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The Effect of Health Education Through Animated Videos on Preventive Knowledge and Attitudes Obesity in Adolescents of SMPN 8 Malang

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Introduction: In Indonesia, obesity is becoming a growing health problem. Not only do many cases of obesity or overnutrition occur in adulthood, but it also often occurs in adolescence. through the use of visually appealing, easily available, and youth-specific media - specifically animated videos - to promote health and prevent obesity. Animated images are a series of still photographs displayed at a specific time to give the impression that the images are moving. In other words, animation is the movement of objects to give a more dynamic and captivating appearance. The use of animated features on instructional videos can grab the attention of the audience and encourage more thought-provoking questions from them, which will reduce their cognitive load.

Objective: This study was conducted with the aim of determining the effect of health education using animated videos on increasing knowledge and attitudes towards obesity prevention in adolescents at SMPN 8 Malang. By evaluating the impact of animated video interventions, the research seeks to provide insights into the effectiveness of multimedia educational tools in enhancing students' understanding and fostering positive attitudes towards maintaining a healthy weight and preventing obesity.

Methode: The type of research used was quantitative research with one group pre-post design with a sample of 31 adolescents. Knowledge data collection techniques used a questionnaire and attitude data collection using a checklist sheet. Knowledge of adolescents before education through animated videos found that most (52%) adolescents had sufficient knowledge.

Result: After education through animated videos, it was found that almost all (93.5%) adolescents had good knowledge. The attitude of adolescents before education through animated videos was found that most (71%) adolescents had a negative attitude. After being given education, most (61%) adolescents have a positive attitude. The results of the Wilcoxon test knowledge obtained a significant value of p-value 0.000 < α (0.05) and attitude obtained a significance value of p-value 0.000 < α (0.05) this shows that there is an effect of education using animated videos on the knowledge and attitudes of adolescents about obesity prevention.

Conclusion: This study proves that there is an effect of education through animated videos on the knowledge and attitudes of obesity prevention in adolescents at SMPN 8 Malang. at SMPN 8 Malang animated video media can be one of the media in increasing the knowledge and attitudes of adolescents SMPN 8 Malang in obesity prevention.

Keywords: Obesity; Education; Animated Videos; Knowledge, Attitude

INTRODUCTION

The World Health Organization (WHO) in 2020 defined obesity or overweight as an abnormal or excessive accumulation of fat that poses a risk to a person's health. According to the Ministry of Health, a body mass index (BMI) greater than 25 kg/m² is classified as obese. The WHO has identified obesity and overweight as one of the top five global mortality hazards, responsible for at least 2.8 million adult deaths each year. This significant health concern underscores the importance of effective educational interventions, such as the use of video animation in schools, to improve knowledge and skills related to obesity prevention. By addressing obesity through comprehensive education strategies, we can work towards reducing its prevalence and the associated health risks, ultimately improving public health outcomes. In addition, obesity is also thought to contribute to non-infectious disorders (1).

It is important to keep an eye on the increase in obesity among adolescents as obesity is linked to the development of several degenerative diseases, including cancer, diabetes mellitus, arthritis and respiratory problems. In addition, obesity can also lead to psychological problems and decreased self-confidence. It is easier to prevent obesity during adolescence than to treat it as an adult because adolescent obesity has serious medical consequences, especially for the future of adolescents in preparing a qualified Indonesian population in the future. Adolescent obesity is a problem that will be difficult to overcome if it continues into adulthood (2).

The World Health Organization (WHO) estimates that there are more than one billion obese people worldwide. This number, expected to continue to rise, is divided into 650 million adults, 340 million adolescents (young people), and 39 million children. According to WHO estimates, 167 million adults, adolescents and children worldwide will be obese by 2025. In Indonesia, the percentage of adolescents aged 13 to 15 years who were overweight was 10.8% in 2013, of which 8.3% were obese and 2.5% were severely obese. In 2018, the percentage increased to 16%, with 11.2% of them being obese and 4.8% being very obese (obesity) Ministry of Health of the Republic of Indonesia in Arif Research (2018) (3).

According to the 2018 Riskesdas data, the prevalence of obesity and overweight in adolescents aged 13-15 years was 16.0%, while in adolescents aged 16-18 years was 13.5%. Obesity in adolescents can continue into adulthood if it persists and occurs in this age group. Adolescent girls aged between 15 and 19 years: prevalence and rates of obesity. Obesity is caused by both environmental and hereditary factors. Variables that contribute to changes in energy balance and obesity include increased consumption of fast food, lack of physical activity, genetics, effects of advertising, psychological variables, socioeconomic level, diet programs, age, and gender. (4)

Suryaputra's research shows that adolescents' nutrition-related knowledge is one of the elements that can affect their likelihood of becoming obese. Most adolescents who are obese do not have the nutritional understanding necessary to choose a nutrient-dense diet. If adolescents have good information about maintaining nutritional balance and controlling their diet, most instances of over- or undernutrition can be prevented (5). The purpose of educating adolescents about balanced nutrition is to use visually appealing media, so that information is easier to understand and prevent boredom in adolescents. (6)

In order to improve the knowledge of adolescents-one approach that can be taken is to start preventing the problem of obesity in adolescents through nutrition education on preventing obesity in adolescents. Adolescents' ignorance about nutrition, including their ignorance about the nutritional value of food, proper food processing techniques, and eating habits, can contribute to the increase in obesity. Good attitudes and actions can arise from a good foundation of knowledge and awareness, and the effects can last for a long period of time. A good level of knowledge supported by a good level of awareness can result in good attitudes and behaviors and will be long lasting.(7).

Through health promotion on obesity prevention using media that is easily accessible, attractive and according to the characteristics of adolescents, namely animated videos. Animation is a set of images in a certain sequence displayed at a certain time so as to create the illusion of a moving image, or simply animation is a movement of objects that is done to make it look more dynamic and interesting. The use of animation elements in a learning video can be able to attract attention, and stimulate more memorable learner thinking, this will help to drain the cognitive load process of learners in receiving a subject matter or message that the learner wants to convey.

From the description of the problem above, the authors will conduct research with the title "The Effect of Health Education Through Video Animation on Knowledge and Attitudes of Obesity Prevention in Adolescents of SMPN 8 Malang". Health education about obesity through animated videos that are packaged as creatively as possible so that it is hoped that digital literate adolescents will be able to increase knowledge of skills in applying balanced nutrition in daily activities.

METHOD

This research uses a type of quantitative research using data collection techniques in the form of Pre Experiment, One Group, Pretest and Posttest. This data collection technique is used to compare the results before the intervention and after the intervention. Data collection will be carried out once by taking data (pre test) before treatment in the form of providing educational videos and after that measuring again (post test). Education delivered in the form of illustrated videos that are packaged interestingly about the impact and how to prevent obesity among adolescents. The population in this study were all 7th grade students at SMPN 8 Malang, totaling 225 using a data collection method in the form of a sampling method using simple random sampling. The research was conducted on May 21 - May 25, 2024 at SMPN 8 Malang. The independent variable in this study is Health Education with animated video media about preventing obesity in adolescents. And the dependent variable (bound) in the form of knowledge and attitudes of adolescents towards obesity prevention.

Primary data in this study are data collected directly by researchers from questionnaires and checklist sheets distributed to students. Secondary data is data collected by researchers from various previous sources, such as Ministry of Health data, Riskesdas, Journals, etc., and is used as preliminary data to identify existing problems. This study collected data using a closed questionnaire sheet to measure students' knowledge and adolescents' feelings. gave students an intervention through a video animasi

The research phase began with giving questionnaires and checklist sheets to determine knowledge and attitudes before being given the intervention. Previously, the researcher introduced himself, conveyed the purpose, how to fill in and the filling time, which was 10 minutes followed by obesity prevention health education through animated videos for 20 minutes and filling out the post test.

RESULTS

This research was conducted at SMPN 8 Malang Jln Arjuno Number. 19, Kauman Village, Klojen District, Malang City. Data collection was carried out on May 6 - June 6, 2024. SMPN 8 Malang has received A accreditation with a score of 92 (based on 2021 accreditation) from BAN-S/M (National Accreditation Board). Based on the researcher's observation, SMPN 8 Malang is equipped with UKS Room facilities for monitoring the health of students but health education has never been carried out related to obesity prevention using animated videos. SMPN 8 Malang has facilities and infrastructure that greatly support teaching and learning activities and also help the course of research. The research was conducted based on permission from the principal of SMPN 8 Malang supported by the homeroom teacher 7B. SMPN 8 Malang has facilities and infrastructure that support the smooth running of teaching and learning activities and also help the research. The research was conducted based on permission from the principal of SMPN 8 Malang supported by the homeroom teacher 7B.

Table 1. Frequency table of adolescents by age and gender

Characteristics	Details	n=31	Percentage
Age	12 years old	3	9.7%
	13 years old	17	54.8%
	14 tahun	11	35.5%
Gender	Boy	22	71.0%
	Girl	9	29.0%

Based on the results of the table above, the results show that most (54.8%) adolescents are 13 years old and most (71%) are male.

Table 2. Data on Adolescents' Attitudes and Knowledge before and after being educated

Subject characteristics	Pre-test		Post-test	
	n=31		n=31	
	f	%	f	%
Knowledge				
Good	10	32%	29	93.5%

Enough	16	52%	2	6.5%
Not enough	5	16%	0	0%
Mean	14,77		19,23	
Median	15.00		20.00	
Std Deviation	3.052		1,477	
Attitude				
Positive	9	29%	19	61%
Negative	22	71%	12	39%
Mean	17,26		31,83	
Median	17,00		32,00	
Std Devisiasi	2,323		1,846	

Based on the table above, the results show that before education, almost half (32%) had good knowledge, most of the 52% students had sufficient nutritional knowledge, and 16% of the students had insufficient knowledge. After being given education, almost all 93.5% experienced an increase in good knowledge and 6.5% of students had sufficient knowledge. The mean difference before education was 14.77 and after education was 19.23 with a difference of 4.46. The table above shows the results that before education, almost half (29%) had a positive attitude and most (71%) had a negative attitude. After being given education, most (61%) had a positive attitude and almost half (39%) had a negative attitude. The mean difference before education was 17.26 and after education it was 31.83 with a difference of 14.6.

Table 3

	Mean *pre-test*	Mean *post-test*	selisih	*p-value*
Knowledge	14,77	19,23	4,46	0,000
Attitude	17,26	31,83	14,6	0,000

The table above shows the results of the analysis using the Wilcoxon test. The average knowledge score before instruction was 14.77 and the knowledge score after instruction was 19.23, each with an increase of 4.46. The table above also shows that the average value of attitude before education was 17.26 and the average value after education was 31.83 with a difference of 14.6, which shows that the p-value of 0.000 < α (0.005) then H0 is rejected and H1 is accepted. This shows that there is an effect after being given health education through animated videos on improving obesity prevention attitudes in students at SMPN8 Malang.

DISCUSSION

This finding shows the impact of obesity prevention education through animated video media on students at SMPN 8 Malang. When the frequency of knowledge was measured before receiving instruction, the majority of students had sufficient knowledge, and almost all of them had good knowledge. In this educational research, animated video content was used as an educational tool. This type of content is particularly suitable for teenage children in a large group setting as it captures their attention with moving images and audio. Animated videos can convey information in a more realistic and engaging way than other forms of media. This is because animated videos utilize the senses of hearing and sight simultaneously, which makes them more engaging and effective. The likelihood of understanding the meaning of the information conveyed increases with the number of senses used to receive the information. When students engage with audiovisual materials, they tend to understand and remember the information more easily. Therefore, the use of animated videos in health education, particularly in obesity prevention, has proven to be effective in increasing students' knowledge and awareness. Thus, this strategy can be adopted more widely in health education efforts among adolescents.

The results of this study agree with research conducted by Fayasari 2020. (8) There was a difference in scores between the lecture and video animation groups at the beginning of the study when comparing knowledge, attitudes, and behaviors related to breakfast and vegetable and fruit consumption (P>0.01). The post-test results showed that the groups who watched animated videos and lectures had different knowledge scores, where the animated video group had a higher score than the lecture group. According to researchers, providing health education is considered effective in increasing adolescents' knowledge, this is also supported by the willingness of adolescents to know how to prevent obesity. At the time of the study, adolescents actively asked questions and paid attention to education through animated videos, this was also a factor in increasing adolescent knowledge. The results showed that there was an effect of obesity prevention education through animated video media on improving attitudes in students of SMPN 8 Malang, listed the frequency of attitudes before being given education most had a negative attitude and after being given education almost all had a positive attitude.

The same is achieved by the research of Agus Supriono (14), who compared the method of teaching lessons with animated videos. Where video animation is more effective than other traditional methods such as lesson methods. In the lesson method, the audience can only listen without a visual description of the material. This leads to the fact that this method is below the maximum increase in knowledge. Especially with materials such as steps or procedures of an activity that requires imagination. while the video animation method can display objects and processes in more detail and can be repeated. Animated videos provide an audience with emotional intelligence for the audience and can increase the power of thought, so that the animated video method is easier to convey.

According to research by Nurul Lolona Lingga (2015) (9), There is a difference in students' knowledge before and after intervention using animated video media, from 65.51 to 71.03. This shows that the use of animated videos as educational media is effective in increasing students' knowledge. Fitriani (2011) (10) stated that health education can be used as a coaching tool to change attitudes, because it can expand knowledge, which in turn can influence attitudes and improve behavior. In this context, animated video media has several advantages that affect attitude improvement, including being more cost-effective, durable, and facilitating one's understanding. Animated videos can be used for a large number of respondents and can be used repeatedly. Before an action is taken, a person's attitude is their point of view or opinion about something. These attitudes can be categorized into two types: positive attitudes, which indicate acceptance of the social standards in the environment the person is in, and negative attitudes, which indicate rejection or disdain for those standards. According to researchers, a person's attitude is influenced by his or her knowledge. Factors that influence adolescents' attitudes in this study come from the animated video provided, because the media contains complete information about obesity prevention. In addition, adolescents' curiosity was conveyed through questions about obesity prevention efforts. During the Q&A process, adolescents actively asked questions related to obesity prevention efforts, which showed their engagement in learning and better understanding of the material presented. Thus, the use of animated videos in health education not only improves knowledge, but also influences adolescents' attitudes towards obesity prevention. Animated videos presented with complete and interesting information can make adolescents more interested and involved in the learning process, so that they more easily accept and internalize the health messages delivered.

Analysis of education using animated films on adolescent understanding showed a significant increase, with an average difference of 4.46 between before and after education. This finding is supported by statistical analysis using the Wilcoxon test on the knowledge variable, which shows that adolescents' understanding of obesity prevention is influenced by education through animated videos. According to Notoadmodjo (2014) (11), Knowledge is gained after a person senses an object. This sensing includes touching, tasting, smelling, hearing and seeing. Of the five senses, sight and hearing are the two most influential on a person's knowledge. Animated videos, by utilizing these two senses, are able to have a greater impact in enhancing understanding. Furthermore, one of the main keys in attitude formation is knowledge. With the increased knowledge of adolescents through animated video media, their attitudes towards obesity prevention also experienced positive changes. This media not only provides comprehensive information but also attracts attention and actively involves adolescents in the learning process. This makes the information easier to understand and internalize. Thus, the use of animated videos in health education is proven to be effective in increasing knowledge and influencing adolescents' attitudes towards obesity prevention. Animated videos are able to utilize the power of sight and hearing to effectively convey information, making them a very useful tool in health education efforts.

Instructional strategies that incorporate movies or other audiovisual materials as health education resources can have a significant impact on learning outcomes. This is due to the ability of audiovisual materials to engage students' imagination, increase their willingness to learn, and arouse their curiosity. according Faradila 2018 (12), The use of movies in health education is effective because it can motivate students and make them more involved in the learning process. Research conducted by Harismanto in 2019 (13) supports this finding. Harismanto found that there was a significant increase in adolescents' knowledge before and after they were exposed to health education through animated videos focusing on obesity prevention. This study shows that the way information is

delivered greatly affects students' understanding and engagement. By using animated videos, students became more active and motivated to ask questions, which contributed to their improved understanding of the topics taught. Animated videos are considered very suitable for the characteristics of adolescents, so that health messages can be conveyed more effectively. This media is able to attract students' attention and make learning more fun and interactive. Thus, the use of movies or other audiovisual materials in health education not only improves students' understanding but also makes the learning process more interesting and effective. The researchers concluded that innovations in educational delivery methods, such as through animated films, can be a very useful tool in the effort to improve adolescents' knowledge and awareness about health.

Based on the results of the analysis of education conducted on adolescent attitudes using animated videos, there is an average difference of 14.6 between the pre-test and post-test scores. The findings of statistical analysis using the Wilcoxon test on the attitude variable show that adolescents' understanding of obesity prevention is influenced by animated video education. Adolescents who have more knowledge will reflect and strive for a better life than before. Cognition and emotional beliefs also contribute to the emergence of attitudes and the urge to take action. Analogously, Rahayu's research (2018), "Effectiveness of Education with Audio Visual Media on Knowledge and Attitude towards Balanced Nutrition," found a significant p-value of 0.002, indicating that nutrition education using audio visual media had an impact on knowledge and attitudes about balanced nutrition after exposure. The researchers stated that because animated video content can effectively communicate health messages through moving images and sound effects, it is relevant and appropriate to use as a learning tool for obesity prevention targeting adolescents. In this case, animated video media can influence adolescents' positive attitudes as it appeals to their senses of hearing and sight, which aids in the absorption of information.

CONCLUSION

Based on the results of the analysis and discussion of research on the effect of health education through animated videos on knowledge and attitudes to prevent obesity in adolescents at SMPN 8 Malang, it can be concluded as follows:

Knowledge Improvement: There is an increase in knowledge in subjects before and after education through animated videos. Before education, the majority of subjects had knowledge in the moderate category. After education, almost all of them have knowledge in the good category.

Attitude Improvement: There was an increase in attitude in subjects before and after education through animated videos. Before education, most subjects had attitudes in the negative category. After education, almost all of them had positive attitudes.

Effect on Knowledge: Health education using animated videos has a significant effect on increasing knowledge as an effort to prevent obesity in adolescents.

Effect on Attitude: Health education using animated videos also has a significant effect on changing adolescent attitudes to be more positive in obesity prevention efforts.

Thus, the use of animated videos as a health education medium is effective in increasing knowledge and changing adolescents' attitudes towards obesity prevention. This strategy can be adopted more widely as an effort to increase adolescents' awareness and understanding of the importance of maintaining health and preventing obesity.

SUGGESTION

This study can be highly beneficial for educational institutions and students of SMPN 8 Malang as it offers valuable insights into improving knowledge and skills related to obesity prevention. By integrating video animation as an educational tool, schools can enhance their health education programs, making them more engaging and effective for students. The findings suggest that using multimedia resources can significantly impact students' understanding and attitudes towards obesity prevention, encouraging healthier lifestyle choices. Furthermore, other researchers can use the results of this study as a reference for future research aimed at enhancing knowledge and skills in obesity prevention. By building on these findings, subsequent studies can explore additional methods and tools to further improve health education. This study thus serves as a foundational piece of research that can inform and inspire ongoing efforts to combat obesity through education and awareness, ultimately contributing to the overall well-being of students in their daily lives.

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