the risk of metabolic and cardiovascular disease.

After the screening process was completed, all participants received individual health education using pre-prepared leaflets. The educational material covered the definition of obesity and central obesity, risk factors, potential health impacts and complications, as well as preventive and management measures through a healthy diet, increased physical activity, and lifestyle changes. The education was conducted interactively to help participants understand the information and apply it to their daily lives.

Screening data was then recorded and presented as frequency distributions and percentages based on participant characteristics, obesity classification, central obesity, and any comorbidities identified. This activity is expected to facilitate early detection of obesity cases in the community while increasing public knowledge and awareness of the importance of obesity prevention and management to reduce the risk of future metabolic disease complications.

RESULTS AND DISCUSSION

The activity was carried out on May 12-16, 2026, at the Siko Community Health Center outpatient clinic, attended by 50 patients and 5 health workers. The entire series of activities began with obesity/central obesity screening and continued with personal education for each participating patient using a pre-made *leaflet*. The study participants were mostly women, namely 34 people (68%), the screening results obtained 26 obese patients (52%) and central

obesity patients (58%). The largest age group in this study was the age group ≥ 60 years, namely 34%. Complete data can be seen in Table 1.

Table 1. Distribution of screening and education participants

Characteristics	N	%
Gender:		
Man	16	32
Woman	34	68
Total	50	100
Age group:		
20-29 years old	4	8
30-39 years	6	12
40-49 years	14	28
50-59 years	9	18
≥ 60 years	17	34
Total	50	100
Obesity Classification:		
Underweight	1	2
Norm weight	13	26
Overweight	10	20
Obesity	26	52
Total	50	100
Central obesity classification:		
Central obesity	29	58
No central obesity	21	42
Total	50	100
Comorbid metabolic diseases:		
Diabetes mellitus (DM)	4	8
Hypertension	13	26
DM and Hypertension	5	10
There isn't any	28	52
Total	50	100

Source: Primary data from community service activity at Siko Community Health Center, Ternate City (May 12–16, 2026)

This community service activity revealed a relatively high obesity rate of 52%, comparable to the central obesity rate of 58%. Therefore, more comprehensive efforts are needed to address this issue due to the potential complications that could arise if the obesity trend continues. This finding significantly exceeds the 2023 Indonesian Health Survey (SKI) data, which found an adult obesity prevalence of 23.4% year 2023 (Kementerian Kesehatan RI., 2025). These results are in line with the research of Dede et al., who obtained quite high obesity results both in the incidence of obesity and central obesity (Khohir, 2024). The group that has the potential to become obese is also quite high, namely *overweight* by 20%. Preventive efforts through education are very necessary to prevent the increase in obesity incidence and reduce the number of existing incidents, as well as prevent possible complications. An interesting finding is the low *underweight* rate of only 2%, this indicates that the problem faced is not malnutrition but rather overnutrition.

Obesity-related metabolic disease accounts for 44% of cases, with the highest prevalence being hypertension at 26%, followed by a combination of diabetes mellitus and hypertension.

Managing complications is certainly more difficult when metabolic disease is also present in obesity (Ratmawati et al., 2024). Community service activities, including screening and education, received a very positive response from all participants, who stated that such activities were very useful and needed to be carried out continuously.

CONCLUSION

A community service program involving obesity screening and education at the Siko Community Health Center in Ternate City was successfully implemented among outpatients, resulting in a 52% obesity rate and a 58% central obesity rate. Furthermore, metabolic comorbidities were found in 44% of participants, with hypertension being the most common. These results indicate that obesity and central obesity remain significant health problems and can potentially increase the risk of various metabolic and cardiovascular diseases if not optimally managed. Early screening can help identify people at risk of obesity and metabolic complications, allowing for faster treatment. Personalized educational activities using leaflets also received a positive response from participants, as they were seen as providing a better understanding of the dangers of obesity, risk factors, and prevention and management through healthy lifestyle changes. It is hoped that this activity will raise public awareness of the importance of maintaining an ideal body weight, adopting a healthy diet, and increasing regular physical activity. Similar screening and education activities need to be carried out continuously in primary healthcare facilities as a promotional and preventive effort to reduce the incidence of obesity and prevent complications of metabolic diseases in the community.

REFERENCES

- Anala Agusnur, E. (2025). Program deteksi dini penyakit tidak menular melalui pemeriksaan gratis dan edukasi. *Jurnal Pengabdian Kepada Masyarakat Vol, 1*(01), 8.
- Bagiastra, I. N., & Griadhi, N. M. A. Y. (2019). Model Pengaturan Anti Obesitas Dalam Rangka Penguatan Serta Peningkatan Derajat Kesehatan Masyarakat Di Indonesia. *Jurnal Ilmu Sosial Dan Humaniora*, 8(2), 242–249. <https://doi.org/https://doi.org/10.23887/jish-undiksha.v8i2.22377>
- Darsini, D., Hamidah, H., Notobroto, H. B., & Cahyono, E. A. (2020). Health risks associated with high waist circumference: A systematic review. *Journal of Public Health Research*, 9(2), jphr-2020.
- Hecker, J., Freijer, K., Hiligsmann, M., & Evers, S. (2022). Burden of disease study of overweight and obesity; the societal impact in terms of cost-of-illness and health-related quality of life. *BMC Public Health*, 22(1), 46.
- Kamal, M. F. F., & Nadira, C. S. (2025). Gambaran Faktor Risiko Obesitas Sentral Pada Masyarakat di Puskesmas Mon Geudong Kota Lhokseumawe. *Vitalitas Medis: Jurnal Kesehatan Dan Kedokteran*, 2(2), 115–133. <https://doi.org/https://doi.org/10.62383/vimed.v2i2.1448>
- Kementerian Kesehatan RI. (2025). *Pedoman Nasional Pelayanan Klinis Tata laksana Obesitas Dewasa*.
- Khohir, D. S. (2024). Skrining Faktor Risiko Obesitas Usia Produktif. *Jurnal Wacana Kesehatan*, 9(2), 97–104.
- Lontoh, S. O., Santoso, A. H., Wijaya, B. A., Dinali, D., & Dzakwan, M. F. (2025). Evaluasi Status Gizi melalui Pengukuran IMT dan Komposisi Tubuh untuk Optimalisasi Kesehatan Masyarakat Lebak. *Science and Technology: Jurnal Pengabdian Masyarakat*, 2(4), 373–383.

- MAHARANI, N. P. (2025). *Hubungan antara Obesitas dengan Saturasi Oksigen pada Mahasiswa Fakultas Keperawatan Universitas Hasanuddin= The Correlation between Obesity and Oxygen Saturation in Students of Faculty of Nursing Hasanuddin University*. Universitas Hasanuddin.
- Mufidah, N., Raji, H. F., Adnala, S., Putri, N. M. M. E., Ibrahim, S. M., Ifadah, E., Fatmawati, T. Y., Judijanto, L., & Laksono, R. D. (2024). *Penyakit Tidak Menular*. PT. Sonpedia Publishing Indonesia.
- Nuraeni, Y. A., Nurachma, E., Suryani, L., Sari, M., Agustina, N., Diansyah, D., Asih, O. R., Wulantresna, D., Sakinah, H. L., & Soejoto, N. N. (2026). *Transformasi Pencegahan Penyakit Tidak Menular Berbasis Komunitas Menuju Masyarakat Sehat, Produktif, Dan Berkelanjutan*. Penerbit Widina.
- Nursalam, R. B., Ilmi, I. M. B., & Marjan, A. Q. (2025). Analisis faktor aktivitas fisik, asupan makan, dan pengetahuan terhadap kejadian obesitas pada wanita dewasa di Kelurahan Kedaung. *Jurnal SAGO Gizi Dan Kesehatan*, 6(1), 179–185.
- Piqueras, P., Ballester, A., Dura-Gil, J. V., Martinez-Hervas, S., Redón, J., & Real, J. T. (2021). Anthropometric indicators as a tool for diagnosis of obesity and other health risk factors: a literature review. *Frontiers in Psychology*, 12, 631179.
- Ramírez-Manent, J. I., Jover, A. M., Martinez, C. S., Tomás-Gil, P., Martí-Llitas, P., & López-González, Á. A. (2023). Waist circumference is an essential factor in predicting insulin resistance and early detection of metabolic syndrome in adults. *Nutrients*, 15(2), 257.
- Ratmawati, S. G., Gz, M., Handini, K. D., & Fachri, I. (2024). *Manajemen obesitas*. Deepublish.
- Restuastuti, T., & Ernalina, Y. (2016). *Hubungan pola makan dan aktivitas fisik terhadap obesitas pada remaja di SMA Negeri 5 Pekanbaru*. Riau University.
- Stephenson, J., Smith, C. M., Kearns, B., Haywood, A., & Bissell, P. (2021). The association between obesity and quality of life: a retrospective analysis of a large-scale population-based cohort study. *BMC Public Health*, 21(1), 1990.
- Sudargo, T., Freitag, H., Kusmayanti, N. A., & Rosiyani, F. (2018). *Pola makan dan obesitas*. UGM press.
- Telisa, I., Hartati, Y., & Haripamili, A. D. (2020). Faktor risiko terjadinya obesitas pada remaja SMA. *Faletehan Health Journal*, 7(03), 124–131. <https://doi.org/https://doi.org/10.33746/fhj.v7i03.160>
- Thahir, A. I. A., & Masnar, A. (2021). *Obesitas Anak dan Remaja: Faktor Risiko, Pencegahan, dan Isu Terkini*. Edugizi Pratama Indonesia.
- Williams, E. P., Mesidor, M., Winters, K., Dubbert, P. M., & Wyatt, S. B. (2015). Overweight and obesity: prevalence, consequences, and causes of a growing public health problem. *Current Obesity Reports*, 4(3), 363–370.