COMMUNITY-BASED OBESITY EDUCATION USING AUDIOVISUAL MEDIA TO ENHANCE KNOWLEDGE

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ABSTRACT

Background: Obesity is a growing public health concern associated with an increased risk of non-communicable diseases. Improving public knowledge through health education is an important strategy for promoting healthy lifestyles and preventing obesity. Audiovisual media have been widely adopted to enhance educational effectiveness and participant engagement. **Objective:** This study evaluated the effectiveness of a community-based obesity education program using PowerPoint presentations and an educational video to improve participants' knowledge. **Methods:** A pre-experimental one-group pretest–posttest design was conducted among community participants in Jambi, Indonesia, in 2026. Participants completed a 10-item multiple-choice questionnaire before and after the educational session. The intervention covered the definition of obesity, body mass index classification, waist circumference, risk factors, complications, and lifestyle-based prevention strategies. Data were analyzed using the Shapiro–Wilk test and the Wilcoxon signed-rank test, with statistical significance set at $p < 0.05$. **Results:** Forty-five participants completed both assessments. The mean knowledge score increased from 86.67 ± 12.25 at baseline to 94.89 ± 6.95 after the intervention. The distribution of score differences was non-normal (Shapiro–Wilk: $W = 0.749$, $p < 0.001$). The Wilcoxon signed-rank test demonstrated a significant improvement in knowledge following the educational intervention ($W = 0$, $p < 0.001$). Participant evaluation also indicated high acceptance of the educational program across all assessed domains, including material quality, video presentation quality, perceived educational benefits, and overall participant satisfaction. **Conclusion:** The community-based obesity education program effectively improved participants' knowledge and was well accepted by the participants. Integrating presentations with audiovisual media represents a practical approach to strengthening health literacy and supporting community-based obesity prevention.

Keywords: audiovisual education; obesity; community intervention; health promotion; knowledge

ABSTRAK

Latar Belakang: *Obesitas merupakan masalah kesehatan masyarakat yang terus meningkat dan berhubungan dengan tingginya risiko penyakit tidak menular. Peningkatan pengetahuan masyarakat melalui edukasi kesehatan menjadi salah satu strategi untuk mendorong penerapan gaya hidup sehat dan mencegah obesitas. Media audiovisual semakin banyak dimanfaatkan dalam kegiatan edukasi karena mampu meningkatkan efektivitas pembelajaran dan keterlibatan peserta.* ***Tujuan:*** *Penelitian ini bertujuan untuk mengevaluasi efektivitas program edukasi obesitas berbasis masyarakat yang menggunakan presentasi PowerPoint dan video edukasi dalam meningkatkan pengetahuan peserta.* ***Metode:*** *Penelitian ini menggunakan desain pra-eksperimental dengan pendekatan one-group pretest–posttest. Kegiatan dilaksanakan pada tahun 2026 dan melibatkan peserta yang mengikuti program edukasi secara sukarela. Pengetahuan diukur menggunakan kuesioner pilihan ganda sebanyak 10 soal yang diberikan sebelum dan sesudah intervensi. Materi edukasi mencakup definisi obesitas, klasifikasi indeks massa tubuh, lingkar pinggang, faktor risiko, komplikasi, serta strategi pencegahan melalui perubahan gaya hidup. Analisis data dilakukan menggunakan uji Shapiro–Wilk dan uji Wilcoxon signed-rank dengan tingkat kemaknaan $p < 0,05$.* ***Hasil:*** *Sebanyak 45 peserta menyelesaikan pretest dan posttest. Rerata skor pengetahuan meningkat dari 86,67 ± 12,25 menjadi 94,89 ± 6,95 setelah intervensi. Selisih skor tidak berdistribusi normal (Shapiro–Wilk: $W = 0,749$; $p < 0,001$). Uji Wilcoxon signed-rank menunjukkan peningkatan pengetahuan yang bermakna setelah edukasi ($W = 0$; $p < 0,001$). Evaluasi peserta juga menunjukkan bahwa program edukasi diterima dengan baik pada seluruh aspek yang dinilai, yaitu kualitas materi, kualitas tampilan video, manfaat edukasi yang dirasakan, serta kepuasan peserta secara keseluruhan.* ***Kesimpulan:*** *Program edukasi obesitas berbasis masyarakat efektif dalam meningkatkan pengetahuan peserta dan diterima dengan baik oleh peserta. Kombinasi presentasi dan media audiovisual merupakan pendekatan yang praktis untuk meningkatkan literasi kesehatan serta mendukung upaya pencegahan obesitas berbasis masyarakat.*

Kata kunci: *edukasi kesehatan; intervensi berbasis masyarakat; media audiovisual; pengetahuan; obesitas*

INTRODUCTION

Obesity has become one of the fastest-growing public health concerns worldwide and represents a major challenge in the prevention of non-communicable diseases (NCDs). The World Health Organization (WHO) has reported that the global prevalence of obesity has more than doubled since 1990. Obesity is strongly associated with an increased risk of type 2 diabetes mellitus, cardiovascular disease, hypertension, several types of cancer, musculoskeletal disorders, and reduced quality of life and productivity.[1]

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Indonesia has experienced a similar upward trend in obesity prevalence. Data from the 2023 Indonesian Health Survey (Survei Kesehatan Indonesia, SKI 2023) indicate that the prevalence of obesity among adults aged ≥18 years increased from 21.8% in 2018 to 23.4% in 2023, while the prevalence of central obesity reached 36.8% among individuals aged ≥15 years. Changes in dietary habits, insufficient physical activity, high consumption of ultra-processed foods, and increasingly sedentary lifestyles have been identified as major contributors to this trend. These findings highlight the need for effective health promotion and community-based preventive strategies to improve health literacy and reduce the burden of obesity.[2,3]

Members of the general public represent a crucial target population for health promotion, as increased public awareness can support the adoption of healthier lifestyles and reduce the burden of obesity-related diseases. Previous studies have shown that knowledge of obesity, its risk factors, anthropometric indicators, and metabolic complications remains inadequate in many community settings.[4,5] Limited understanding of these issues may reduce individuals' ability to adopt preventive behaviors and make informed health-related decisions.

Health education has been widely recognized as an effective approach for improving knowledge, promoting positive attitudes, and encouraging healthy behavioral changes. Audiovisual media, including educational videos and interactive presentations, are increasingly incorporated into health education because they improve learner engagement, facilitate comprehension of complex concepts, and enhance information retention compared with conventional lecture-based approaches.[6,7] Therefore, integrating audiovisual media into obesity education is expected to improve participants' understanding within a relatively short period.[8]

As part of a community engagement initiative, an educational program entitled "Beyond the Scale: Assessing Obesity Risk from a Clinical Perspective" was conducted in Jambi, Indonesia, to improve public knowledge of obesity, including its definition, risk factors, anthropometric indicators, health consequences, and lifestyle-based prevention strategies. The program combined PowerPoint presentations with an educational video and was evaluated using a one-group pretest–posttest design to assess changes in participants' knowledge following the intervention. Educational interventions using multimedia have been shown to improve knowledge acquisition and learner engagement, making this approach suitable for community health promotion.[8,9]

METHODS

This community engagement program employed a pre-experimental one-group pretest–posttest design to evaluate changes in participants' knowledge following obesity education. The activity was conducted in 2026 and involved members of the general public who voluntarily participated in the educational session.

The program consisted of three phases: preparation, implementation, and evaluation. During the preparation phase, educational materials were developed based on national and international obesity guidelines, covering the definition of obesity, epidemiology, risk factors, anthropometric indicators, clinical complications, and lifestyle-based prevention strategies. A pretest and posttest questionnaire was also developed to assess participants' knowledge.

During the implementation phase, participants first completed a pretest consisting of 10 multiple-choice questions covering the fundamental concepts of obesity. The questionnaire was developed based on published guidelines and reviewed by the research team. Following the pretest, participants attended an educational session entitled "Beyond the Scale: Assessing Obesity Risk from a Clinical Perspective." The educational content was delivered through a combination of a Microsoft PowerPoint presentation and a 4–5-minute educational video. The topics included the definition of obesity, body mass index (BMI) classification, waist circumference as an indicator of central obesity, obesity risk factors, basic pathophysiological mechanisms, clinical complications, and preventive strategies focusing on healthy dietary habits, increased physical activity, and behavioral modification. Immediately after the educational session, participants completed the posttest using the same questionnaire administered before the intervention. Individual scores were calculated based on the number of correct responses and converted to a scale ranging from 0 to 100.

Participants' perceptions of the educational program were evaluated immediately after the intervention using a self-administered evaluation questionnaire consisting of four domains: Material Quality (4 items), Video Presentation Quality (4 items), Perceived Educational Benefits (4 items), and Overall Participant Satisfaction (4 items). Each item was rated on a 4-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree). Mean scores were interpreted as follows: 3.26–4.00 = Very Good; 2.51–3.25 = Good; 1.76–2.50 = Fair; and 1.00–1.75 = Poor (8).

Statistical analyses were performed SPSS Statistics version 29.0 (IBM Corp., Armonk, NY, USA). The normality of the difference between pretest and posttest scores was assessed using the Shapiro–Wilk test. Because the distribution of the score differences was not normal ($p < 0.05$), differences between pretest and posttest scores were analyzed using the Wilcoxon signed-rank test. Statistical significance was set at $\alpha = 0.05$, with a 95% confidence interval. The educational intervention was considered effective if the posttest scores were significantly higher than the pretest scores ($p < 0.05$).

RESULTS

A total of 49 participants attended the educational program. Of these, 45 participants completed both the pretest and posttest questionnaires and were included in the statistical analysis, whereas four participants with incomplete data were excluded from the analysis.

The participants' knowledge scores before and after the educational intervention are presented in **Table 1.** The mean pretest score was 86.67 ± 12.25, with a median of 90 (IQR: 80–90) and a score range of 50–100. Following the educational intervention, the mean posttest score increased to 94.89 ± 6.95, with a median of 100 (IQR: 90–100) and a score range of 80–100. The descriptive findings indicate an increase in participants' knowledge after the educational session, accompanied by a reduction in score variability.

Table 1. Descriptive Statistics and Comparison of Pretest and Posttest Knowledge Scores

Variable	n	Mean ± SD	Median (IQR)	Min–Max
Pretest	45	86.67 ± 12.25	90 (80–90)	50–100
Posttest	45	94.89 ± 6.95	100 (90–100)	80–100

Normality testing using the Shapiro–Wilk test showed that the distribution of the differences between pretest and posttest scores was not normal ($W = 0.749$; $p < 0.001$). Therefore, differences between pretest and posttest scores were analyzed using the Wilcoxon signed-rank test. The Wilcoxon signed-rank test demonstrated a statistically significant difference between pretest and posttest scores ($W = 0$; $p < 0.001$).

Table 2. Participants' Evaluation of The Educational Program

Evaluation Domain	N	Mean ± SD	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)	Interpretation
Material Quality	**45**	**3.82 ± 0.41**	38 (84.4)	7 (15.6)	0 (0.0)	0 (0.0)	Very Good
Video Presentation Quality	**45**	**3.62 ± 0.58**	29 (64.4)	15 (33.3)	1 (2.2)	0 (0.0)	Very Good
Perceived Educational Benefits	**45**	**3.83 ± 0.38**	38 (84.4)	7 (15.6)	0 (0.0)	0 (0.0)	Very Good
Overall Participant Satisfaction	**45**	**3.67 ± 0.52**	32 (71.1)	11 (24.4)	2 (4.4)	0 (0.0)	Very Good

Participants' evaluations of the educational program are summarized in **Table 2**. Overall, the program received highly positive evaluations across all assessed domains. The highest mean score was observed for Perceived Educational Benefits (3.83 ± 0.37), followed by Material Quality (3.82 ± 0.40), indicating that participants perceived the educational content as relevant, informative, and beneficial. Overall Participant Satisfaction also received a high mean score (3.67 ± 0.57), while Video Presentation Quality showed the lowest mean score (3.62 ± 0.66). Nevertheless, all four domains were classified as Very Good, demonstrating that the educational program was well accepted and that both the learning materials and audiovisual media were perceived positively by the participants.

DISCUSSION

The present community engagement program demonstrated a statistically significant improvement in participants' knowledge of obesity. The mean knowledge score increased from 86.67 ± 12.25 before the intervention to 94.89 ± 6.95 afterward, and the Wilcoxon signed-rank test confirmed that the improvement was statistically significant ($p < 0.001$). These findings indicate that combining PowerPoint presentations with audiovisual media effectively enhanced participants' understanding of obesity, including its risk factors, anthropometric assessment, clinical consequences, and prevention strategies. Similar improvements have been reported in multimedia-based health education interventions, where visual and verbal information presented simultaneously facilitated knowledge acquisition and increased learner engagement. According to the Cognitive Theory of Multimedia Learning, integrating visual and auditory channels reduces cognitive load and enhances comprehension and long-term information retention.[8,9,10]

The relatively high baseline knowledge score suggests that many participants already possessed basic knowledge about obesity before the educational intervention. This finding may reflect the increasing availability of health information through television, social media, internet-based platforms, and community health promotion campaigns, which have improved public awareness of obesity and healthy lifestyles.[9,11,12] In addition, the questionnaire primarily assessed fundamental concepts of obesity, including body mass index classification, obesity-related risk factors, and prevention strategies. Consequently, a ceiling effect may have limited the magnitude of measurable improvement despite the statistically significant increase in posttest scores. Future community-based educational programs should consider incorporating questions with varying levels of difficulty, including simple case-based scenarios that assess the application of health knowledge in

everyday situations, consistent with higher-order cognitive domains described in Bloom's revised taxonomy.[11,13]

Although the increase in mean knowledge score was modest, the reduction in the standard deviation from 12.25 to 6.95 indicates that participants' knowledge became more homogeneous following the intervention. This finding suggests that the educational materials were consistently understood by participants with different levels of prior knowledge. Greater consistency in post-intervention scores indicates that the educational program not only increased average knowledge but also reduced disparities in understanding among participants, which is an important objective of community-based health education.[12,14,15,16]

Several factors may explain the effectiveness of the intervention. The educational materials were developed based on current national and international recommendations for obesity prevention, ensuring that the information was evidence-based and clinically relevant. In addition, the educational video complemented the oral presentation by illustrating anthropometric measurements, obesity-related health risks, and preventive behaviors in a simple and engaging manner. This combination of audiovisual and face-to-face instruction has been shown to improve learners' attention, comprehension, and information retention compared with conventional lecture-based education alone.[17,18,19]

Participants also evaluated the educational program positively across all assessed domains. Perceived Educational Benefits and Material Quality received the highest scores, while Video Presentation Quality and Overall Participant Satisfaction were likewise rated as Very Good. These findings suggest that the educational materials were considered relevant, understandable, and beneficial for improving participants' knowledge. Similar findings have been reported in recent systematic reviews demonstrating that multimedia-assisted health education enhances participant satisfaction, engagement, and knowledge acquisition across diverse community settings.[20,21,22]

The high level of participant acceptance has important implications for community health promotion. Audiovisual educational materials can be incorporated into routine health education activities conducted by Puskesmas, community outreach programs, and public health campaigns targeting the general population. Compared with conventional health talks, educational videos provide standardized, engaging, and easily understandable messages that can be delivered consistently to large audiences. Integrating multimedia into routine health promotion may therefore strengthen community health literacy, increase public engagement, and support obesity and other non-communicable disease prevention efforts.[23,24,25,26]

This study has several limitations. The one-group pretest–posttest design did not include a control group, limiting causal inference regarding the observed improvement in knowledge. Furthermore, knowledge was assessed immediately after the educational session; therefore, the findings reflect short-term learning rather than long-term knowledge retention or behavioral change. Future studies should employ quasi-experimental or randomized controlled designs with longer follow-up periods to determine whether improvements in knowledge are sustained and translated into healthier lifestyle practices.

CONCLUSION

The obesity education program effectively improved participants' knowledge, with significantly higher posttest scores than pretest scores. These findings indicate that educational interventions combining presentations and audiovisual media can enhance public understanding of obesity and its prevention. Such approaches are practical for community-based health promotion because they are easy to implement and require relatively limited resources. Nevertheless, the present findings reflect only short-term knowledge gains. Future studies should employ controlled study designs and extended follow-up periods to evaluate knowledge retention and determine whether increased knowledge leads to sustained lifestyle changes and improved health outcomes.

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