

Impact of Educational Messaging via Social Media Platforms TikTok and WhatsApp on Stunting Awareness among Adolescent Females in Polewali Mandar District, Indonesia

Nurun Niswa^{1a}, Suriah^{2b}, Muhammad Syafar^{2c}, Ridwan Thaha^{2d}, Masni^{3e}

¹Master Program Department of Health Promotion and Behavior, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia

²Department of Health Promotion and Behavior, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia

³Department of Biostatistics and Demographics, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia

Orchid ID: ^a <https://orcid.org/0009-0008-5220-0270>

Orchid ID: ^b <https://orcid.org/0000-0002-2239-0017>

Orchid ID: ^c <https://orcid.org/0009-0009-7897-4044>

Orchid ID: ^d <https://orcid.org/0000-0002-7745-8736>

Orchid ID: ^e <https://orcid.org/0000-0002-1576-5044>

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ABSTRACT

Background: Stunting remains a significant public health issue in Indonesia, with a high prevalence in various regions, including Polewali Mandar Regency. The use of social media as a health education tool has been increasing, especially among adolescent girls. TikTok and WhatsApp are two widely used platforms that have the potential to raise awareness about stunting.

Objective: This study aims to analyze the influence of stunting awareness educational messages delivered through TikTok and WhatsApp on the knowledge, perceptions, and attitudes of adolescent girls at SMAN 1 and SMAN 3 in Polewali Mandar Regency.

Methods: This research employs a quasi-experimental design with a pre-test and post-test approach in two intervention groups: the TikTok group and the WhatsApp group. The TikTok group consists of adolescent girls from SMAN 1 Polewali Mandar, while the WhatsApp group consists of adolescent girls from SMAN 3 Polewali Mandar. The total sample size in this study is 206 respondents, evenly distributed with 103 respondents in each group. The sample selection was conducted using the Simple Random Sampling technique. Data analysis was performed using the Paired Sample T-Test, Wilcoxon Signed Rank Test, Independent Sample T-Test, and Mann-Whitney U Test with a significance level of 0.05.

Results: There was a significant increase in knowledge, perceptions, and attitudes of adolescent girls after the educational intervention using TikTok and WhatsApp (p -value < 0.05). The group receiving education through TikTok showed a greater improvement compared to the group receiving education through WhatsApp.

Conclusion: TikTok proved to be more influential than WhatsApp in enhancing knowledge, perceptions, and stunting awareness attitudes among adolescent girls. Although WhatsApp also had a positive impact, its effect was not as strong as TikTok. These findings suggest that social media can be a powerful tool in health campaigns targeting adolescent girls.

Keyword: Stunting, Education, TikTok, WhatsApp, Adolescent Girls

1. INTRODUCTION

Stunting refers to a condition in which body length (PB) or Height (TB) of babies and toddlers is at more of two standards deviation below the median based on WHO-MGRS (World Health Organization- Multicare Growth Reference Study) standards (Addawiah et al., 2020). Most stunting is caused by inadequate intake of nutrition that is not sufficient and insufficient nutrition during pregnancy and 1000 days First life. Stunting can also explained as failure in reach optimal growth (Ramadhan & Ahmad, 2024). Based on Indonesian Health Survey (SKI) 2023, 1 in 5 toddlers in Indonesia experience stunting. The gap between province significant, with prevalence the lowest 7.2% in Bali and the highest 37.9% in Central Papua. West Sulawesi Province is included in priority areas For speed up stunting reduction in Indonesia. The high number prevalence of stunting makes it as one of the focus main in the development agenda in the region (Idris & Murwanto, 2024).

Stunting in West Sulawesi has decreased from 35% in 2022 to 30.3% in 2023, down by 4.7% (Ministry of Health of the Republic of Indonesia, 2023). The prevalence of stunting in districts / cities in West Sulawesi varies. In Polewali Mandar, the prevalence reached 28.1% (Munira et al., 2023). According to SKI 2023, the prevalence of stunting in districts / cities in West Sulawesi Province shows significant variation. In Polewali Mandar, the prevalence of stunting was recorded by 28.1% (Munira et al., 2023).

Give education about stunting in adolescents is very important Because they can influence the future generation next. Teenagers who understand stunting tend to become a better parent aware will nutrition and care child, so that help reduce risk of stunting in the next generation future (B. Dewi et al., 2024). Clear and structured messages can push public For involved in campaign health and prevention programs that are more comprehensive (McKee & Stuckler, 2020). Progress technology in the era of globalization has give benefit significant in various aspect social. With development rapid technology, communication between teenagers in the environment social and school now Lots done through social media and the internet. One of very popular application among children and adolescents moment This is TikTok. (Uddin et al., 2024). Apart from TikTok, WhatsApp also plays a role as an effective platform For spread information and education health. With level With its use reaching 88.7% in Indonesia, WhatsApp is the most widely used social media. used. Knowledge nutrition somebody can influence attitudes and behavior in choose food, which in the end affect nutritional status. The more tall knowledge nutrition someone, the more good nutritional status. More knowledge tall about nutrition be one of factor important in reach balance nutrition a person (Teesen et al., 2024). Based on from background behind study This aiming explore more carry on How knowledge, perception, and attitude teenager princess at school the against stunting, especially through influence message education aware of stunting using social media TikTok and WhatsApp as means distribution information.

2. RESEARCH METHODS

Study This use design *quasi-experimental* with group intervention and control. Sample of 103 respondents with technique taking sample with *Simple Random Sampling*. Respondent consists of from teenager daughter at SMAN 1 Polewali Mandar as group intervention and SMAN 3 Polewali Mandar as group control. TikTok media is used For group intervention, while WhatsApp is used For group control. Data collected through questionnaire that measures knowledge, perception, and attitude Respondent before and after intervention. Data analysis was performed using statistical tests with level significance 0.05. With number recommendation ethics from Faculty of Public Health with number 3103 / UN4.14.1TP.01.02 / 2024.

3. RESULTS

Table 1. General Characteristics of Respondents Based on Stunting Awareness Knowledge Group Interventions and Groups Control

Respondent Characteristics	Knowledge							
	Intervention Group (TikTok)				Control Group (WhatsApp)			
	Good		Not enough		Good		Not enough	
	n	%	n	%	n	%	n	%
Age								
15	2	40.0	43	43.9	1	25.0	30	30.3
16	3	0	21	21.4	0	0	42	42.4
17	0	60.0	34	34.7	3	75.0	27	27.3
Total	5	100.0	98	100.0	4	100.0	99	100.0
Class								
X	2	40.0	32	32.7	1	25.0	34	34.3
XI	3	60.0	31	31.6	0	0	33	33.3
XII	0	0	35	35.7	3	75.0	32	32.3

Total	5	100.0	98	100.0	4	100.0	99	100.0
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Source : Secondary Data , 2025

Table 1 shows distribution characteristics Respondent based on knowledge and attitude related to stunting in groups intervention and control . In the group intervention , majority Respondent with knowledge Good aged 17 years (60.0%), while knowledge not enough highest at the age of 15 years (43.9%). In the group control , knowledge Good dominated age 17 years (75.0%), while knowledge not enough highest at the age of 16 years (42.4%). Based on class , in group intervention , attitude the most dominant positive in class XII (58.3%), while attitude negative spread evenly , with proportion highest in class XI (36.3%). In the group control , attitude most positive found in class XI (47.6%), while attitude negative dominant in class XII (39.0%). overall , attitude negative more dominate in both group , with trend that more respondents old and in class more tall tend own attitude positive , especially in groups intervention .

Table 2 Differences Stunting Awareness Knowledge Before and After Education in Groups Interventions and Groups Control

Group	Variables	Mean	Standard Deviation	p-value
Intervention	Pretest	10.3	2.46	0,000
	Posttest	18.28	0.80	
Control	Pretest	10.27	2.32	0,000
	Posttest	15.21	2.63	

Description : Group Intervention : Wilcoxon Signed Rank Test,

Group Control : Wilcoxon Signed Rank Test

Table 2 shows that education about awareness of stunting increases knowledge in a way significant on both group . In the group intervention , average knowledge increase from 10.3 (SD = 2.46) in the pretest to 18.28 (SD = 0.80) in the posttest, with a p-value of 0.000. In the group control , improvement from 10.27 (SD = 2.32) to 15.21 (SD = 2.63) was also significant with a p-value of 0.000, although its improvement more small . The Wilcoxon Signed Rank Test shows impact more education big in group intervention .

Table 3 Differences Stunting Awareness Perception Before and After Education in Groups Interventions and Groups Control

Group	Variables	Mean	Standard Deviation	p-value
Intervention	Pretest	9.17	1.80	0,000
	Posttest	13.56	0.60	
Control	Pretest	8.52	1.97	0,000
	Posttest	10.98	1.58	

Description : Group Intervention : Wilcoxon Signed Rank Test,

Group Control : Wilcoxon Signed Rank Test

Table 3 shows difference perception aware of stunting before and after education on both group . In the group intervention , average perception increase in a way significant from 9.17 (SD = 1.80) in the pretest to 13.56 (SD = 0.60) in the posttest, with a p-value of 0.000, indicating very significant changes . In the group control , average perception increase from 8.52 (SD = 1.97) on the pretest to 10.98 (SD = 1.58) on the posttest, with a p-value of 0.000, which also shows change significant , although its improvement more small . The Wilcoxon Signed Rank Test confirms impact positive education to perception aware of stunting in both group , with more impact big in group intervention .

Table 4 Differences Stunting Awareness Before and After Education in Groups Interventions and Groups Control

Group	Variables	Mean	Standard Deviation	p-value
Intervention	Pretest	33.17	3.50	0,000
	Posttest	44.43	2.16	
Control	Pretest	32.91	4.84	0,000
	Posttest	39.44	3.67	

Description : Group Intervention : Wilcoxon Signed Rank Test,

Group Control : Wilcoxon Signed Rank Test

Table 4 shows difference attitude aware of stunting before and after education in groups intervention and control . In the group intervention , average attitude increase significant from 33.17 (SD = 3.50) in the pretest to 44.43 (SD = 2.16) in the posttest, with a p-value of 0.000, indicating very significant changes . In the group control , average attitude increase from 32.91 (SD = 4.84) on the pretest to 39.44 (SD = 3.67) on the posttest, with a p-value of 0.000, which also shows improvement significant , although No as big as group intervention . The Wilcoxon Signed Rank Test confirms that education give impact positive to attitude aware of stunting in both group , with more impact big in group intervention .

Research result show that education via TikTok media in groups intervention and WhatsApp on groups control give impact significant to improvement knowledge , perception , and attitude awareness of stunting in adolescents daughter , with p-value < 0.05. Although both of them effective , group intervention show more improvements big , signifies that TikTok is more effective in convey education compared to WhatsApp. TikTok is more interactive and visual. interesting for teenagers , while WhatsApp is based on text not enough interactive . Findings This confirm importance selection of appropriate media with characteristics audience in educational programs health .

4. DISCUSSION

Educational videos effective in increase understanding material Because merge picture movement and sound , which makes it more interesting and not monotonous . Videos are also more effective For material simulation or practical tutorials , making it easier understanding (Dianawati , 2022). Video media becomes popular among teenager Because element its attractive visuals , enhance interest to information conveyed (Agustina et al., 2023) . Promotion health aiming For increase ability society to be independent through learning directly , with support policy public . Promotion digital health uses digital platforms to communication more modern health (A'Yunin Al Isyofi et al ., 2024). Educational and health media , such as electronic , print , and external space , function convey information For influence target behavior (Mahmudah & Kurniasari , 2024). Use of video as an educational medium health the more develop with progress technology . Combination sound and picture in the video makes it easier understanding , improving Power remember , and connect fact with concept . Video becomes tool effective For convey knowledge , forming attitude , and convey ideas with an interesting and efficient way (Handayani et al., 2024).

According to (Notoatmodjo, 2012) knowledge is results from the process of knowing what is happening after somebody do sensing to a object certain . One of the effort For increase knowledge somebody is through education health , which can give useful information For increase understanding and awareness about health . Around 75%-87% of knowledge somebody obtained through observation or sensing , namely through the five senses (Listyarini & Sri, 2017) . This is in line with results study show that TikTok video educational media is effective in increase knowledge about anemia, with difference significant between before and after intervention (p-value = 0.000). Research This aiming For to study influence use of educational media TikTok videos and infographics to knowledge of anemia in high school students / equivalent in Jakarta. Using method quantitative with pre-test and post-test design with control group design, research This involving 40 respondents . Findings This prove that TikTok videos can become an effective educational media in increase understanding teenager related to anemia (Bunga & Kurniasari , 2023). Based on results Data analysis using the Wilcoxon test shows p- value $0.000 < 0.05$, which indicates existence influence significant from educational videos about factors that influence stunting through TikTok on knowledge teenagers at State High School 4 Samarinda . This is proven with improvement knowledge teenager regarding stunting, where average knowledge score before intervention is 6.40 (42.6%) and increasing to 14.20 (94.6%) after given education (Aziziyah et al., 2024).

Research (Nurhaeni et al., 2024) shows that creative media like TikTok effective increase Power attraction and effectiveness education health . Short and interesting video help convey information with fast without burdensome attention teenagers . Shared serial content become part small make it easier understanding and support change behavior , such as prevention of

stunting. Resource person emphasize that visual media is fun more liked teenager compared to traditional media like brochure, because more entertaining and not boring. Research (Nataliyani et al., 2024) shows that teenager accept information about stunting through social media, especially TikTok, with perception positive. Because considered as form useful education. However, there is also a perception negative that appears. Because sensitivity related topics with family. Education using motion graphic videos on TikTok is proven effective in change perception teenagers and convey information in a way clear, at once support power health in to socialize stunting prevention. TikTok as an educational medium become an attractive and persuasive strategy. For increase awareness teenager against stunting. On the other hand, research (Nadila et al., 2024) shows that before education through TikTok, perception teenager daughter to Increased tablet consumption blood (TTD) tends to negative, with reason feel No need signature because No feel symptom certain. This is cause low level compliance to TTD consumption. However, after given education through TikTok, perception they changed become more positive, which contributes to the increase compliance. The majority Respondent show compliance medium and high, while only part small but steady own compliance low. This result indicates that TikTok is effective in change perception teenager daughter and improve compliance they to TTD consumption, so that proven digital technology can influence attitude health teenager.

Process of change attitudes and behavior need time. For reach appropriate and desired attitudes (Sari, 2013). Counseling with audiovisual offerings motion, images and sound whereas counseling with method lecture only display text and sound extension worker in a way directly that makes seems formal so effective. For influence attitude (Wirasih et al., 2024). Research results. This in line with research conducted by (Triyanto, 2023), which shows that education using *TikTok* media can increase attitude in prevention of anemia in adolescents daughter. In the research said, the value *p-value* for group intervention is 0.000, which is more small from α 0.05, while For group control is 0.485, which is more big from α 0.05. This is show that There is influence significant education health using *TikTok* media to attitude teenager daughter in prevention of anemia. Based on results study (Pasaribu et al., 2023), intervention through *TikTok* is also proven effective in increase attitude teenager daughter to prevention of anemia. Before intervention, average attitude teenager daughter is 7.69 with deviation standard 1.398. After intervention, average attitude increase to 12.59 with deviation standard 2.233, with the average difference is 4.9. The results of the statistical test using the *Wilcoxon* test show *p-value* = 0.001 (<0.05), which means There is difference significant in attitude teenager daughter before and after intervention through *TikTok*. Based on results study (Riani et al., 2023), obtained mark *p-value* 0.000 ($p < 0.05$), which indicates existence influence significant *TikTok* video media to attitude prevention of anemia in adolescents Princess. Before given treatment, average score attitude teenager daughter is 69.01, with score attitude lowest 45.0 and score highest 98, and standard deviation 8.56. After given treatment via *TikTok* media, average score attitude increase to 83.25, with score attitude lowest 70.0 and score highest 93.0, and standard deviation 10.64. This is show existence significant improvement in attitude prevention of anemia in adolescents daughter after get education via *TikTok* media.

5. CONCLUSION AND SUGGESTIONS

Conclusion; Research results show that TikTok is more influential compared to WhatsApp in increase awareness about stunting among teenagers. This is in line with theory diffusion innovation, which explains that the media is interesting and interactive can push change behavior health.

Suggestion; Required utilization of TikTok more wide as an educational medium health. Because his ability in convey interesting information. In addition, other platforms such as WhatsApp can improved with visual and interactive elements. For interesting attention teenagers. Collaboration with social media platforms. For campaign education is also necessary reinforced. For increase awareness teenager about issue health important such as stunting.

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