

Addressing the Threat of Childhood Obesity: Preventive Strategies at the DENKESYAH Madiun Polyclinic

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ABSTRACT

Obesity represents a significant public health challenge, particularly in Indonesia. The World Health Organization reported that around 39 million children under the age of five were overweight or obese in 2020. In Indonesia, approximately 13.5% of adults aged 18 years and older are overweight, with 28.7% and 15.4% classified as obese at BMI thresholds of ≥ 25 and ≥ 27 , respectively. In East Java, the prevalence of obesity among children under five increased from 5.67% in 2020 to 8% in 2021. To address this issue, a community engagement initiative was conducted at the DENKESYAH Madiun Polyclinic, East Java, which included health counseling, group exercise, distribution of an obesity prevention pocket book, and educational seminars involving internal medicine and pediatric specialists. The intervention aimed to raise parental and community awareness regarding the risks of childhood obesity and promote healthy lifestyle practices. Statistical analysis using SPSS revealed a significant difference between pretest and posttest scores ($Z = -5.361$, $p = 0.000$), confirming the effectiveness of the intervention in improving participants' understanding of obesity. These findings emphasize the importance of community-based interventions in combating childhood obesity and promoting healthier lifestyles among children, and they may serve as a reference model for preventive healthcare programs in similar settings.

Keywords : Childhood Obesity, Community Engagement, Health Promotion, Nutrition, Obesity Prevention

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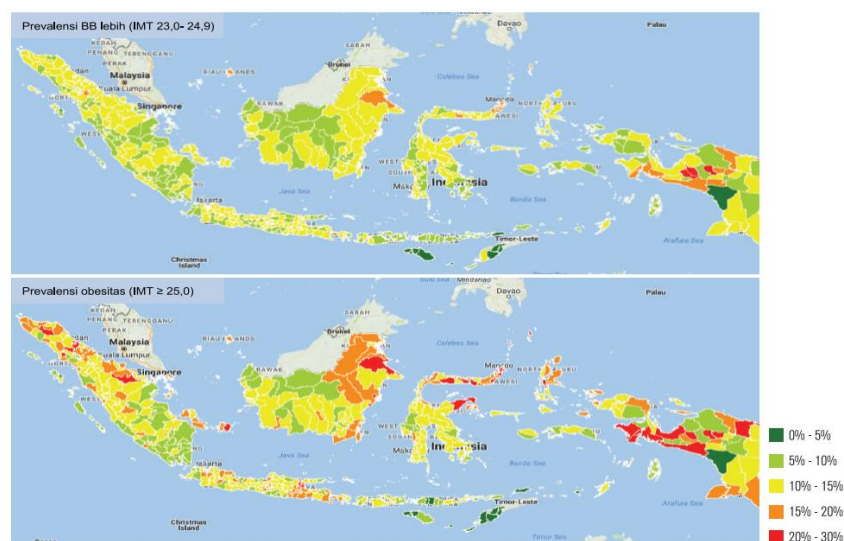
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INTRODUCTION

Childhood obesity is a serious challenge in global health. Defined as excessive fat accumulation in the body, obesity poses various significant health risks. In Indonesia, obesity has become a complex problem that is difficult to overcome, mainly due to genetic factors and unhealthy eating patterns. This condition not only affects physical health but also threatens the mental and social well-being of children. According to the World Health Organization, around 39 million children under five years of age were overweight or obese in 2020 (Pimpalkar et al., 2022). National data also indicate a concerning level of obesity, with 13.5% of the adult population in Indonesia being overweight and 28.7% classified as obese based on a Body Mass Index (BMI) threshold of 25.

Figure 1. Central Obesity in Individuals Aged ≥ 15 Years

Source: Ministry of Health of the Republic of Indonesia (2018)

Data show that in Indonesia, the percentage of overweight in the adult population aged 18 years and above reached 13.5%, while obesity with a Body Mass Index (BMI) of 25 reached 28.7%, and obesity with a BMI of 27 reached 15.4%, based on the RPJMN 2015–2019 indicators. Meanwhile, in the age range of 5–12 years, about 18.8% were overweight and 10.8% were obese (Ministry of Health of the Republic of Indonesia, 2018).

In East Java, the obesity problem is also increasing, with the prevalence of obesity among children under five reaching 5.67% in 2020 and rising to 8% in 2021. In an effort to address this issue, the East Java Health Office has planned monitoring and intervention in 971 community health centers (puskesmas) across the region concerning obesity. To support these measures, health promotion becomes the key to raising public awareness about the dangers of obesity in children (Anatasta et al., 2023).

The level of obesity in East Java, particularly central obesity, reached 30.4%, while general obesity reached 22.4% (RISKESDAS, 2018). Considering these significant numbers, integrated efforts are needed to address the problem, such as community movements for healthy living and education on balanced diets (DINKES Jawa Timur, 2022). The local government, for example, the East Java Health Office, has responded by planning monitoring through examinations in nearly one thousand community health centers (puskesmas) in the region, especially related to obesity (Arifin et al., 2024; Syarief, 2022). This step was followed by routine examinations carried out by nutrition officers in community health centers, particularly for school children with obesity, in February and August each year (Syarief, 2022). In addition, as a preventive step against stunting and obesity, the Health, Population Control and Family Planning Office of Madiun City has organized a Podcast as one way to disseminate health information (DINKES Madiun, 2022).

In this context, community service at the DENKESYAH Madiun Polyclinic, East Java, becomes essential. Through counseling activities, we aim to increase the understanding and awareness of parents and the community regarding the risks of childhood obesity. With the expectation that this counseling will reduce the incidence of obesity in East Java, particularly in Madiun, we plan to deliver relevant nutritional information and education. The expected output of this activity is not only an increase in knowledge but also a change in attitudes and

behaviors that support a healthy lifestyle.

At this stage, it is important to refer to findings in the literature that support the urgency and relevance of the childhood obesity problem, as well as the importance of health promotion in its management. A study by Alkautsar (2022) highlights the relationship between overweight and the risk of chronic disease, while the Basic Health Research Survey (Riskesdas) 2018 provides an in-depth picture of the prevalence of obesity in Indonesia. In addition, the intervention and health promotion approaches adopted by the East Java Health Office also deserve attention.

With this background, we carried out community service activities with the hope of making a real contribution to addressing childhood obesity in Indonesia, particularly in the Madiun area, East Java.

METHOD

This study employed a community service approach with a focus on health promotion and education regarding the dangers of childhood obesity. A descriptive statistical method was applied to illustrate the level of community knowledge about childhood obesity and the preventive measures that could be adopted.

The program was carried out on March 9, 2024, at the DENKESYAH Madiun Polyclinic, East Java. The population in this community service activity consisted of parents and community members living around the Polyclinic who had children of preschool and elementary school age. A total of **40 participants attended the activity**, of whom **32 respondents completed both the pre-test and post-test questionnaires** and were included in the final analysis.

The main variable examined in this study was the level of community knowledge regarding the dangers of childhood obesity. Additional variables included demographic characteristics such as the respondents' age, gender, educational background, and occupation. Data collection was conducted using two primary instruments. The first was pre-test and post-test questionnaires designed to measure participants' knowledge before and after the counseling sessions. The second was a pocket book containing information on childhood obesity prevention and practical steps that parents could take to support healthier lifestyles in children.

Samples were selected purposively, involving all participants who voluntarily joined the counseling activity and completed the assessment instruments. The data collected from the questionnaires were analyzed using descriptive and inferential statistical methods, including the calculation of mean scores, percentage improvements in knowledge, and testing for significant differences between pre-test and post-test results. Statistical testing was conducted using normality tests and the Wilcoxon signed-rank test to determine the effectiveness of the intervention.

This community service study did not require formal ethical clearance, as it was designed within the framework of public health education. The activity was intended solely to provide information and health education to the community without involving any experimental interventions or clinical treatments that could pose risks to participants.

RESULTS

In the context of addressing the risks associated with childhood obesity, particularly in relation to unbalanced diets, impaired growth and development, and other health problems, this community service activity aimed to raise public awareness of the dangers of obesity. Through

intensive health promotion, we provided nutritional information and education to the community, including family members, at the DENKESYAH Madiun Polyclinic, East Java. These efforts were expected to make a significant contribution to the prevention and management of obesity while also enhancing understanding of the importance of a healthy diet for overall health. By focusing on a preventive approach, this activity was anticipated to help change community behavior and lifestyle patterns, enabling individuals to be more proactive in maintaining their health and reducing the risk of obesity.

The activity began with a group exercise session at 6:30 a.m., preceded by health checks such as blood pressure measurement, height, and weight assessment. The event was attended by approximately 40 participants, including elderly individuals and members of Persit Kartika Chandra Kirana. After an hour-long exercise session, the committee provided mineral water and mung bean porridge. The program then continued in the auditorium, where participants completed a pre-test and received a pocket book titled Pocket Book: Prevention of Obesity in Children and Adults.

The main session was a health education seminar on the dangers of obesity in both children and adults, officially opened by the head of the community service program, Drg. Ibnu Sina, Sp.Prost. The seminar was supported by two speakers: a specialist in internal medicine and a pediatrician. The materials presented covered the definition of obesity, associated health risks, and strategies to reduce obesity, followed by an enthusiastic question-and-answer session. The event concluded with participants completing a post-test and a group photo session.

Table 1. Respondent Demographics

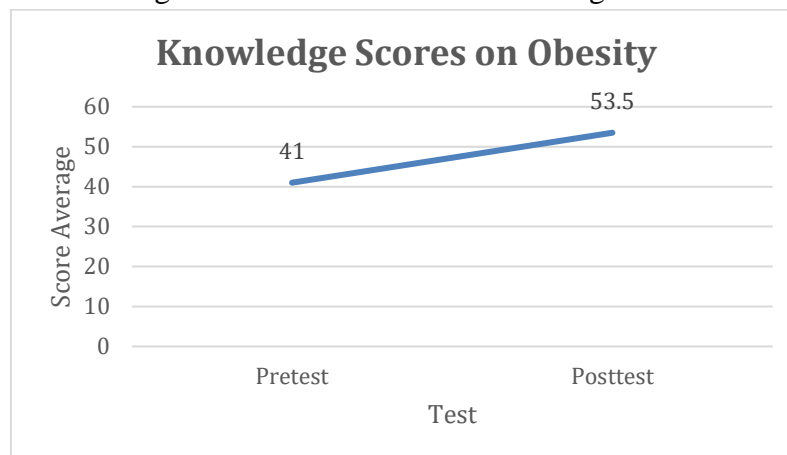
Characteristics	Category	Frequency (n=32)	Percentage (%)
Gender	Male	12	38
	Female	20	63
Age	Pre-elderly (45–59)	2	6
	Elderly (>60)	30	94
Blood Type	A	5	16
	B	9	28
	AB	1	3
	O	14	44
	Unknown	3	9
Educational Level	Primary School	2	6
	Junior High School	8	25
	Senior High School	12	38
	University	10	31
Occupation	Civil Servant	0	0
	Private Employee	1	3
	Entrepreneur	0	0
	Housewife	9	28
	Retired	18	56
	Unemployed	4	13
Monthly Income	< 1,000,000 IDR	1	3
	1,000,000 – 3,999,999 IDR	11	34
	4,000,000 – 6,999,999 IDR	6	19
	7,000,000 – 10,000,000 IDR	3	9

Characteristics	Category	Frequency (n=32)	Percentage (%)
Body Weight (kg)	> 10,000,000 IDR	0	0
	Unknown	11	34
	40 – 50	7	22
	51 – 60	6	19
	61 – 70	15	47
	71 – 80	3	9
	81 – 90	1	3
Height (cm)	140 – 150	7	22
	151 – 160	13	41
	161 – 170	12	38
	171 – 180	0	0
BMI	Underweight (<18.5)	0	0
	Normal (18.5–24.9)	14	44
	Overweight (25.0–29.9)	15	47
	Obesity (>30.0)	3	9
Medical History	Diabetes	8	25
	Hypertension	8	25
	Heart Disease	1	3
	Others	4	13
	None	11	34

Table 1 summarizes the demographic characteristics of the 32 respondents. The majority were female (63%) and elderly aged >60 years (94%), consistent with previous findings that obesity and related comorbidities are more common in older adults (Astutik et al., 2021; Handarini et al., 2023). Most respondents had blood type O (44%), attained senior high school education (38%), and were predominantly retirees (56%). Regarding income, the largest group earned between IDR 1,000,000–3,999,999 (34%), although a similar proportion reported not knowing their exact income.

In terms of anthropometry, nearly half of the respondents had a body weight of 61–70 kg (47%), height of 151–160 cm (41%), and were categorized as overweight (47%), followed by normal BMI (44%) and obesity (9%). The most frequently reported comorbidities were diabetes (25%) and hypertension (25%), conditions strongly associated with excess weight (Yunita & Sartika, 2021).

Figure 2. Average Pre-test and Post-test Knowledge Scores on Obesity



During the community service activity, a quantitative assessment was conducted through pre-test and post-test evaluations to measure changes in participants' knowledge about the dangers of obesity. The test consisted of 10 multiple-choice questions and was completed by 32 out of 40 respondents. The results showed that the average pre-test score was 41, indicating a low initial level of knowledge about obesity. After the health education session, the average post-test score increased by 25% to 53.5, demonstrating a significant improvement in participants' understanding of the dangers of obesity.

Table 2. Normality Test Results

Normality Test	Statistic	df	Sig. (<i>p-value</i>)
Shapiro-Wilk			
<i>Pre-test</i>	0.912	32	0.013
<i>Post-test</i>	0.550	32	0.000

Based on the analysis, the pre-test and post-test data did not follow a normal distribution. The Shapiro-Wilk normality test yielded *p*-values smaller than 0.05 for both datasets (pre-test: *p* = 0.013; post-test: *p* = 0.000), indicating rejection of the null hypothesis (*H*₀) that the data were drawn from a normal distribution. Therefore, to examine the differences between pre-test and post-test results, the Wilcoxon Signed-Rank Test was applied, as it is a non-parametric test that does not require the assumption of normality.

Table 3. Wilcoxon Signed-Rank Test Results

Wilcoxon Signed-Rank Test	<i>Pre-Post Test</i>
Z	-5.361
Asymp. Sig. (2-tailed)	0.000

The Wilcoxon Signed-Rank Test showed a *Z*-value of -5.361 with a *p*-value of 0.000. This *p*-value is far below the significance level of 0.05, indicating rejection of the null hypothesis (*H*₀) which stated that there was no difference in medians between the pre-test and post-test. Therefore, it can be concluded that there was a statistically significant difference between the pre-test and post-test scores, with the post-test scores being significantly higher. These results suggest that the intervention provided between the pre-test and post-test had a significant effect in improving participants' knowledge scores.

DISCUSSION

The challenge of addressing obesity in Indonesia remains difficult and reflects the complexity of this health issue. The risk of chronic or non-communicable diseases (NCDs), such as diabetes and cardiovascular diseases, increases with excess body weight (Alkautsar, 2022; Nugraha et al., 2022). Moreover, obesity can also lead to changes in cardiac structure, including increased blood pressure, larger atrial size, and increased left ventricular dimension and mass (Mauliza, 2018).

Childhood obesity is also associated with risks of obesity, premature mortality, and morbidity in adulthood. In addition to increasing future risks, obese children are also prone to breathing difficulties, bone fractures, hypertension, insulin resistance, as well as psychological effects and early signs of cardiovascular disease (Oddo et al., 2019; Sugiatmi et al., 2019). According to the 2018 Basic Health Research (Riskesdas), 3.8% of children under five and 21.8% of adults aged 18 years and above were obese (RISKESDAS, 2018). The fact that many children skip breakfast before going to school is also associated with obesity. Riskesdas 2018 reported that around 65% of children do not eat breakfast, making them more likely to purchase snacks at school without parental supervision (RISKESDAS, 2018).

From the results of this community service program, it was found that two individuals were obese and also had a history of diabetes mellitus and heart disease. Furthermore, 94% of participants were elderly, aged over 60 years, who are at higher risk of obesity due to limited physical activity and irregular eating habits (Asari & Helda, 2021; Imamah et al., 2023; Zulfian Ikhsan et al., 2022). Although they may have some understanding of health, their awareness remains low. One of the common issues in Indonesian society is the lack of knowledge about healthy lifestyles and nutrition (Zulfian Ikhsan et al., 2022). This lack of knowledge increases the risk of obesity in the community. Clean and Healthy Lifestyle Behaviors (PHBS) are essentially preventive measures practiced by individuals or families to prevent various diseases, including obesity (Nugroho, 2025).

Obesity is also a fundamental factor in various other non-communicable diseases, including hypertension, diabetes, heart disease, cancer, and kidney disease (Kyrou et al., 2018; Wahyuningsih et al., 2022). One contributing factor to obesity is the level of knowledge regarding its prevention, such as understanding proper nutrition and the importance of physical activity (Sudikno et al., 2020; Widyaningrum & Yuliana, 2021). Therefore, knowledge about obesity can influence individual attitudes and behaviors in choosing food and engaging in physical activity (Lolo et al., 2022; Ningsih et al., 2023). This approach is supported by the World Health Organization (WHO), which states that obesity management can generally be achieved through two main strategies: dietary regulation and active efforts to balance caloric intake and energy expenditure (World Health Organization, 2021).

Life expectancy and quality of life play an important role in human well-being, encompassing aspects such as physical health, mental health, social relationships, and environment (Anatasta et al., 2023). These domains may also be understood as actions, conditions, perceptions, or individuals' subjective experiences (Manik, 2020). Several studies have shown that hypertensive patients with comorbidities tend to have lower quality-of-life scores compared to those without comorbidities (Baune & Aljeesh, 2006; Sazlina et al., 2012; Wang et al., 2009). One of the causes associated with hypertension is being overweight and obese (Hendriyani et al., 2024; Khasana et al., 2020; Zygmuntowicz et al., 2012). Research has also shown that obesity in the elderly is associated with reduced quality of life, such as decreased physical function, increased bodily pain, and reduced energy (Khasana et al., 2020; Luhut et al., 2024). Furthermore, obesity in middle age has been linked to the risk of developing vascular dementia and Alzheimer's disease (Han et al., 2011; Khasana et al., 2020).

The results of this community service study demonstrated that counseling on the dangers of obesity is crucial and beneficial, as evidenced by the significant improvement in the

average post-test score, which increased by 25% to 53.5 after counseling, compared to the pre-test score of only 41, further supported by the Wilcoxon statistical test with a significance value of 0.000. This increase indicates that participants gained a better understanding of the dangers of obesity. Therefore, such counseling programs should be continued and expanded more broadly to reach a larger population in order to effectively enhance public awareness and knowledge about the dangers of obesity.

It is important to emphasize that increasing health promotion by healthcare providers is essential not only in disease prevention but also in ensuring that as many individuals as possible can reach old age with good health and quality of life (Khasana et al., 2020; Khoirunnisa & Akhmad, 2019). Through the community service activity at the DENKESYAH Madiun Polyclinic, an improvement in public knowledge regarding obesity and its preventive measures was achieved. Participants expressed high enthusiasm in engaging with this health education program. Education and prevention of obesity must continue to be implemented and further developed, particularly in providing information and raising public awareness of obesity-related diseases (Khasana et al., 2020). These activities may include regular health check-ups, counseling, preventive efforts such as group exercise, regular monitoring of fat and cholesterol levels, increased awareness of the importance of balanced nutrition, and continuous public education. In this way, it is expected that a healthier community can be achieved, capable of reducing the risk of obesity and its associated diseases (Khasanah et al., 2024; Nopitasari et al., 2021; Putri et al., 2024).

CONCLUSION

In addressing the challenge of obesity in Indonesia, this article proposes a series of solutions encompassing preventive and educational approaches. By strengthening health education and raising community awareness, particularly among children and parents, it is expected that more positive behavioral changes will occur in relation to diet and lifestyle. Through community service activities and the comprehensive delivery of information, the community is expected to become more aware of the dangers of obesity and the importance of balanced nutrition. Furthermore, efforts to improve quality of life through health promotion and holistic approaches need to be enhanced, particularly in encouraging the adoption of clean and healthy living behaviors. In this way, it is anticipated that a supportive environment can be created for the growth and development of both children and the elderly with healthy dietary patterns and active lifestyles, thereby reducing the prevalence of obesity and its associated health risks in the future.

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