Nutrition Education about Overweight with Social Media Instagram and Youtube Can Increase the Knowledge and Attitudes of Adolescents in MAN 1 Bogor City

Shafira Salzakilla Damayanti, Utami Wahyuningsih*, M. Ikhsan Amar and Muh. Nur Hasan Syah

University Pembangunan Nasional Veteran Jakarta, Indonesia

Abstract: The high prevalence of overweight in adolescents is one of the nutritional problems in Indonesia. The provision of nutrition education is a solution to increase knowledge and attitudes about overweight in adolescents by utilizing social media Instagram and YouTube, which are currently multiplying in accessing information faster. This study was conducted to determine the effect of education on social media, Instagram and YouTube on adolescents' knowledge and attitudes toward overweight. The method used in this research is quasi-experimental, with the number of respondents being 98 students in classes X and XI, which are divided into four groups, namely Instagram, YouTube, Instagram and YouTube groups and controls. The results of this study indicate an increase in knowledge and attitudes with a value ($p < 0.05$) and differences in the effectiveness of knowledge. There is no difference in attitudes between Instagram and YouTube media. Then, there is no difference in effectiveness between Instagram and combined media (Instagram and YouTube) on knowledge and attitudes in adolescents. Furthermore, there is no difference in effectiveness between YouTube media and combined media (Instagram and YouTube) on knowledge and attitudes in adolescents.

1 INTRODUCTION

Nutrition is a state of imbalance when a person's energy intake is greater than his needs, causing excess body weight. Factors, namely internal and external cause the incidence of overnutrition.factors that influence are environmental and lifestyle factors (Amir 2018).

Adolescents are a group that is vulnerable to nutritional problems, because the adolescent age group is in a phase of rapid growth and development, so this phase requires a greater intake of nutrients (Simbolon et al, 2018).

Based on the National Basic Health Research in 2013, the prevalence of nutritional status of adolescents of overweight was 5.7% and increased in 2018 by 9.5%. West Java Province became one of the provinces with prevalence of overweight. It is classified as high at 10.9%. The prevalence of nutrition is relatively higher in adolescents girls compared to male adolescents, 11.4% for girls and 7.7% for boys (Riskesdas 2018). Based on data from Bogor City Health, the prevalence rate of overweight was high at 20.1% in 2013 and includes the highest prevalence in West Java (Dinkes Kota Bogor 2019).

According to Suryaputra and Nadhiroh (2012), adolescents who have good knowledge about nutrition and dietary regulation will mostly avoid overnutrition, the wider knowledge about nutrition will affect attitudes and behavior towards the food consumed.

The importance of health promotion requires new learning methods to ensure that the health message conveyed can be captured properly. The provision of health education can be delivered by several methods and media such as through lectures, group discussions, demonstrations, visual media and social media.

Instagram and YouTube are social media platforms that are currently widely accessed by public users, especially in Indonesia. In 2021 the number of Instagram social media users is 86.6% which is in third place, while YouTube social media is in first place with 93.8% of users (We Are Social 2021). By utilizing social media Instagram and YouTube, providing nutrition education will be easier and more effective.

Based on a preliminary study conducted at MAN 1 Bogor City via Google Form on 35 students, it resulted that 71.4% of students had less knowledge related to overnutrition, and 60% of students had never received nutrition education. Therefore, researchers are interested in using social media Instagram and YouTube to examine the impact of providing nutrition education on adolescent knowledge and attitudes about overweight in MAN 1 Bogor City.

2 METHODS

This research is a quantitative type using a quasi-experimental design. The population in this study were teenagers in class X and XI at MAN 1 Bogor City. The inclusion criteria in this study were active students in grades X and XI, had good access to gadgets, laptops or computers, could operate gadgets, laptops or personal computers, had active Instagram and YouTube social media accounts, and were willing to be research respondents. The sampling method used is stratified random sampling. Respondents will be divided into 3 groups, Instagram

group, YouTube group, and Instagram and YouTube groups. Data collection was carried out online, pre-test which was carried out day one before the intervention, then the intervention in the form of nutrition education was seven times with a distance of 2 days intervention, and post-test was conducted after the last intervention. Data analysis used in this study included univariate analysis and bivariate analysis.

3 RESULTS

There were only 73 respondents involved in this research activity, consisting of 25 people in the Instagram group, 25 people in the YouTube group, and 23 people in Instagram and YouTube groups.

Based on the results in table 1, it is stated that the gender of the majority of women who participated in the study was 82.2%. The age of the respondents is at most 17 years old as much as 41.1%. The nutritional status of the respondents was determined based on the calculation of the z-score value with BMI/U index, and most of them had normal nutritional status as

Table 1: Frequency Distribution of Respondents Characteristics.

	Charcteristics	Total (n)	Percentage (%)
Gender	Male	13	17,8
	Female	60	82,2
Age	15 Years Old	15	20,5
	16 Years Old	27	37,0
	17 Years Old	30	41,1
	18 Years Old	1	1,4
	Median ± Min - Max	16,0 ± 15-18	
Nutritional Status	Thin	5	6,8
	Normal	63	86,3
	Overweight	4	5,5
	Obesity	1	1,4
	Median ± Min - Max	-0,29 ± -2.78 - 2,05	
Parents Education	Low : Tidak sekolah, SD, SMP	6	8,2
	Moderate : SMA/SMK	34	46,6
	High : Perguruan Tinggi (D3,D4,S1,S2,S3)	33	45,2
Parents Salary	Low ≤ Rp.1.810.000	10	13,7
	Moderate Rp.1.810.001 -Rp.2.800.000	16	21,9
	High Rp.2.800.001 - Rp.4.000.000	24	32,9
	Very High > Rp.4.000.000	23	31,5
Parentss Job	PNS/Polri/TNI	10	13,7
	Entrepreneur	19	26,0
	Teacher/Leacture	8	11,0
	Private Employee	27	37,0
	Driver	0	0
	Doesn't work	2	2,7
	Other	7	9,6
	Total (n)	73	100

much as 86.3%. This is in line with Nurholilah, (2019) that the majority of students at SMK IT AN NABA Bogor City have normal nutritional status with a percentage of 68.6%. Then the last education of the respondent's parents is divided into three categories. The average last education of the respondent's parents is SMA/SMK as much as 46.6%.

The high or low education of parents affects the progress of their children's education (Azizah.A.M 2017). The level of parental education will determine the way parents guide and direct their children in terms of education, because parents educate their children according to the knowledge they have (Sunain 2017). The income of the respondent's parents is divided into four categories based on the value of the Provincial Minimum Wage of West Java, the majority of whom earn Rp. 2,800,001 - Rp. 4,000,000 as much as 32.9%. In the results of research by Mufida and Effendi, (2019), it is stated that parents who have a good economic background can support their children's education and can meet their learning needs. Then the work of parents is divided into seven categories, most of which work as Private employees as much as 37%. This research is in line with Hadiyanto Herman, (2014) which states that by working, you can earn income or benefits for the length of work, this working can meet standards to meet proper needs which can affect learning activities and student achievement.

Based on the results in table 2, the distribution of the frequency of knowledge in adolescents shows that the Instagram group during the pretest was in the good category by 88%, and increased at the posttest by 100%. Then for the attitude value in the Instagram group at the pretest the most in the less category is 92% and at the posttest the good category is 80%.

The knowledge value in the YouTube group at the time of the pretest was mostly in the good category of 96% and increased at the time of the posttest by 100%. Then the attitude value in the YouTube group at the time of the pretest was mostly in the less category, which was 100%, and at the posttest the majority was in the good category, which was 96%.

The value of knowledge in the Instagram and YouTube groups at the time of the pretest and posttest was mostly in the good category at 100%. Then for the attitude value in the Instagram and YouTube groups at the time of the pretest the majority fell into the less category, which was 100%, while at the posttest the majority was in the sufficient category, which was 95.7%.

Based on the results of the analysis in table 3, it can be seen that there is a significant difference in the average knowledge about overweight between before and after being given nutrition education with Instagram media for adolescent in grades X and XI at MAN 1 Bogor City (p = 0.000) . This is in line with the research of Nomiaji et al., (2020) and Rusdi et al. (2021) which state that there are differences in the knowledge and attitudes of adolescents before and after being given nutrition education in the Instagram group with a p-value of 0.000.

Table 2: Distribution of Respondents Knowledge and Attitude Levels Before and After in each Group.

Variable	Instagram Group				YouTube Group				Instagram-YouTube Group			
	Pretest		*Posttest*		*Pretest*		*Posttest*		*Pretest*		*Posttest*	
Knowledge	n	%	n	%	n	%	n	%	n	%	n	%
Lack	3	12	-	-	1	4	-	-	-	-	-	-
Good	22	88	25	100	24	96	25	100	23	100	23	100
Total	25	100	25	100	25	100	25	100	23	100	23	100
Attitude												
Lack	23	92	5	20	25	100	1	4	23	100	1	4,3
Good	2	8	20	80	-	-	24	96	-	-	22	95,7
Total	25	100	25	100	25	100	25	100	23	100	23	100

Table 3: Differences in Knowledge and Attitudes Before and after Nutrition Education Regarding Overweight in Instagram Media Groups.

Variable	Mean ± SD	Min-Max	P-Value
Knowledge			
Pretest	73,40 ±13,9	40-95	0,007
Posttest	84,80 ± 9,94	65-100	
Attitude			
Pretest	46,84 ± 11,8	32-82	0,000
Posttest	66,80 ± 9,26	56-98	

Table 4: Differences in Knowledge and Attitudes Before and After Nutrition Education Related to Overweight in the YouTube Media Group.

Variable	Mean ± SD	Min-Max	P-Value
Knowledge			
Pretest	72,60 ± 10,0	55-90	0,000
Posttest	93,80 ± 6,81	80-100	
Attitude			0,000
Pretest	41,52± 5,02	32-50	
Posttest	68,44 ± 6,21	57-84	

Table 5: Differences in Knowledge Before and After Nutrition Education Regarding Overweight in Instagram and YouTube Media Groups.

Variable	Mean ± SD	Min-Max	P-Value
Knowledge			
Pretest	77,39 ± 8,10	60-95	0,000
Posttest	90,22 ± 8,18	75-100	
Attitude			
Pretest	42,70 ± 3,22	35-47	0,000
Posttest	68,52 ± 5,22	57-80	

Based on the results of the analysis in table 4, it is known that there are differences in knowledge and attitudes between before and after being given nutrition education in the YouTube group. This is in line with the research of Meidiana et al. (2018) and Rinarto Latifa et al., (2022) that there are differences in knowledge and attitudes before and after being given education to the YouTube group. Based on the results of the analysis in table 5, it can be seen that there are differences in knowledge and attitudes between before and after being given nutrition education using Instagram and YouTube social media in adolescents. This is in line with the research by Senja Atika Sari and Suhendra Sulaeman, (2018) which showed that there were differences in the level of knowledge and attitudes before and after nutrition education was given to the visual and audiovisual combination group.

The results of the analysis in this study indicate that providing nutrition education about overweight using Instagram and YouTube social media can increase the average knowledge score, significant difference in the average knowledge score between before being given nutrition education and after being given nutrition education using social media Instagram and YouTube.

Based on the results of this study, it is known that the information obtained by respondents through nutrition education media in the form of social media in the form of Instagram feeds in the @Halo.Gizi account and Youtube videos in the @Halo.gizi account can increase their knowledge about overweight.

In the research of Ratna and Lies Elina P, (2021) that today's teenagers prefer social media because they have internet facilities on cellphones to access information. There are several social media that are in great demand among teenagers today, Instagram and YouTube. Where both these applications have their respective advantages. Instagram is a social network which is a place to post any content. Instagram is a very interesting platform, full of inspiration, opinions, and experiences of other people (Staniewski and Awruk 2022).

Instagram has considerable potential and has a broad reach to be used as a medium for delivering health information. The Instagram application has interesting features that can be easily accessed by teenagers in obtaining information quickly and the Instagram application is very easy to use, making it an alternative media source of education.

This study utilizes the "Feed" feature to inspire nutrition education materials in the form of infographic photos. Respondents can more easily capture the information conveyed through infographics, because the information is captured visually which can be read directly. The material provided is summarized in a simple manner, and is supported by a slide feature in the feed that can make it easier for someone to read information related to nutrition education easily.

Youtube is one of the online media that has audiovisual media facilities and this media is very

Table 6: Comparison of Group Posttest Values between Instagram and YouTube Media Groups.

Variable	Instagram	YouTube	P-Value
	Mean ± SD	Mean ± SD	
Knowledge	84,80 ± 9,94	93,80 ± 6,18	0,001
Attitude	66,80 ± 9,26	68,44 ± 6,21	0,174

Table 7: Comparison of Posttest Values between Instagram and Instagram – YouTube Media Groups.

Variable	Instagram	Instagram & YouTube	P-Value
	Mean ± SD	Mean ± SD	
Knowledge	84,80 ± 9,94	90,22 ± 8,18	0,064
Attitude	66,80 ± 9,26	68,52 ± 5,22	0,123

interesting to be used as a media choice when learning online. In the media, YouTube presents a lot of material content, so that it can attract students' interest to listen to learning activities. Based on Hatini, (2021) that YouTube as an online learning medium can increase knowledge in adolescents, so that audiovisual videos are more effective in increasing adolescent knowledge.

Based on the results of the analysis in table 6, it is known that there are differences in the effectiveness of nutrition education between Instagram and YouTube social media on knowledge related to overweight in adolescents. This is in line with the research of Primanita, (2020) which states that there is a difference in the effectiveness of nutrition education between visual and audiovisual media on knowledge. The attitude value shows no difference in effectiveness between Instagram and YouTube social media. Similarly, research by Putri et al. (2017) that there is no difference in the effectiveness of nutrition education between visual and audio-visual media on attitudes in adolescents.

Based on the results of the analysis in table 7, it is known that there is no difference in effectiveness in providing nutrition education between Instagram social media and Instagram-YouTube social media on knowledge and attitudes related to overweight in adolescents. In providing nutrition education using visual and audio-visual media is more effective than visual alone. In line with Kurnianingsih, (2019) video media convey information faster, because video media convey information through audio and visual so that someone understands what is taught through video media and is supported by visual media.

Based on the results of the analysis in table 8 that there is no difference in effectiveness in providing nutrition education between YouTube social media and Instagram-YouTube on knowledge and attitudes related to overweight in adolescents. This is also in line with the research of Senja Atika Sari and Suhendra Sulaeman, (2018) that there is no difference

in effectiveness between using one educational media with a combination of media on knowledge and attitudes. Media is an interesting and effective learning method for students. This is in accordance with Maria Agustin, (2014) that combining two visual and audiovisual media is equally effective in providing education.

4 CONCLUSIONS

In this study, it can be concluded that there is a difference in the average knowledge about overweight between before and after being given nutrition education with Instagram and YouTube media in class X and XI adolescents at MAN 1 Bogor City with a p-value of 0.000. Furthermore, in the difference in the effectiveness of YouTube social media, it is most effectively used as a student learning.

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