

The Influence Of E-Booklet Media On Obesity Management On Knowledge And Attitudes In Obesite Teenagers

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Abstract: There are three burdens of nutritional problems currently being faced, namely stunting, wasting, and obesity. In 2023, Tasikmalaya Regency recorded 671 cases of obesity in children and adolescents in health screening. The findings of obesity cases were dominated by adolescents at the SMA/MA/SMK levels of 225 cases, Leuwisari District was the area with the highest case findings in Tasikmalaya Regency. The two schools with the highest total case findings amounted to 42 cases. The purpose of this study was to analyze the effect of e-booklet media on obesity management on the knowledge and attitudes of obese adolescents at Singaparna Vocational School and Daaruddawah Vocational School. The research method used was the quantitative Preexperimental method with a one group pretest posttest design with a hypothesis test using the Wilcoxon test on the knowledge variable and the paired samples t-test on the attitude variable. The sample in this study was 42 obese adolescents. The sampling technique used in the study was total sampling. The results of the study found that there was an increase in knowledge (6.21 points) and attitudes (1.91 points) about obesity management in obese adolescents, so it can be concluded that there is an influence of e-booklet media about obesity management on knowledge ($p = 0.000$) and attitudes ($p = 0.011$) of obese adolescents. The suggestion of this study is that the e-booklet that has been designed can be used as a health promotion media material about obesity management.

Keywords: E-booklet, Obesity, Teenager, Knowledge, Attitude

INTRODUCTION

Child and adolescent obesity is a serious health problem. Without intervention, obese children and adolescents are likely to remain obese into adulthood (WHO, 2020). Globally, obesity has tripled since 1975. In 2016, more than 340 million children and adolescents aged 5-19 years were obese (WHO, 2021). In Indonesia, based on the Basic Health Research (Riskesdas) in 2018, there was an increase in the prevalence of obesity in the 13-15 age group in 2013 of 2.5% and in 2018 of 4.8%. The increase in cases also occurred in the age group 16-18 years where in 2013 it was 1.6% to 4.0% in 2018.

In 2018, West Java became the 13th province with a prevalence of obesity in the 13-15 year age group of 4.89% and in the 16-18 year age group West Java became the 7th province with a

prevalence of 4.51%. Tasikmalaya is one of the districts with a high prevalence of obesity at 6.26% in the age group 13-15 years, and in the age group 16-18 years at 2.22% (Riskesdas Jabar, 2018). The results of the implementation of the School Age Children and Adolescents (AUSREM) program in measuring nutritional status in 2023 in Tasikmalaya Regency found 671 cases of obesity, dominated by adolescents at the SMA / MA / SMK level with 225 cases. Based on the regional distribution, Leuwisari Subdistrict is the area with the highest findings of adolescent obesity with a distribution consisting of SMK Singaparna with 32 cases, SMK Daaruddakwah with 10 cases, SMK Cendikia with 8 cases, and SMK Islam Paniis with 2 cases (Dinkes Kabupaten Tasikmalaya, 2023).

Effective efforts to reduce obesity cases need to be done with appropriate management. Obesity in adolescents is generally caused by misperceptions of their bodies and emotional eating conditions, so they start trying various kinds of unhealthy diets. In addition to regulating diet, an active lifestyle is a counterweight to energy intake (Directorate of P2PTM, 2015). Providing the right information about obesity in adolescents is needed so as not to cause incorrect perceptions. One way of providing information can be through health promotion media, recipients of information can increase their knowledge and there are changes in behavior in a positive direction in the health sector (Notoatmodjo, 2014).

The selection of health promotion media is done by considering several things such as knowing the advantages and disadvantages of the media, the purpose of using the media, the suitability of the material, the environment, and the ability of the target to capture the selected media (Suirakka & Supariasa, 2012). An initial survey in February 2024 at SMK Singaparna, Leuwisari District showed 100% of obese students chose electronic media. The preferred forms of media are videos (40%) and *e-booklets* (60%). *E-booklet* is a book-shaped media containing text and images (Jatmika, et al., 2019) used to provide information packaged in electronic form and can be accessed via mobile devices to computers (Erawati, 2021). *E-booklets* have the advantage of being more practical and able to be accessed anywhere as long as they carry electronic devices, are durable, and are easily disseminated. Based on the background of the problem, researchers are interested in knowing the effect of *e-booklet* media on obesity management on knowledge and attitudes in obese adolescents at SMK Singaparna and SMK Daaruddawah Leuwisari District, Tasikmalaya Regency.

METHOD

The research method used was *PreExperimental* with a *one group pretest posttest design*. The population in this study were all obese adolescents at Singaparna Vocational High School as many as 32 adolescents and obese adolescents at Daaruddawah Vocational High School as many as 10 adolescents, so the total population was 42 adolescents. Sampling in this study used a total sampling technique, where the sample was taken from the entire population if the population size was below 100. Thus, the sample size was 42 obese adolescents at Singaparna Vocational High School and Daaruddawah Vocational High School. Primary data in this study are data obtained directly during interviews such as data on respondent characteristics and knowledge and attitude data using questionnaires. Secondary data in this study were obtained from data on obesity screening in School Age Children and Adolescents (AUSREM) Tasikmalaya District Health Office and obesity screening data in School Age Children and Adolescents (AUSREM) Leuwisari Health Center. The research instrument was a knowledge and attitude *test* questionnaire sheet about obesity management accompanied by *informed consent* and *e-booklet* media. The research procedure was carried out with the stages of an initial survey, research preparation, conducting research, providing *e-booklet* media interventions and conducting *posttest* questions. Data processing and data analysis using normality test, univariate analysis and bivariate analysis.

RESULTS

After this study was conducted, pre-test and post-test knowledge scores on obesity management were obtained from the two schools included in the study.

Table 1. Frequency Distribution of Pre-test and Post-test Knowledge Score

Statistics.	Pre-test	Post-test
Max	11	15
Min	4	12
Mean	7,48	13,69
Median	8	14
Deviasi	1,486	0,841
Total	42	42

Based on the frequency distribution table above, it can be seen that the smallest *pre-test* knowledge score was 4 points and the largest obtained 11 points with an average score of 7.48 points. Meanwhile, the smallest *post-test* knowledge score was 12 points and the largest obtained 15 points with an average score of 13.69 points.

Table 2. Frequency Distribution of Pre-test and Post-test Attitude Scores

Statistics.	Pre-test	Post-test
Max	46	48
Min	26	29
Mean	35,95	37,86
Median	36,00	36,50
Deviasi	4,428	4,740
Total	42	42

Based on the frequency distribution table above, it can be seen that the smallest *pre-test* attitude score was 26 points and the largest obtained 46 points with an average score of 35.95 points. Meanwhile, the smallest *post-test* attitude score was 29 points and the largest obtained 48 points with an average score of 37.86 points.

Table 3. Wilcoxon Test Results

Wilcoxon	P-Value
Knowledge Pre-test x Post-test	0,000

Based on the table above shows that the results of hypothesis testing using the Wilcoxon test have a *p* value of 0.000 <0.05, it can be concluded that there is an effect of *e-booklet* intervention on obesity management on knowledge about obesity management.

DISCUSSION

Analysis of the Effect of *E-Booklet* on Obesity Management on Knowledge of Obesity Management in Obese Adolescents

Statistical test results showed there was a difference in *pre-test* and *post-test* knowledge scores. There is knowledge that has been known by obese adolescents before being given the intervention, namely the impact of obesity, examples of types of vegetables that are not recommended (obesity management section), and sleep time for adolescents (obesity management section). After the intervention with *e-booklets*, there was an increase in knowledge about the definition of obesity, the causes of obesity, and obesity management (selection of the type and amount of food recommended, the T plate model, physical exercise and physical activity, and emotional eating patterns). The *post-test* results stated that the initial knowledge of obese adolescents in the *pre-test* did not know the definition of obesity, the causes of obesity, and obesity management.

In the *pre-test* results, obese adolescents already have initial knowledge about the long-term effects of obesity, one of which can contract diabetes, almost all obese adolescents answered

correctly in the *pre-test* results. According to Sudargo et al., (2016) diabetes occurs due to decreased insulin sensitivity due to fat accumulation and causes insulin resistance. In addition, many obese adolescents also know that vegetables with coconut milk are not recommended for consumption by someone with an obese condition. Novela's research (2020) shows that excessive consumption of animal fat sources such as palm oil, chicken, eggs and vegetable fat sources such as coconut milk play a role in increasing fat in the body. The ideal sleeping time for adolescents has also been known by many obese adolescents before being given the intervention. Sleep time less than 5 hours can increase a person's risk of obesity more than others, so for adolescents it is necessary to sleep as much as 8 - 9 hours per day (UPK Kemenkes RI, n.d.).

In the *post-test* results, obese adolescents experienced an increase in knowledge about the definition of obesity, many obese adolescents were able to answer correctly after being given the *e-booklet* intervention. The causes of obesity also experienced an increase in scores from the *pre-test*, most obese adolescents answered correctly that lack of active physical activity, rare consumption of vegetables and fruits, and genetics / heredity are some of the causes of obesity. Quoted through research by Banjarnahor et al., (2021) someone who rarely consumes vegetables and fruits experiences a lack of fiber causing obesity to occur. The Indonesian Ministry of Health (2021) states that if one or both parents are obese, their offspring are likely to be obese. Very minimal physical activity will only burn a few calories, this accumulation of calories certainly has a role in gaining weight, this lack of physical activity is a sedentary behavior activity (Kemenkes RI, 2023a).

In addition, an increase in knowledge in the *post-test* can be seen regarding obesity management. Almost all obese adolescents answered correctly on the selection of recommended food examples and the selection of plate models for obesity management. The T plate model is a plate model that emphasizes the high intake of vegetables and fruits so that it is enough calories but still filling with high fiber, which is twice the portion of carbohydrates or protein which is only $\frac{1}{4}$ of the plate (Kemenkes RI, 2022b). The increase in knowledge about calories also increased the score, the number of obese adolescents who answered correctly that the recommended food selection was low calorie food, and the amount of decrease in calorie intake per day. Calorie intake that is considered will play a role in weight loss, a decrease in calorie intake can reduce 0.5 - 1 kg per week (Suharyati, 2019). Knowledge about physical activity and physical exercise experienced some increase, most obese adolescents answered correctly. In the *post-test* obese adolescents

have recognized examples of physical activity and physical exercise that can be done every day to every week, ranging from light activities to strenuous activities.

The level of knowledge measured in this study reached the level of knowing and understanding, where obese adolescents remember what has been learned and are able to mention back the information that has been obtained (Notoatmodjo, 2014b). The information learned was provided through an *e-booklet* intervention, while understanding was measured through a *post-test*. In line with Anhusadar & Islamiyah's (2020) research which states that the information obtained will have an influence on a person's knowledge, this study also concluded a similar statement. The entire average knowledge score after being given the intervention increased, so that the more information obtained can increase a person's knowledge.

This is in line with Assidhiq's research (2019), *e-booklets* are effective in increasing knowledge ($p=0.000$) in obese high school adolescents in Semarang City. *E-booklets* in terms of material content, appearance, and message delivery are quite effective and feasible to use as research media as evidenced by being able to increase knowledge ($p = 0.000$) in obese adolescents (Kurniasari et al., 2021). In junior high school adolescents, experiments were carried out by filling in the *pre-test*, giving *e-booklets*, and filling in the *post-test* with the results of the study found that there was an effectiveness of using *e-booklet* media on increasing knowledge (Okiningrum & Handayani, 2023). *E-booklet* media is also able to become a medium for nutrition counseling for overweight adolescents and has an influence in increasing knowledge ($p = 0.000$) (Pratami, 2021).

Analysis of the Effect of *E-Booklet* on Obesity Management on Attitudes about Obesity Management in Obese Adolescents

Statistical tests showed there were differences in *pre-test* and *post-test* attitude scores. Attitude statements regarding consumption and food have variations in data results after the *e-booklet* intervention. In the statement that reducing calorie consumption is able to lose weight, there is an increase where most obese adolescents answer in the affirmative. On the statement that the consumption of snacks can increase weight, there was less significant change from *pre-test* to *post-test*. As long as the consumed snacks are rich in fiber such as fruit, there will be no weight gain. Weight gain is actually caused by fast food, which has a high risk of more than five times obesity (Banjarnahor et al., 2021). The attitude statement regarding the consumption of vegetables and

fruits is good for the body has not changed, many obese adolescents choose to agree and strongly agree.

In the statement regarding resting time does not affect the incidence of obesity, obese adolescents experienced some changes in the selection of attitude statements to many choosing to disagree. Similar to the statement that physical exercise does not play a role in losing weight, many showed that they chose to disagree and strongly disagree. The physical activity statement also had a positive change where in the *post-test* many chose strongly agree and agree that physical activity needs to be done actively to achieve ideal body weight. The attitude statement expressing the desire of obese adolescents to try obesity management received a positive response of wanting to try. Most chose strongly agree and agree to start trying obesity management steps. According to the Directorate of P2P (2021), obesity management is divided into dietary management, physical activity management, emotional eating management, sleep management, and stress management.

Surairaoaka & Supariasa (2012) state that health education efforts can improve a person's knowledge, attitudes and skills. Although not all obese adolescents experienced changes in attitude scores after being given the intervention, the average attitude score increased after being given the intervention. In this study, obese adolescents have reached the level of attitude of accepting and responding, where someone is willing and attentive to the stimulus obtained and is able to provide answers when given questions (Pakpahan et al., 2021). The stimulus provided in this study was through the *e-booklet* intervention and the response was able to answer the *post-test*. Attitude changes can occur after being given a new perception or stimulus through intervention with an *e-booklet*, because adolescents are still unstable and easily influenced so that it has an impact on the formation of attitudes to adolescent character (Zhafira, 2018).

Pratami's research (2021) states that there is an effect of *e-booklets* as a nutrition counseling media in increasing positive attitudes in adolescents ($p = 0.000$). In obese high school adolescents in Semarang City, research results found that e-booklets were effective in increasing positive attitudes ($p = 0.001$) (Assidhiq, 2019). Providing *e-booklet* interventions can be one of the recommendations for media delivery of information to obese adolescents. During the research process, obese adolescents were given a *link* to access and download the *e-booklet* through their respective devices. The ease of disseminating information with *e-booklets* is supported by the habits of today's teenagers who always use the internet and devices as daily necessities. *E-booklets* are practical media and can be carried and accessed anywhere (Makdis, 2020). *E-*

booklets are also easily accessible with the internet so that it is easy to reach obese adolescents in a wider scope.

CONCLUSION

After conducting research on obese adolescents in SMK Singapura and SMK Daaruddawah Leuwisari District, Tasikmalaya Regency, it can be concluded that there is an effect of providing *e-booklet* interventions on obesity management on knowledge about obesity management in obese adolescents. There is an effect of providing *e-booklet* interventions on obesity management on attitudes about obesity management in obese adolescents.

Conflict of Interest

The authors declare that there are no conflicts of interest associated with this study. The research was conducted independently and there was no financial support, personal, or professional relationships that could influence the interpretation or presentation of the results. All data and information used in this study are presented in an objective and transparent manner.

Acknowledgment

The authors would like to express their deepest gratitude to all those who have supported this research. Thanks to the supervisors who have provided facilities and opportunities to carry out this research. We also appreciate the technical support from the writing team which was very helpful in completing this paper.

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