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Validity of E-Booklet Media and Its Effect On Increasing Obesity Prevention Knowledge in Adulthood

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Article Info

Abstract

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DOI https://doi.org/10.15294/jhe. v8i1.66284 **Background:** Prevention efforts are needed to improve quality of life and reduce mortality due to the risk of degenerative diseases due to obesity. The aim of the study was to develop e-booklet media as an educational media for obesity prevention and analyse the effect of applying e-booklet media on increasing obesity prevention knowledge.

Methods: This Research & Development research involved several subject groups including: material experts, media experts, media targets, small-scale media trial subjects and large-scale media implementation subjects. Data collection was carried out online via google form. Content validity analysis uses Content Validity Ratio (CVR) and Content Validity Index (CVI) while media validity and media objectives are based on the results of value conversion. Media trials were conducted with a knowledge pretest and post-test using a questionnaire. Analysis of the effect of media usage using the Wilcoxon test.

Results: The media content validity test obtained a mean CVR value of 11.99 and CVI 0.85. Media expert validity obtained a mean value of 4.29 and media target validity obtained a mean value of 4.50. The small-scale media trial obtained an increase in knowledge of 29.64%, while the large-scale media application was 19.98%. Pretest and post-test analysis showed p=0.000.

Conclusions: E-booklet media is very suitable as an educational medium to prevent adult obesity. The application of e-booklet media significantly affects the increase in knowledge about the prevention of adult obesity both on a small and large scale.

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INTRODUCTION

Obesity is a chronic disease prevalent in society and its prevalence is increasing year by year. Obesity is a progressive, chronic disease characterised by excess body fat (adiposity) and can impair health (Wharton et al., 2020). The World Health Organisation (WHO) defines obesity by a body mass index (BMI) exceeding 30 kg/m2 . The prevalence of obesity has increased in every country (Blüher, 2019). The prevalence of obesity in adulthood continues to increase every year, based on Riskesdas data in 2018 the prevalence of overweight has increased by 2.1% when compared to 2013 of 11.5%. While the prevalence of obesity has increased by 6.38% compared to 2013 of 14.8% (Indonesian Ministry of Health, 2018).

The causes of obesity are complex and the most common contributing factors to obesity in today's society are a high-fat diet and sedentary lifestyle (Ellulu et al., 2014). Easy access to unhealthy foods and increased consumption of fast food and junk food which tend to lack fibre and are high in fat, simple sugars, sodium and calories also increase the risk of obesity (Wu et al., 2021). Research (Crovetto et al., 2018) showed that people with obesity tend to have low consumption of healthy foods. In addition, obesity can also be caused by genetic factors, psychosocial, socioeconomic status, and cultural influences (Apovian, 2016).

Obesity will increase the risk of comorbidities in adults, including: type 2 diabetes, cardiovascular disease (dyslipidaemia, hypertension, stroke), kidney disease, infertility, immune system, sleep apnoea and several types of cancer such as breast, prostate, liver, kidney and colon cancer. A person with obesity also often causes psychosocial disorders such as societal disapproval and stigmatisation of their weight and depression (Kinlen et al., 2018). These conditions can increase the risk of longterm medical complications, increase mortality, and lead to disability and poorer quality of life (Blüher, 2019).

Obesity management should not only focus on weight loss, but should also be about improving health and well-being. Increasing knowledge about obesity is a better approach to prevent obesity and improve health outcomes by increasing understanding and awareness, resulting in changes in unhealthy behaviour towards healthier ones (Wharton et al., 2020). Nutrition education is one way to control and improve health by providing knowledge related to the causes of disease and promoting behaviour change towards better health.

The use of media is indispensable in the education process. In today's technological era, sophisticated and practical media greatly affects a person's interest in information. The benefits of educational media in general include clarifying messages, generating a passion for learning, overcoming limitations of space, time, energy and so on (Ekayani, 2017). Nowadays, people do a lot of things with the technology they have, therefore there is a need for innovation to ensure that people can receive any information about health including nutrition.

The COVID-19 pandemic has a positive impact on the implementation of nutrition education, nutrition education does not have to be carried out directly through face-to-face (offline), but can be carried out online. Many alternative media can be chosen with online nutrition education, one of these media is e-booklet media. Unlike booklets that are in the form of books, e-booklets are electronic media. The content presented is almost the same as the booklet, which contains text and images with an attractive appearance to increase interest and reading comprehension. In addition to information presented more fully, in more detail and practically, e-booklets can be accessed through information technology devices such as laptops and smartphones so that readers can study them independently (Amalia et al., 2020).

Research and Development (R&D) is a step used to develop a new product that will be used as educational media. In the media development process, it is necessary to assess the validity, feasibility and acceptability of the media so that the media produced can be suitable and suitable for use as a nutrition education media. Content validity is needed to determine the extent to which the elements in the assessment instrument are accurate and relevant for an assessment. Content Validity Ratio (CVR) and Content Validity Index (CVI) are used to measure content validity to be evaluated by experts (Gilbert & Prion, 2016)..

Media feasibility assessment is also

important to measure the quality of media development and how feasible this media is according to experts, practitioners and users. This feasibility test is carried out to find out whether this media can be useful or not if this media is used as a nutrition education media. Media feasibility assessment has a big role in the media development process, one of which is through feedback in the form of opinions, suggestions and criticisms generated from experts who assess can be a direction or standard for media improvement in order to become better media than before (Adnin, 2015). This study aims to develop e-booklet media as an effort to prevent obesity in adults and analyse the effect of applying e-booklet media on increasing obesity prevention knowledge.

METHODS

This research is part of Research and Development (R&D) research to produce e-booklet media products as a medium for preventing obesity in adulthood. Quasiexperimental with one group Pretest-Post test Design was applied to see the effect of the application of e-booklet media on increasing adult obesity prevention knowledge.

Subject

The research subjects were divided into 5, namely subjects for content validity testing/ material experts, media validity testing, and target validity, subjects for media trials and subjects for media applications. Subjects for content validity testing are academics or nutrition practitioners with minimum educational criteria of a bachelor's degree in nutrition. Subjects for media validity, namely: academics or media practitioners with educational criteria of bachelor's degree in computer science or bachelor's degree in communication or bachelor's degree in informatics or media practitioners who are competent in designing and developing media. Subjects for target validity are adults who have normal or overweight nutritional status. The number of subjects for each validity test is 3 people. Subjects for small-scale media usage trials are healthy adults who have normal or overweight nutritional status with a minimum education of graduating from high school as many as 30 people. While the subjects for

implementation or large-scale media usage trials are healthy male and female students in semester 4 or 6 who have normal or overweight nutritional status as many as 76 students. Subjects for media usage trials were selected by consecutive random sampling.

Procedure

The media development process was carried out by adapting the Borg and Gall model (1998) which consists of 10 steps. The e-booklet media development process begins with the process of analysing potential and problems, as well as collecting information needs which will be the basis for preparing material based on some literature, then preparing product design, design validity (content), media expert validity, design improvement, media target validity test, revision 1, trial use (small scale), revision 2, and trial use (large scale).

The small-scale media usage trial process was carried out by conducting online nutrition education to subjects using the WhatsApp application. Each subject was given the opportunity to read the e-booklet sent for 30 minutes. Furthermore, the discussion and question and answer process were carried out through the WhatsApp group. The media implementation process or larger scale media usage trials were also carried out by conducting nutrition education to subjects online using the WhatsApp application. Each subject was given the opportunity to read the e-booklet sent for 30 minutes. This nutrition education was repeated, so that nutrition education was conducted four times within two weeks.

Data Collection

Content Validity/Material Expert

Content validity data is obtained from the assessment of content or media content by material experts via google form. The content assessed about the overall obesity and prevention material is valid and in accordance with the reference source, according to the objectives, presented in order, using language that is easy to understand and can be applied daily. Scoring uses a Likert scale (1 = very unsuitable and 5 = very suitable). The results of the content validity assessment were then converted to scores.

Validity by Media Expert

Validity data by media experts is obtained

from the assessment of media suitability by media experts through google form. The suitability assessed around the design of the media display, writing, colour choices, visual and image quality, sentence structure, text and image size, text and image layout. Scoring uses a Likert scale (1 = very inappropriate and 5 = very feasible). The results of the validity assessment by media experts were then converted to scores. **Validity by Media Target**

Media validity data is obtained from the assessment of media suitability by target users via google form. The suitability assessed includes ease of media access, media suitability for target users, attractiveness of the topics presented, information and language are clear and easy to understand, media practicality, applicable, and clear writing. Scoring uses a Likert scale (1 = very unacceptable and 5 = very acceptable). The results of the media validity assessment by the target media users were then converted to scores.

Knowledge about Obesity Prevention

Data on knowledge of obesity prevention was collected by filling out pretest and post-test questionnaires by the test subjects of media application. The obesity prevention knowledge questionnaire used had previously been tested for reliability with a value of r = 0.877. Questions in the pretest and post-test questionnaires totalled 20 multiple choice questions containing information on obesity in the media, including: definition, obesity, causative factors, types of obesity, dietary guidelines to prevent obesity and obesity prevention efforts. The total knowledge score ranged from 0 to 100.

Data Analysis

Likert Scale Conversion to Values

The results of the assessment in the form of a Likert scale (1-5) were converted into values using the ideal average formula (Mi) = $\frac{1}{2}$ x (maximum ideal score + minimum ideal score) and ideal standard deviation (SBi) = 1/6 x (maximum ideal score - minimum ideal score). The formula for converting Likert scales into values is as follows.

Tabel 1. Like	Tabel 1. Likert Scale Conversion to values					
Criteria	Conversion Formula	Range of Values				
Very	> <i>Mi</i> + 1.5 <i>Sbi</i>	>4				
Feasible/						
Acceptable						
Feasible/	$Mi + 0.5 SBi > \bar{x} \le Mi$	3,33> <u>x≤</u> 4				
Acceptable	+ 1.5 SBi					
Simply	$Mi - 0.5 \text{ SBi} > \bar{x} \le Mi + Mi$	2,67>				
	0.5 <i>SBi</i>	<u></u> x≤3,33				
Less	$Mi - 1.5 SBi > \bar{\mathbf{x}} \le Mi - Mi$	$2 > \bar{x} \le 2,67$				
Feasible/	0.5 <i>SBi</i>					
Acceptable						
Very Less	<mi -="" 1.5="" sbi<="" td=""><td><2</td></mi>	<2				
Feasible/						
Acceptable						

Tabel 1. Likert Scale Conversion to Values

Content Validity Ratio (CVR) Analysis

Content validity ratio is a measurement of content validity in a development method. CVR is used to measure the agreement of experts on an assessment item on product assessment. Measurement of content validity uses assessment indicators in the range -1 to 1, the higher the CVR value shown on the assessment item indicates that the better the results (Lawshe, 1975). The following is the formula for determining CVR:

Description:

ne: number of experts who stated that it is feasible

N: number of all experts who validated

The results of the identification of question items will then be calculated using the Content Validity Index (CVI) formula to see the average CVR value of all question items against the content declared feasible by experts. The following is the formula used in the calculation of CVI:

Number of question items

Description: ΣCVR : total number of CVRs

Calculations for CVR and CVI show the results in the form of a ratio of numbers 0 to 1 which states the suitability of an item in validity. The CVI value obtained is then interpreted into the category value range based on the provisions of (Lawshe, 1975) as follows:

Table 2. Interpretation of CVI values	Table 2.	Interpretation	of CVI values
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CVI value	Interpretation Category
0 - 0,33	Not suitable
0,34 - 0,67	As per
0,68 -1,00	Very suitable

Analysis of the Effect of Using e-Booklet Media on Knowledge

Knowledge data analysis was conducted to determine the effectiveness of e-booklet media on increasing target knowledge in small and large groups. Data were obtained from the comparison of pretest and post test scores by looking at the overall average change in scores after the media was given. The formula for calculating the percentage increase in knowledge is as follows:

Mean post test - Mean pre test
Percentage increase = -----

Mean pre test

Statistical analyses were conducted using SPSS for Windows v25 software. The analysis was conducted to determine the average difference in target knowledge after being given nutrition education with e-booklet media. Statistical analysis used the Wilcoxon test because the data normality test showed that the data were not normally distributed.

RESULTS AND DISCUSSIONS Results of Potential, Problem and Information analysis

Based on the 2018 Riskesdas data, the prevalence of overweight and obesity in people aged >18 years increased by 16.9% compared to 2013 (Ministry of Health, 2018). Obesity in adulthood is caused by genetic factors, the

environment, food consumption behaviour, and physical activity (Wharton et al., 2020). The increasing prevalence of obesity in adulthood is the basis for obesity prevention efforts to improve quality of life, avoid degenerative diseases, and reduce mortality (Ryan & Kahan, 2018). Knowledge about obesity affects the incidence of obesity cases. Lack of knowledge and awareness about obesity, balanced nutrition, food intake, eating behaviour, and physical activity will affect a person's attitude and behaviour regarding obesity.

Information collection is done by literature study. Based on the results of the literature study, the information needed is in the form of material related to the definition of obesity, risk factors for obesity, classification of Body Mass Index (BMI), the impact of obesity, and prevention strategies (Apovian, 2016); (Ryan & Kahan, 2018);(Wharton et al., 2020). Prevention of obesity can be done by increasing knowledge through exposure to nutritional education media (Khoirunnisa & Kurniasari, 2022);(Kardi & Kurniasari, 2022).

Product Design

The media developed is an electronic booklet (e-booklet). The selection of e-booklet media as educational media developed in this study is because this media is designed in electronic form so that it can be accessed easily and can be read anywhere. The e-booklet developed is expected to be able to foster a person's interest in reading related to important information about obesity so that his knowledge can increase so that changes in attitudes and behaviour in obesity prevention can be done correctly. The composition of the material displayed in the media includes the prevalence of obesity, definition of obesity, obesity assessment, factors that cause obesity, the impact of obesity, and obesity prevention. Based on the material and design, an e-booklet media with 16 pages was produced. The e-booklet was created using the Canva application with orange and soft peach base colours. This e-booklet media is equipped with many interesting animated images so that users are not easily bored. The following is a snapshot of the final design of the e-booklet media can be seen in Figure 1.

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Figure 1. E-Booklet Media Design Snippet

Content Validity by Material Experts

The content validity test was assessed by 3 lecturers/practitioners who are experienced in the field of nutrition science with the criteria and assessment results can be seen in Table 3.

The material used in educational media must be relevant and valid so that validity testing is carried out by 3 material experts who are lecturers and practitioners in the field of nutrition science (Ximenes et al., 2019).. The material presented includes the prevalence of obesity, definition of obesity, types of obesity, causal factors, impacts, assessment indicators, and obesity prevention tips. The material validity process was conducted with 14 assessment items and analysed using the Content Validity Ratio (CVR) and Content Validity Index (CVI) values. Table 3 shows that the total CVR is 11.99 and the CVI value is 0.85, which means that the material used is "very suitable" to be used as material for nutrition education on obesity prevention, with minor improvements based on suggestions and input provided by experts in the form of additional literature on prevalence and obesity indicators.

Validity by Media Expert

Media validity assessment conducted by 3 media experts can be seen in Table 4. The validity test by media experts was conducted to assess the suitability of e-booklet media in terms of media design and appearance. The assessment was conducted by 3 media experts, based on 14 assessment items on media display design such as font type and size, image, colour, and layout of text and images. Table 4 shows the average of 14 assessment items with an average range of media assessment of 3.33 - 5.00 and an overall average of 4.29 which means that the e-booklet media is "very suitable" in terms of design and appearance as a nutrition education media for obesity prevention. The suggestions and input given as material for improving media design such as the layout of text and images. The validity value of the e-booklet media in terms of design and appearance of this media is higher when compared to the audiovisual media of balanced nutrition for adolescents which gets an average value of suitability of 3.70 (Firmansyah et al., 2022).

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Table 3. Results of	Validity by	y Material Experts
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Overtion		Validator		OVD	D
Question	1	2	3	- CVR	Description
The material is clearly presented and easy to understand	5	5	5	1,00	Valid
The material presented in the media is in accordance with the objectives	4	4	5	1,00	Valid
The material presented is in accordance with the theme "Obesity in Adulthood"	5	5	5	1,00	Valid
The content of the material is presented in a coherent manner to explain the overview of obesity	3	5	5	0,33	Valid
The material on the prevalence of obesity presented is appropriate and valid	4	5	5	1,00	Valid
Material on types of obesity in accordance with valid theories	4	5	5	1,00	Valid
Material on factors that cause obesity in accordance with valid facts and theories	4	5	4	1,00	Valid
The material on the impact of obesity is in accordance with valid facts and theories	4	5	5	1,00	Valid
Material on obesity indicators or assessments in accordance with valid theories	4	5	5	1,00	Valid
Materials on obesity prevention in accordance with valid theories	4	5	4	1,00	Valid
Information provided is in accordance with the information needs related to obesity prevention in adulthood	4	4	4	1,00	Valid
Ease of applying the material provided in daily life	4	3	4	0,33	Valid
The language used in the media is easy to understand for all people	4	3	4	0,33	Valid
Overall, the material presented is relevant for adult obesity prevention.	4	4	5	1,00	Valid
Overall average				ΣCVR=11.99	

Table 4. Results of Validity by Media Experts

Question			Validator		
Question	1	2	3	- Average	
Easy access to media	5	4	5	4,67	
Effectiveness in getting information through <i>booklet</i> media is good	5	4	5	4,67	
Good suitability of the media used for the target	4	3	5	4,00	
The use of language in educational media is good and easy to understand	5	5	5	5,00	
The topics discussed are interesting	4	5	5	4,67	
Text / writing in the media can be read clearly	5	4	4	4,33	
Interesting learning media display design	4	4	5	4,33	
The visual quality of the media is good	4	4	4	4,00	
The sentence structure in the media is good	4	5	4	4,33	
Text and image sizes are finalized	4	4	4	4,00	
The selection of text and image layout is good	3	3	4	3,33	
The images used are attractive	4	4	5	4,33	
The use of colours is appropriate and attractive	3	5	4	4,00	
Overall, the combination of images, text, and colours in the media is good and interesting.	4	4	5	4,33	
Overall average				4,29	

Product Design Improvements

Product design improvements were made based on suggestions and input provided by media experts and material experts. These improvements were made as a step to perfect the media before the validity test was carried out by the target users. Some of the comments and suggestions received include the position of the text above the image making the text less clearly legible, the placement of the banner (word ribbon) covering the image object so that it can reduce the meaning of the image object, left or centre alignment so as not to cause distance so that the text looks neater, the placement of obesity definition material should be delivered before the prevalence of obesity, and the addition of literature sources on the prevalence of obesity and obesity indicators.

Media Target Validity

The validity test by target media users was carried out by 3 target users, namely adults. The validity test by target users of e-booklet media was carried out by 3 with 14 question items shown in Table 5. Table 5 shows from 14 assessment items the average range of media assessment by target users is 4.33 - 5.00 and the overall average media assessment by target users is 4.50, which means that the e-booklet media is "very suitable" to be applied to adult targets as a media education / nutrition education for the prevention of obesity in adulthood. Overall, the three targets stated that the developed e-booklet media was attractive and practical in its function as a medium for obtaining obesity prevention information. The validity value of this media target is almost the same as the value of the audiovisual media for balanced nutrition for adolescents developed by (Firmansyah et al., 2022) which showed an average media user target assessment of 4.60.

Educational media will be effectively used if it attracts the interest and motivation of users or media targets. This is in accordance with (Pralisaputri et al., 2016), that a reading media with a brief description and many pictures and colours is preferred by readers, so that the use of media can generate interest and motivation to learn.

Table 5. Re	esults of Va	lidity Test	by Target	Media
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Question		alidat	Auguaga	
Question	1	2	3	Average
Media can be obtained with easy access	4	4	5	4,33
Topics presented in the media are interesting	4	5	4	4,33
Information contained in the media is easy to understand	4	5	5	4,67
This form of media (booklet) is suitable for adult audiences.	5	3	5	4,33
The image display in the booklet media is interesting	5	5	5	5,00
The writing/text on the booklet media can be read clearly	5	5	4	4,67
The language used is easy to understand	4	5	5	4,67
Images do not distract users when reading the material	5	5	4	4,67
The material is presented in a coherent manner	5	4	4	4,33
Interesting media display design	5	4	5	4,67
The selection of colours used in the media is interesting	4	4	5	4,33
The display quality of the booklet media is good (resolution and clarity of	5	3	5	4,33
the booklet).				
The information presented in this media is easy to apply in everyday life	4	4	5	4,33
Overall, I am satisfied with this video because it is practical and interesting	4	4	5	4,33
as a nutrition education media.				
Overall average				4,50

Usage Trial (Small Scale)

At the small-scale media trial stage, a pretest and post test process were carried out to see the increase in knowledge after providing education through the e-booklet media. The results of the trial use of e-booklet media conducted on a small scale on 30 targets are shown in Table 6.

 Table 6. Results of Media Usage Trial on a small scale

Nutrition knowledge	Mean	Percentage Improved	p-value
Pretest	64,66	20 (4.0/	0.000
Post test	83,83	29,64 %	0,000

*Wilcoxon Signed Ranks Test

The results of the trial use of e-booklet media showed an average pretest score of 64.66 and an average post test score of 83.83 with an increase in knowledge of 29.64%. Based on the results of statistical tests with the Wilcoxon test obtained a p-value of 0.000 (p <0.05) which means that there is a significant difference between knowledge before and after being given e-booklet media as education.

Nutritional knowledge does not directly influence a person's attitude and behaviour in choosing food. Knowledge allows a person to understand the benefits of the nutritional content of the food they consume (Anjani & Kartini, 2013). Increased knowledge about obesity is expected to shape the right behaviour in choosing the food consumed so as not to cause obesity. In addition, a person with good nutritional knowledge can avoid foods that have a negative impact on their health (Mulyani et al., 2020).

Trial Use (Large Scale)

The trial use of e-booklet media was conducted on a large scale on 76 targets with the range shown in Table 7.

Table 7. Results of Media Usage Trial on a large scale

Nutrition knowledge	Mean	Percentage Improved	p-value
Pretest	68,82	10.020/	0.000
Post test	82,57	19,98%	0,000

*Wilcoxon Signed Ranks Test

At the development stage based on the Borg and Gall model, improvements or

revisions should be made after a small-scale trial of media use. However, in the process of developing this e-booklet media there is no improvement or does not require revision again. So, the next stage is the trial use of media on a large scale. Based on Table 7, it is known that the results of the media usage trial on a large scale obtained an average pretest score of 62.82 and an average post test score of 82.57 with an increase in knowledge of 19.98%. The results of the difference analysis with the Wilcoxon test on nutritional knowledge before and after being given an e-booklet showed a difference with a p-value of 0.000 (p < 0.05), which means that there is a significant difference between knowledge before and after being given education through the e-booklet media.

The results of the trial use of this e-booklet media are in line with research (Wahidah & Ruhmawati, 2022) which showed an increase in knowledge of obesity prevention in adolescents after being given health education with e-booklet media. Research by (Lendra et al., 2018) also showed an increase in knowledge about energy adequacy in adolescents at SMAN 1 Pontianak after providing education with booklet media. According to research (Muwakhidah et al., 2021), booklet media has the highest effectiveness in increasing adolescent girls' knowledge about anaemia compared to other visual media such as posters and leaflets.

The percentage of knowledge increase after being given e-booklet media is only around 19.98% - 29.64%. This result may be due to the provision of e-booklet media not accompanied by an explanation of the material presented in the e-booklet media. In providing media, it should be accompanied by lectures or counselling. Lectures or counselling serve to explain the material contained in the e-booklet so that the information or messages contained in the e-booklet can be received more optimally by the brain and can further increase one's knowledge.

Research (Herawati et al., 2021) showed that providing media with counselling was proven to have an effect on parents' knowledge as well as the amount and frequency of fruit and vegetable consumption in preschool children compared to only providing media without counselling. Other studies have also reported that nutrition education with booklet media accompanied by counselling on balanced nutrition in adolescents can also improve knowledge, attitudes and diverse eating patterns such as nuts, tubers, vegetables and sugar (Diba et al., 2022).. In contrast, nutrition education lectures with the provision of e-booklet media are more effective in increasing nutritional knowledge by about 2.21 times and attitudes by about 4.9 times in obese adolescents when compared to only being given education with lectures alone (Kurniasari et al., 2021).. The results of this study are in accordance with previous studies on the role of media in the process of health promotion or education. These studies include (Rachma Dewi & Laksamana Caesar, 2022) which shows that health promotion using flip chart media is effective in increasing santri knowledge about basic sanitation.

CONCLUSION

Overall, based on the results of the content validity test, expert and media target and the trial use of e-booklet media on target adult users, it shows that e-booklet media is very suitable for use as a nutrition education media for obesity prevention in adulthood. The developed e-booklet media can increase knowledge about obesity by about 29.64% in the small-scale media usage trial and 19.98% in the large-scale media usage trial. Thereby, it is expected that increasing knowledge of obesity can affect a person's attitude and behaviour regarding efforts to prevent obesity. Suggestions for further research to analyse the effectiveness of providing e-booklet media that has been developed accompanied by counselling or lectures explaining the material in this e-booklet media so that the increase in knowledge can be maximised.

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