

# Effectiveness of animated videos as information media on adolescent reproductive health in disaster situations

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## ABSTRACT

Various efforts have been made in the field of reproductive health, especially in disaster situations. However, the distribution of available reproductive health services is still uneven, with limited access to services and a restricted understanding of reproductive health. This situation is further exacerbated by social and cultural barriers within the community. The primary objective of this research is to assess the efficacy of employing animated videos as an educational tool for enlightening adolescents about reproductive health amid disaster situations. The research design adopts a quasi-experimental approach utilizing a pretest-posttest group framework. A total of 40 participants were divided into two categories: the experimental group and the control group. The former was exposed to animated video content coupled with interactive discussions, while the latter adhered to conventional techniques involving PowerPoint presentations and lecture-style discussions. Prior to the dissemination of information, a preliminary test was conducted, followed by a subsequent test using identical questionnaires. Data analysis hinged on the T-test methodology. The outcomes of the study indicate that the utilization of animated videos notably amplifies adolescents' comprehension of reproductive health within disaster contexts ( $p = 0.043$ ). Further research is imperative to delve into the efficacy of animated videos as informative instruments addressing health concerns within communities, encompassing a broader domain.

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## INTRODUCTION

Disasters can have a significant impact on the reproductive health of female adolescents, especially in developing countries where access to reproductive health services is limited. (Gebreyesus et al, 2019). Addressing reproductive health issues for affected women, including adolescent, is crucial in disaster prone countries (Sohrabizadeh et al, 2018). Research on reproductive health has gained global attention, yet there is a scarcity of information regarding access to reproductive health service for adolescent girl in disaster and humanitarian situations (Ivanova et al., 2018). This places

women at the greatest risk of physical and sexual violence, early marriage, and forced marriages (Ellsberg et al., 2020). Early marriage, early childbirth, and increased risk taking associated with gender roles within the family context are prevalent issues (UNFPA, 2016)

While numerous strides have been taken in the realm of reproductive health during disaster scenarios, the even distribution and quality of available reproductive health services remain unequal, and there persists limited knowledge about the services along with socio-cultural barriers to access (Casey et al., 2015).

Several studies have shed light on adolescent girls' experiences, encompassing contraceptive use, gender-based and sexual violence, child marriage, transactional sex, puberty changes, and reproductive decision-making. Approximately half of the studies report prevalence and concerns related to gender-based or sexual violence and harassment in humanitarian disasters (Feseha et al., 2012; Iyakaremye & Mukagatare, 2016; Kågesten et al., 2017; Ortiz-Echevarria et al., 2017; Patel et al., 2012; Stark, Asghar, et al., 2017; Stark, Sommer, et al., 2017) This sexual harassment leaves young girls with consequences such as unwanted pregnancies leading to unsafe abortions, rejection, and abuse within their families (Iyakaremye & Mukagatare, 2016; Ortiz-Echevarria et al., 2017) In some studies, this sexual harassment or physical violence may be triggered by family members or partners, but it is often challenging to assess due to adolescents' reluctance to report such incidents (Ivanova et al., 2018). Only one study explored body changes/puberty in adolescent refugee girls, an essential aspect of adolescent sexual and reproductive health (Kågesten et al., 2017).

Young women in disaster situations lack crucial knowledge and skills regarding reproductive health, including limited awareness about menstrual hygiene, contraception, and sexual and reproductive health rights (Lestariyanti et al., 2022) . Disasters can have significant psychosocial impacts on young women, including trauma, anxiety, grief, and stress (Herdiana & Lakoro, 2022) These psychosocial issues can affect their overall well-being and reproductive health. Additionally, disasters can disrupt maternal and newborn health services, leading to challenges in accessing antenatal care, safe delivery assistance, and postnatal care, increasing the risk of maternal and newborn morbidity and mortality (Strid et al., 2022) . Integrating mental health care within health interventions for emergencies and disasters can contribute to emergency preparedness, resilience and response, ultimately reducing harmful effect on the mental health of vulnerable individuals (Danese et al., 2020)

These findings reveal limitations in reproductive health knowledge and awareness among adolescent girls (Ackerson & Zielinski, 2017). Studies have also explored access to and sources of reproductive health knowledge and education during disaster situations, but preferred sources for adolescents to acquire information remain inadequately documented. An effective way to deliver reproductive health information to adolescents is through preferred sources (Ivanova et al., 2018).

One tool or medium used to convey health information is audio-visual media. The capabilities of audio-visual media are considered superior and engaging as they encompass both auditory and visual elements (Notoatmodjo, 2015) The use of videos for adolescents allows for detailed visual narration, offering numerous advantages and significant potential to represent different realities (Pfeiffer, 2013). The use of videos as an educational medium has been widely adopted and proven effective in enhancing participants' knowledge (Febriana et al., 2020; Wijayanti et al., 2020) .

Central Aceh is a district within the Aceh province situated in a mountainous and hilly terrain along the Aceh mountain range. This area is dominated by a moderate to very high level of vulnerability (Thariq, 2021). This condition classifies Central Aceh as a disaster-prone area for floods and landslides. This research is crucial to create an educational video product on adolescent reproductive health in disaster situations that has not been available before. The aim is that information about reproductive health in disaster situations can be well-received by them through sources they prefer, and it can enhance their awareness when they are in such situations. The

objective of this study is to test the effectiveness of using animated videos to educate adolescents about reproductive health in disaster situations.

## RESEARCH METHOD

Respondent selection was carried out using purposive sampling technique, with inclusion criteria of being aged 16-17 years, residing in Central Aceh Regency, and willing to participate as respondents. Exclusion criteria included students already actively engaged in social community organizations focused on reproductive health.

The case group received an intervention involving educational content about reproductive health in disaster situations using animated video media along with interactive discussions, while the control group used PowerPoint templates and question-and-answer sessions. The content of the animated video was pre-designed with the involvement of reproductive health and disaster management experts. Prior to receiving the information, a pretest was conducted, followed by a post-test using the same questionnaire. Data analysis was performed using the T-test.

## RESULT AND DISCUSSIONS

This research was conducted in June 2023, involving 40 respondents. The group of respondents was divided into two parts. A pre-test was carried out to measure their initial knowledge regarding reproductive health in disaster situations. Subsequently, in the intervention group, educational media in the form of a pre-designed animated video was provided to the respondents. Meanwhile, the control group was given a PowerPoint template. After the intervention, a post-test was conducted. The results of the pre-test and post-test can be seen in the table below:

**Table 1.** Descriptive analysis of adolescent reproductive health knowledge in disaster situation in central Aceh regency

No	Group		Mean	Median	SD
1	Experimental	Pre Test	13,45	14	2,8 (7-18)
		Post test	16	17	1,9 (12-19)
2	Control	Pre Test	13,15	13.50	2,45(8-17)
		Post Test	15.60	15.50	1.93(12-18)

Table 1 above reflects the results of measuring the average knowledge scores of the respondents. Within the experimental group, during the pre-test phase, the average score was 13.45, which later increased to 16 in the post-test phase. Meanwhile, within the control group, during the pre-test phase, the average score was 13.15, and it also experienced an increase to 15.60 in the post-test phase. The table above also presents the average pre-test scores regarding knowledge about reproductive health, which do not show a significant difference between the two groups. This could indicate respondent homogeneity. These values tend to increase after the intervention, as evident from the average post-test scores. To determine whether this difference is statistically significant or not, a statistical test was conducted, as shown in Table 2 below:

**Table 2.** Differences in adolescent reproductive health knowledge in disaster situations between groups in central Aceh regency

No	Group		P Value
1	Exsperimen	Pre Test	0,00
		Post Test	
2	Control	Pre test	0,00
		Post Test	

Table 2 above presents the results of the statistical tests for each group. Both groups exhibited significant differences in knowledge scores before and after the intervention, with a p-

value of 0.00. This also indicates that the methods employed, both in the case and control groups, significantly improve respondents' knowledge about reproductive health in disaster situations.

**Table 3.** Analysis of differences in reproductive health knowledge among groups of adolescent in disaster situations in central aceh regency

No	Group	P Value
1	Pre Test	0,071
2	Post Test	0,043

The results of the statistical test using the Wilcoxon Test in Table 3 indicate a non-significant difference in the mean knowledge scores between the intervention and control groups during the pre-test, with a p-value of 0.071 ( $p > 0.05$ ). However, the difference in knowledge scores during the post-test is significant, with a p-value of 0.043 ( $p < 0.05$ ). This indicates that prior to the intervention, the initial knowledge of both groups was insignificantly different. However, after the intervention was conducted, the difference in average knowledge of the respondents became statistically significant in the group exposed to animated video media. This suggests that animated video media is more effective in enhancing the knowledge of respondents compared to other methods.

Natural disasters have a negative impact on women's reproductive health, including changes in contraceptive use, an increase in unintended pregnancies, and reduced access to reproductive health services (Behrman & Weitzman, 2016). Research has shown that the use of educational videos can effectively enhance young women's knowledge of reproductive health (Febriana et al., 2020; Mukhtar et al., 2022).

The role of midwives in providing comprehensive education on adolescent reproductive health becomes particularly crucial in disaster situations. They can deliver age-appropriate information on various topics such as puberty, menstrual hygiene, contraception, sexually transmitted infections, and healthy relationships (Homer et al., 2018).

Videos can serve as effective tools to enhance understanding of adolescent reproductive health, especially during disasters. Incorporating videos as educational resources in disaster management can bridge the information gap regarding post-disaster women's reproductive health (Arosemena et al., 2013). Additionally, videos can be integrated into school curricula to enhance students' understanding of adolescent reproductive health and provide necessary information (Citrawathi & Adnyana, 2017). Reproductive health education utilizing multimedia videos has demonstrated positive effects on enhancing knowledge, changing attitudes, and promoting preventive behaviors among adolescent girls (Mukhtar et al., 2022).

Overall, videos play a valuable role in disseminating information and improving understanding of adolescent reproductive health, particularly in disaster scenarios. In this study, adolescents, who were the respondents, exhibited a positive response to this educational medium. Videos can also be integrated into educational curricula, disaster management strategies, and community healthcare services to increase awareness about reproductive health and reduce healthcare disparities. However, it should be noted that the effectiveness of videos may vary based on factors such as content, accessibility, cultural context, and target audience. Therefore, it is important to consider the needs, preferences, and local communities when implementing video-based interventions for adolescent reproductive health education in disaster situations. Further research is needed to explore the effectiveness of animated videos as informational tools addressing health issues within communities, on a broader scale.

## CONCLUSION

The use of animated videos as an educational tool for adolescent reproductive health in disaster situations effectively enhances their knowledge compared to other methods. Several limitations in this study include the potentially brief duration of the intervention or exposure to animated videos. Such limitations might restrict our ability to measure the long-term impact of utilizing animated videos on the knowledge and behaviors of adolescents regarding reproductive health. Furthermore, this study solely focuses on the utilization of animated video media. Adolescents' responses to animated videos can vary from one individual to another, potentially influencing the research outcomes. In the future, research could be conducted to examine the long-term effects of using animated videos in educating adolescent reproductive health. Additionally, the potential of other technologies, such as mobile applications or social media platforms, as educational tools for adolescent reproductive health in disaster situations, could be investigated. This expansion could encompass a broader target audience.

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