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Enhancing Knowledge, Attitudes, and Motivation in Stunting Prevention by Community-Based Education

Lina Handayani*, Heni Trisnowati, Tria Nisa Novianti, Isah Fitriani, Tania Vergawita, Aufatcha Ayutya Suryana, Ardiansyah Jumaedi Nasir, Melly Eka Saputri

Public Health Department, Faculty of Public Health, Ahmad Dahlan University, Prof. DR. Soepomo Sh Street, Warungboto, Umbulharjo, Yogyakarta 55164, Indonesia

Abstract

Background: *Stunting is a global public health problem that can impair children's physical and cognitive development. In Indonesia, although the prevalence of stunting has decreased, it is still relatively high. Adolescents, especially adolescent girls, play an essential role in stunting prevention, as their knowledge, attitudes, and motivation can influence the health of future generations. Community-based education, such as Karang Taruna youth groups at the village or kelurahan level, using audiovisual media, is considered adequate for increasing adolescents' understanding and awareness of stunting.*

Method: *This study used a quasi-experimental method with a one-group pretest-posttest design. The sample was 33 adolescents in Sumberan Hamlet, Sleman, Yogyakarta. The intervention was stunting prevention education using audiovisual media delivered in one one-hour session in October 2024. Data were collected through questionnaires to measure knowledge, attitudes, and motivation which were standardized and analyzed using the Wilcoxon Signed Rank test.*

Result: *This study showed a significant increase in adolescents' knowledge with a mean difference between pre-test and post-test of 9.26 (p=0.001) and in attitude with a mean difference of 2.33 (p=0.003) after the intervention. However, adolescents' motivation did not increase significantly, with a mean difference between pre-test and post-test of only 0.70 (p=0.274).*

Conclusion: *Community-based education using audiovisual media effectively improves adolescents' knowledge and attitudes about stunting.*

Keywords*: Adolescents, Community, Education, Stunting*

INTRODUCTION

Stunting is a developmental disorder in children caused by malnutrition, recurrent infections, and lack of psychosocial stimulation. By 2022, 149 million children under five globally will be stunted (too short for their age). Almost half of the deaths of children under the age of 5 are related to malnutrition, especially in low- and middle-income countries. The impact of malnutrition is profound and has long-term consequences on development, economic, social, and health outcomes for individuals and their families, society, and the country as a whole.[1]

Stunting in Indonesia is still a serious public health issue. Based on the 2022 Indonesian Nutrition Status Survey, the stunting prevalence trend among under-fives decreased from 27.9% in 2019 to 24.4% in 2021. It reached 21.6% in 2022.[2] Although this figure shows an encouraging decline, the prevalence of stunting in Indonesia is still relatively high compared to the national target. In the Special Region of Yogyakarta, the stunting trend is also decreasing, as seen in Sleman District which has succeeded in reducing the stunting rate to 4.41% by 2024.[3] Despite these positive developments, stunting prevention efforts still need to be strengthened for ensuring that future generations have a better quality of life.

The Ministry of Health emphasizes the importance of preventing stunting from an early age, because if stunting has occurred, its handling becomes more complex and requires considerable effort with a low chance of recovery. To reduce stunting, the Ministry of Health has launched eleven

Correspondence*: Lina Handayani
E-mail: lina.handayani@ikm.uad.ac.id

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intervention programs focused on two critical growth phases, namely before and after the birth of a baby. In the first phase, there are two interventions: one for pregnant women and one for adolescent girls in grades 7 and 10.[4] The WHO also recommends investing in the health of women, girls, and adolescents to achieve a healthier and more sustainable future.[5]

In some developing countries, stunting is caused by lack of parental education, place of residence (rural), low socio-economic conditions, too young age of pregnant women (<20 years old), low knowledge about nutrition, lack of nutritional intake during growth, improper sanitation and latrines, and infectious diseases. Adolescents are at the forefront as agents of change, so they must be involved in stunting prevention. Some teenagers assume that stunting education is required only by parents and their spouses. Stunting is a cycle in human life determined from adolescence in preparing oneself as a future mother.[6]

Early marriage is also a serious concern and is associated with the stunting cycle. Although the national child marriage rate has decreased from 10.35% in 2021 to 6.92% in 2023, it is still relatively high.[7] Given the high prevalence of anemia and early marriage rates, nutrition promotion among adolescents is crucial. Nutrition promotion in adolescents impacts their current health condition and has long-term implications for their quality of life in adulthood. Adolescents who adopt a healthy diet and active lifestyle are more likely to enjoy better health as adults, with a lower risk of disease.[8]

Adolescents are an essential group in stunting prevention efforts because they are in a phase of rapid development, both physical, cognitive, and psychosocial.[9] The adolescent phase is one of the crucial periods that adults must accompany and guide. The adolescent period itself is grouped into three stages, namely early adolescence (10—13 years old), middle adolescence (14—17 years old), and late adolescence (18—24 years old).[10] Adolescents have a high curiosity and drive to develop themselves, so appropriate education can help them understand and apply a healthy lifestyle. In addition, adolescents who have a good understanding can also become agents of change in their families and communities, which plays a role in breaking the cycle of stunting between generations.[11]

One practical approach to delivering health education to adolescents is through audiovisual media. As an audiovisual medium, video uses the senses of sight and hearing to display objects, helping shape attitudes and understanding repeatedly. This media is effective in preventive and curative counseling, especially for adolescents, because it stimulates the imagination and creates a fun learning atmosphere. Videos also improve memory and clarify their understanding of the materials, such as in stunting prevention counseling.[12]

According to research by Ikasari et al., animated video media improves adolescents' attitudes towards balanced nutrition. This increase occurred because the knowledge they received was better, resulting in a positive attitude response. In addition, selecting appropriate media is essential in health education, especially when conveying complex information. As audiovisual media, animated videos help adolescents understand information more easily and interestingly, which is relevant to increasing motivation in stunting prevention efforts.[13]

METHOD

Participants and Study Design

This study employed a quasi-experimental method with a one-group pretest and posttest design. Research sampling using total sampling obtained as many as 33 youths from Karang Taruna Dusun Sumberan. Total sampling is a method in which all population members are used as research samples.[14] The research was conducted on October 26, 2024, in Sumberan Hamlet, Candibinangun Village, Pakem, Sleman.

Measurements and Procedure

Data were collected using a questionnaire that had been tested for reliability. The reliability test revealed the Alpha Cronbach value of 0.731 for knowledge, 0.755 for attitude, and 0.794 for motivation. Measurements were taken at the beginning before the audiovisual intervention on nutrition prevention (pretest) and after the intervention (posttest).

The intervention was through health education using audiovisual media for 1 hour. The material was delivered through an animated video from National Population and Family Planning Board of West Papua Province and an interactive PowerPoint presentation, which included information on the

definition of stunting, causal factors, impacts, balanced nutrition needs, and stunting prevention strategies. The selection of this video was based on its relevance to the research objectives, which emphasized the active role of adolescents in stunting prevention. The content in the video presents comprehensive information, delivered with easy-to-understand language and attractive visuals, making it suitable for educating the general adolescent community.

Statistical Analysis and Ethical Clearance

Data were first tested for normality, as presented in Table 1. Because the data were not normally distributed, the analysis was continued with the Wilcoxon Signed Rank Test to compare differences in adolescents' knowledge, attitudes, and motivation before and after the intervention (p-value < 0.000). This study was approved by the Health Research Ethics Committee of the Banyuwangi Regency School of Public Health Sciences (SKM) with a reference number of 332/04/KEPK-STIKESBWI/VIII/2024 on August 15, 2024.

RESULT

The normality test was conducted in this study to determine the data distribution (Table 1). The Shapiro-Wilk test shows that the knowledge data were not normally distributed because the p-value for all variables was less than 0.05. In the motivation difference variable, the p-value of 0.000 indicates the non-normality of the data distribution. Similarly, the attitude difference's p-value was also 0.000, indicating that the data were not normally distributed. The same result was found for the difference in motivation (the second measurement), with a p-value of 0.000 indicating the non-normality of the data distribution. Therefore, it can be concluded that the data did not follow a normal distribution, necessitating non-parametric statistical tests for further analysis.

Table 1. Normality Test of Pre-test and Post-test Difference

Variables	Shapiro-Wilk		
	Statistic	df	p-value
Knowledge	0.736	33	0.000
Attitude	0.806	33	0.000
Motivation	0.821	33	0.000

Based on Table 2, it is known that most of the respondents were in the middle adolescence category (14—17 years) with 16 of 33 individuals (48.50%). The latest education of parents was generally middle to lower class, with most fathers having a history of high school / high school education (48.50%) and mothers junior high school (54.50%). Most respondents' fathers worked as laborers (48.50%), while most mothers were housewives (69.70%).

Table 3 shows the results of the Wilcoxon test, the average score of knowledge increased by 9.26, with a p-value of 0.001, indicating a significant difference in knowledge before and after the intervention. A significant difference also occurred in the attitude score, with an average difference of 2.33 and a p-value of 0.003. In contrast, although there was a slight increase in the motivation score of 0.70, this result showed no significant difference in adolescents' attitudes before and after the intervention, with a p-value of 0.274. Thus, the intervention was effective in improving knowledge and attitude, but did not have a significant impact on motivation.

Table 2. Characteristics of Respondents

Variables	n	%
Age		
Early Adolescence (10-13 years)	2	6.10
Middle adolescence (14–17 years)	16	48.50
Late adolescence (18–24 years)	15	45.50
Gender		
Male	18	54.50
Female	15	45.50
Father's Last Education		
Elementary School	4	12.10
Junior High School	13	39.40
Senior High School	16	48.50
Mother's Last Education		
Elementary School	2	6.1
Junior High School	18	54.5
Senior High School	13	39.4
Father's Occupation		
Unemployed	2	6.10
Laborer	16	48.50
Private employee	2	6.10
Village head	1	3.00
Tour guide	1	3.00
Farmer	9	27.30
Entrepreneur	2	6.10
Mother's Occupation		
Housewife	23	69.70
Laborer	2	6.10
Cashier	1	3.00
Farmer	5	15.20
Entrepreneur	2	6.10

Table 3. Pre-test and Post-test Results of Knowledge, Attitude, and Motivation of Stunting

Variable	Mean ± Standard Deviation		Mean Difference	p-value
	Pre-test	Post-test		
Knowledge	33.80 ± 2.35	24.54 ± 2.26	9.26	0.001
Attitude	62.60 ± 9.45	64.93 ± 9.80	2.33	0.003
Motivation	25.87 ± 6.20	26.57 ± 6.04	0.70	0.274

DISCUSSION

Adolescents, especially adolescent girls, are a vulnerable group in fulfilling nutrition that plays a vital role in preventing stunting from an early age. Their rapid growth and physiological and psychological changes require them to fulfill their nutritional needs to support reproductive organ maturity and future health quality. The education conducted in this study through the lecture method with video and PowerPoint media is included in primary prevention targeting adolescents as a strategic group.[15] This follows the concept of preventive behavior according to Salazar et al., which explains that individuals in healthy conditions can take health maintenance actions such as diet and physical activity.[16] This education aligns with the five pillars of the national strategy to reduce stunting set by the government since 2018, including communication campaigns, nutrition policies, and monitoring and evaluation.[17] This effort also includes strengthening the role of villages, developing cadres, and publishing stunting data as part of the eight convergence action steps.

Significant behavioral changes in adolescents occur through increased knowledge, attitude formation, and strengthened motivation involving sensory stimuli, particularly vision and hearing. This process supports understanding and response to information received, where knowledge becomes the basis for action.[18] Bandura's social cognitive theory asserts that learning occurs through interactions between cognition, environment, behavior, and self-efficacy's importance in dealing with

change.[19] Internal motivations, such as personal desire, level of knowledge, and education, as well as external motivations, such as family support, religion, and social reinforcement, play a role in encouraging healthy behavior.[20] Thus, health education during adolescence is a long-term investment in improving the quality of human resources and the nation's economic resilience.[15]

Education conducted using the lecture method with PowerPoint media and animated videos (audiovisual) in this study significantly increased adolescents' knowledge about stunting, with a p-value of 0.001 (p <0,05). The success of the intervention using audiovisual media was also reflected in the absence of a decrease in knowledge scores at the posttest, with all respondents able to maintain their knowledge level. Education with lecture and discussion methods was adequate for increasing adolescents' knowledge about stunting.[22] This was proven by Muchtar's research, which showed that adolescents gained a good understanding of stunting with lecture and discussion methods.[15]

These results also align with a study in Jambi City, where audiovisual media is effective in increasing knowledge because they can present moving objects with interesting sounds, convey information clearly, and facilitate understanding of complex concepts. Audiovisuals also convey messages in a simple and easy-to-understand manner, significantly influencing learning as well as covering cognitive, affective, and psychomotor aspects.[23] Other studies have also shown that digital technology and social media can increase adolescents' knowledge of balanced nutrition.[24] Educating adolescents requires attractive media, such as short videos, to be easily understood and increase nutritional knowledge.[25] The use of animated videos in this study has a positive impact because it can increase adolescents' knowledge in breaking the chain of stunting. The awareness of adolescents as the next generation must be manifested in better behavior in fulfilling balanced nutrition obtained through increased knowledge.[26]

The results of the data analysis showed a significant increase in adolescents' attitudes about stunting, with a p-value of 0.001 (p < 0.05). This indicates that the health education intervention had a substantial impact on changes in adolescents' attitudes. The success of the intervention using audiovisual media was also reflected in the absence of a decrease in knowledge scores at the posttest, with all respondents able to maintain their level of attitude.

This study also aligns with previous research that shows that audiovisual media play a role in improving the knowledge and attitudes of mothers of toddlers related to stunting. Audiovisual media has proven effective as a learning tool because it can present a more realistic and enjoyable learning experience. With this approach, mothers of toddlers more easily absorb the material presented, improving their learning outcomes.[27]

This research is also in line with research conducted by Azizah regarding the effect of using animated video media on the knowledge and attitudes of adolescents with nutritional status at State Senior High School 1 Pasirian Lumajang. The study stated that animated video media significantly improved adolescents' attitudes towards obesity, with an average score after the intervention that was higher than before the intervention. This finding shows that there is a link between increased knowledge and changes in attitude. The higher a person's level of expertise, the more positive their attitude tends to be. Similar results were also seen in this study, where adolescents' knowledge and attitude scores increased after being given an intervention in the form of video media.[28]

A study revealed that the level of information that can be absorbed by an audience, particularly students, is strongly influenced by their motivation. This motivation, in turn, is shaped by the extent to which they can understand the meaning of an educational or learning activity that they participate in.[29] However, in this study, no significant increase was found in the pretest and posttest scores for the motivation variable. The statistical analysis also showed no significant difference in adolescents' motivation before and after the intervention, with a p-value of 0.274. (p <0,05).

Although the statistical results in this study did not show a significant increase, it should be noted that adolescents in this study area were active participants in the adolescent posyandu, which was routinely held every month. In each session, they received external education about stunting delivered by posyandu cadres. Thus, these adolescents continuously received information related to stunting. This external knowledge caused adolescents' motivation to be pre-formed.

Naturally, motivation is related to an external drive. Motivation can be created through strong media visualizations and inspirational narratives in videos in health promotion media. Videos can evoke emotion and a sense of urgency by presenting a moving story. These narratives can create deep awareness of the impact of stunting, stimulate empathy, and motivate individuals to act.[30]

A study also highlighted the advantages of audiovisual media in engaging participants emotionally and multisensorially. Audiovisuals allow participants to feel the emotion of the topic being studied, while increasing the brain's effectiveness in retaining information through visual and audio compared to just hearing or reading.[17]

Combining different health promotion media can strengthen information reception. The involvement of more senses in receiving messages will result in maximum information absorption.[31] According to research on pregnant women in stunting prevention efforts, no media is considered the most effective tool. Still, combining several media and methods tailored to the characteristics and background of the target or learner can provide maximum results.[32]

CONCLUSION

Community-based education effectively improves adolescents' knowledge and attitudes about stunting prevention. Audiovisual media can convey information that is engaging and easy to understand, thus supporting health behavior change. This community-based approach is an essential strategy in stunting prevention, although further innovation is needed to maximize its impact on motivation. This study cannot be separated from limitations. The limitation is the relatively small sample size, only 33 adolescents. Future researchers are expected to conduct similar research with a larger scope and sample size.

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