

Effectiveness of Proactive Educational Videos in Improving Adolescents Knowledge of Kidney Failure Preventions at Ma Al Asror

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ABSTRACT

Kidney failure is one of the non-communicable diseases whose prevalence continues to increase and can affect various age groups, including adolescents. Adolescents' low knowledge of risk factors, early symptoms, and prevention of kidney failure disease can lead to delays in early detection. The use of proactive video media as an *early warning system* is expected to increase adolescents' knowledge about kidney failure. Knowing the effectiveness of proactive videos as an *early warning system* for kidney failure in adolescents at MA Al Asror. This study uses a pre-experimental design with a one group pretest-posttest design approach. The research sample totaled 30 students who were selected using the total sampling technique. Data collection was carried out using a knowledge questionnaire about kidney failure disease consisting of 10 questions. Data analysis was carried out univariate to describe the distribution of respondent and bivariate knowledge using the Paired Sample t-Test to determine differences in knowledge before and after the intervention. Before being given proactive videos, most respondents had a low level of knowledge as many as 17 respondents (56.7%), with an average knowledge score of 5.13 ± 1.43 . After being given a proactive video, most of the respondents had a good category knowledge level of 24 respondents (80.0%), with the average knowledge score increasing to 8.43 ± 0.97 . The results of the Paired Sample t-Test showed a p-value of 0.0001, which showed a significant difference between knowledge before and after the provision of proactive video. Proactive videos are effective as an *early warning system* in increasing adolescents' knowledge about kidney failure at MA Al Asror. Video media can be used as one of the digital-based health promotion strategies to increase adolescents' awareness and awareness of kidney failure.

Keywords: Proactive Video, Knowledge, Kidney Failure Prevention, Adolescents.

INTRODUCTION

Chronic kidney disease (CKD) is one of the global health problems whose prevalence continues to increase from year to year. According to research conducted by Bold et al. (2024), more than 800 million people in the world suffer from chronic kidney disease, making it one of the leading causes of global morbidity and mortality. This disease has a significant impact on the quality of life of patients and causes a large economic burden on the health service system. In Indonesia, chronic kidney disease is one of the non-communicable diseases that requires serious attention. Data shows that changes in people's lifestyles, such as consumption of high-sodium foods, sugar-sweetened drinks, lack of physical activity, and low consumption of water contribute to an increase in risk factors for

kidney disorders from adolescence (Musniati et al., 2024). Adolescence is an important period in the formation of health behaviours so prevention education needs to be carried out from an early age.

Kidney disease is often referred to as *a silent disease* because in the early stages it generally does not cause specific symptoms. As a result, many sufferers only become aware of kidney disorders when kidney function has experienced a significant decline. Low public knowledge about risk factors, early symptoms, and efforts to prevent kidney disease leads to delays in the detection and treatment of the disease (Nakamura et al., 2025). Early detection or *early warning system* is one of the effective strategies in reducing the risk of complications of kidney disease. Early detection programs carried out in the age group of children and adolescents have been proven to be able to increase health awareness and accelerate the identification of risk factors for kidney disease before it develops into a more severe condition (Azim & Anggraini, 2025). Therefore, educational media is needed that can increase adolescents' understanding and awareness of kidney failure.

The development of information technology provides opportunities to utilize digital media as a means of health promotion. One of the widely used media is educational videos. Video media has the advantage of conveying information visually and audio, making it more interesting, easy to understand, and able to improve students' memory compared to conventional lecture methods (Sandela et al., 2024). Other research shows that the use of health education videos can significantly increase knowledge and disease prevention behaviour in adolescents (Sutiawati et al., 2024). In the context of kidney health, educational videos have been shown to be effective in increasing adolescents' knowledge of risk factors and prevention of chronic kidney failure. Research by Akbar et al. (2025) showed that the provision of educational videos on the risk of chronic kidney failure was able to significantly increase participants' knowledge scores after the intervention. In addition, health education programs combined with early screening are also able to increase adolescents' awareness of the importance of maintaining kidney health (Tirta et al., 2025).

MA Al Asror is one of the educational institutions that has a large number of teenagers and has the potential to be the target of health promotion programs. Until now there has been no special educational program that uses proactive videos as an *early warning system* for kidney failure in adolescents. Therefore, it is necessary to conduct research on the effectiveness of proactive video as an *early warning system* for kidney failure in adolescents at MA Al Asror. This research is expected to contribute to the development of effective digital-based health education media to increase adolescents' knowledge and awareness of kidney failure so that prevention efforts can be carried out optimally.

METHODS

This research was conducted in February 2026 at MA Al Asror, Gunungpati, Semarang, Central Java. This study uses a quantitative approach, with a *Pre Experimental Design* research design with a *pretest-post test without control group design*. The population in this study is adolescents aged 15-17 years with a total of 30 students. The sample was taken from 11th grade students at MA Al Ansor, because in 11th grade students had already received lessons on kidney anatomy.

In this study, the researcher used educational video media about chronic kidney failure that was made by himself. This study aims to measure the variables of knowledge in adolescents by using a questionnaire with 10 questions. Before conducting the research, the researcher first explained the research technique to be carried out to the respondent and the researcher asked for the respondent's consent using informed consent. This research has passed the ethics test at Ngudi Waluyo Ungaran University with number 390/KEP/EC/UNW/2025. The data normality test used *a sapphire wilk* with *a p value* in the intervention and control group > 0.05 so that it was said to be normal data. The statistical test used is *with the t test dependent*.

RESULTS AND DISCUSSION

Results

Characteristics of respondents based on age and gender

Table 1 Frequency Distribution of Respondent Characteristics Based on Age and Gender

Variable	Categorical	Frequency	Percentage (%)
Age	15	10	33,3
	16	18	60
	17	2	6,7
	Total	30	100
Gender	Women	19	63,3
	Male	11	36,7
	Total	30	100

Table 1 shows that the respondents in the age table are mostly 16 years old with 18 respondents with a percentage of 60%, and in the gender table most of them are women who are 19 respondents with a percentage of 63.3%.

Distribution of Adolescent Knowledge Frequencies Before and After Education

An overview of adolescents' level of knowledge about the prevention of chronic kidney failure in adolescents before education and after education using video media.

Table 2. An overview of the frequency distribution of adolescent knowledge about the prevention of chronic kidney failure before and after education. (n = 30)

Variable	Pretest		Posttest	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Knowledge Categories				
Good (8-10)	4	13,3	24	80
Enough (6-7)	9	30	6	20
Less (≤ 5)	17	56,7	0	0
Total	30	100	30	100

Based on Table 2, it is known that before providing education using adolescent knowledge level videos, the majority were in the low category of knowledge with a frequency of 17 people with a percentage of 56.7%, then proactive videos were given, most of the respondents had a good category of

knowledge level as many as 24 respondents (80.0%). A total of 6 respondents (20.0%) were in the sufficient category and no respondents had a lack category. These results show an increase in the level of knowledge after being given proactive video interventions.

Knowledge Categories	Frequency (f)	Percentage (%)
Good (8–10)	24	80,0
Enough (6–7)	6	20,0
Less (≤ 5)	0	0,0
Total	30	100,0

Table 3. An overview of adolescents' knowledge about the prevention of chronic kidney failure before and after being educated. (n = 30)

Variable		Red	Min - Max	Std. Deviation
Knowledge about Kidney Failure Prevention	Pre-test	5,13	2-8	1.43
	Post test	8,43	6 - 10	0,97

Based on table 3, it can be seen that before adolescent knowledge education on kidney failure prevention was carried out, knowledge results were obtained with the lack of knowledge category with an average pre-test score of 5.13 while the average post-test score was 8.43 with the good knowledge category.

Differences in Knowledge Before and After Education

Table 4. Differences in adolence knowledge levels about kidney failure disease prevention both before and after video education (n= 30)

Variable		Red	Mean difference	Sig	p- value
Knowledge about Kidney Failure Prevention	Pre-test	5,13	3,30	11,87	0,0001
	Post test	8,43			

Based on the table. 4 It can be concluded that the results of the Paired Sample t-Test showed a p-value of < 0.001 ($p < 0.05$), so there was a significant difference between knowledge before and after the provision of proactive video. Thus, proactive videos are effective as an early warning system in increasing adolescents' knowledge about kidney failure at MA Al Asror.

DISCUSSION

Adolescents' Knowledge of Kidney Failure Disease Before Giving Proactive Videos

The results showed that before being given proactive video intervention, most respondents had a level of knowledge in the low category as many as 17 respondents (56.7%), while the moderate category was 9 respondents (30.0%) and only 4 respondents (13.3%). In addition, the average knowledge score before the intervention was 5.13 ± 1.43 out of a maximum total score of 10. The results show

that most adolescents at MA Al Asror still have a low understanding of kidney failure, risk factors, early symptoms, and prevention efforts.

Adolescents' low knowledge of kidney failure can be caused by a lack of exposure to specific health information about kidney health. Adolescents generally obtain more health information related to reproductive health, nutrition, or infectious diseases than non-communicable diseases such as kidney failure. In fact, adolescence is an important period in the formation of health behaviors that will affect health conditions in adulthood (Sawyer et al., 2018).

Kidney failure is often referred to as *silent disease* because the symptoms in the early stages are often not noticed by the sufferer. As a result, people, including adolescents, tend to have a low level of awareness of the disease. According to Nakamura et al. (2025), low knowledge about chronic kidney disease is one of the factors that cause delays in early detection and treatment of kidney disease in various age groups. Therefore, health education is needed to increase adolescents' awareness of the importance of maintaining kidney health from an early age.

Adolescents' Knowledge of Kidney Failure Disease After Giving Proactive Videos

The results showed that after being given a proactive video, most of the respondents had a level of knowledge in the good category as many as 24 respondents (80.0%), while the sufficient category was 6 respondents (20.0%) and there were no respondents with a low category. The average knowledge score also increased to 8.43 ± 0.97 .

This increased level of knowledge suggests that proactive videos are able to effectively convey health information to adolescents. Video media has the advantage of combining visual and audio elements so that information is easier to understand and remember. Additionally, the use of animations, images, narratives, and case examples in videos can increase students' attention and motivation to learn.

According to the *Cognitive Theory of Multimedia Learning* theory developed by Mayer (2021), it will be easier for a person to understand information if it is conveyed through a combination of images and sounds rather than just through text or lectures. Information received through two sensory channels at once will improve the process of storing information in long-term memory so that it can improve knowledge.

The results of this study are in line with the research of Sandela et al. (2024) which found that video-based education was able to significantly improve adolescent health knowledge compared to before the intervention. Research by Sutiawati et al. (2024) also shows that video media is effective in improving health literacy in adolescent groups because it is able to provide a more interesting and interactive learning experience.

The increase in knowledge after the provision of videos also shows that digital media can be used as a health promotion strategy that is in accordance with the characteristics of the current generation of adolescents. Adolescents tend to be more interested in technology-based learning media than conventional educational methods so that health messages are delivered more effectively.

The Effectiveness of Proactive Video as an Early Warning System for Kidney Failure in Adolescents

The results of the bivariate analysis using *the Paired Sample t-Test* showed a p-value of < 0.001 ($p < 0.05$), which means that there was a significant difference between the knowledge score before and after the provision of proactive video. The average knowledge score increased by 3.30 points from 5.13 to 8.43. These results prove that proactive videos are effective as an *early warning system* in increasing adolescents' knowledge about kidney failure.

The early warning system is an approach that aims to increase individual awareness of a health risk through early information delivery. In this study, proactive videos function as educational media that provide information about kidney function, risk factors for kidney failure, early signs and symptoms, and preventive measures that can be taken by adolescents. The information allows adolescents to recognize risk factors early on and take appropriate precautions.

The results of this study are in line with the research of Akbar et al. (2025) which showed that the use of educational videos about the risk of chronic kidney failure was able to significantly increase participants' knowledge after the intervention. Research by Tirta et al. (2025) also found that health education combined with an early detection approach can increase adolescents' awareness and knowledge about kidney disease prevention.

The increase in knowledge gained after the provision of proactive videos shows that video media can be used as one of the effective technology-based health promotion strategies in the school environment. With increasing knowledge, it is hoped that adolescents can implement healthy living behaviors such as increasing water consumption, reducing the consumption of sweetened drinks, avoiding the use of drugs without medical indications, and doing regular physical activity as an effort to prevent kidney failure.

Based on the results of this study, it can be concluded that proactive videos are an effective educational medium as an *early warning system* for kidney failure in adolescents because it is able to significantly increase knowledge and has the potential to encourage the formation of disease prevention behaviors from school age.

CONCLUSION

Based on the results of the research conducted, it was found that proactive videos were proven to be effective as an *early warning system* in increasing adolescents' knowledge about kidney failure at MA Al Asror. This increase in knowledge shows that video media can be an effective means of health education to increase adolescents' awareness, vigilance, and understanding of risk factors, early symptoms, and efforts to prevent kidney failure.

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