

Effectiveness of Animation Video about Diabetes Mellitus Self-Care Management on The Level of Knowledge among Elderly

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Abstract:

Diabetes Mellitus is a common chronic disease among the elderly, and effective self-care management is essential to control this condition. Elderly knowledge about self-care management is important in the care of Diabetes Mellitus. One of the media that can be used to improve knowledge in the elderly is using educational videos. This study aims to evaluate the effectiveness of animated videos about self-care management of diabetes mellitus in improving the knowledge of elderly individuals in RW 01 and RW 02 in Rampal Claket Village, Malang City. The research design used quasi-experimental with pre-test and post-test. The sample in this study was 30 respondents, the sampling technique in this study used purposive sampling technique. The instrument to assess the level of knowledge before and after the animated video intervention using the DMSQ questionnaire. Data analysis used a paired t-test to determine the difference in knowledge scores. The results of this study showed a significant increase in the knowledge of elderly individuals regarding diabetes self-care management after the animated video intervention. The average knowledge score before the intervention was 29.27, which increased to 41.20 after the intervention, an increase of 39.76%. Animated videos have been proven effective in increasing the knowledge of elderly individuals about self-care management of diabetes mellitus with a p-value of 0.000. This study recommends the use of innovative educational media to improve public understanding of chronic disease management.

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INTRODUCTION

Diabetes mellitus (DM) is one of the most common chronic diseases in the world and often occurs in the elderly. This disease is characterized by increased blood glucose levels caused by impaired insulin production or function (Nistiandani et al., 2021; Kurniyawan et al., 2023). Unmanaged diabetes can cause serious complications, including damage to vision, kidneys, and nerves, and increase the risk of cardiovascular disease and amputation (Nafida & Jariyah, 2024; Hendrawati et al., 2024).

The increase in the prevalence of Diabetes Mellitus globally continues to show an alarming increase. In 2019, it was recorded that 463 million people worldwide were living with diabetes, and this number is estimated to reach 700 million by 2045 (Purwaningsih, 2023). Handling diabetes requires proper self-management, also known as self-care management. However, public knowledge, especially among the elderly, regarding self-care management is still relatively low (Wahyudi, 2024).

Self-care management is an individual's ability to care for their health independently, including managing chronic diseases, maintaining physical fitness, and paying attention to mental health. This includes eating healthy foods, exercising regularly, taking medication as directed, and monitoring emerging health symptoms. The goal is to improve quality of life, reduce dependence on health services, and prevent future health complications (Wiguna, 2023; Astuti et al., 2023).

One educational media that can improve the understanding of the elderly about diabetes self-management is animated videos. This media can potentially increase knowledge because of its visual, interactive, and easily accessible nature so that it can be watched repeatedly (Rahayu & Fanreza, 2024). Animated videos have become an effective tool in various fields, including education and communication, because of their ability to convey information visually in an exciting and easy-to-understand way. In education, animated videos have great potential to improve the understanding of complex concepts through dynamic and interactive visualizations. In addition, the animation is able to attract the attention of audiences of various ages, making it relevant for use in various disciplines (Melati et al., 2023; Nurani et al., 2022). This study was conducted to evaluate the effectiveness of using animated videos in improving the knowledge of the elderly about diabetes mellitus self-care management in Rampal Claket Village, Malang City.

METHOD

This quantitative study has a quasi-experimental pre-test and post-test research design. The population in this study were elderly people suffering from diabetes mellitus in RW 01 and RW 02, Rampal Claket Village, Malang City. The number of samples was 30 people. The sampling technique used in this study was purposive sampling. This study was conducted in Rampal Claket Village, where data were collected before and after the intervention using the DMSQ (Diabetes Management Self-Care Questionnaire) questionnaire. The instrument was used to assess the level of knowledge before and after the animated video intervention using the DMSQ questionnaire. Data analysis was conducted using the Paired Sample T-Test statistical test to determine the difference in knowledge scores before and after the intervention.

RESULT

The results of the study showed a significant increase in the level of knowledge of the elderly after being given an intervention in the form of animated videos. Before the intervention, the average knowledge score of the elderly was 29.27; after the intervention, it increased to 41.20, an increase of 39.76%. The Paired Sample T-Test statistical test showed a p-value of 0.000, which means that animated videos are effective in increasing the knowledge of the elderly about self-care management of diabetes mellitus. This study proves that innovative educational media, such as animated videos, can significantly increase the elderly's understanding of chronic disease management.

The table below shows the characteristics of respondents based on age and last education, divided between the intervention group and the control group.

Table 1. Respondent Characteristics Based on Age and Last Education

Characteristic	Intervention Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
Age (years)				
45-59	7	46.7	11	73.3
60-74	8	53.3	4	26.7
Total	15	100	15	100
Last Education				
Elementary school	7	46.7	4	26.8
Junior high school	4	26.7	4	26.7
Senior high school	4	26.7	7	46.7
Total	15	100	15	100

Table 1 shows the age characteristics of the intervention group. Most were in the age range of 60-74, as many as 8 people (53.3%), and the least were in the age range of 45-59, as many as 7 people (46.7%), while in the control group the most were in the age range of 45-59 years (73.3%) and the least were in the age range of 60-74 years (26.7%). Table 1 shows the characteristics of the last education in the intervention group. A total of 7 people (46.7%) had elementary school education, 4 people (26.7%) had junior high school education, and 4 people (26.7%) had high school education. While in the control group, 4 people (26.8%) had elementary school education, 4 people (26.7%) had junior high school education, and 7 people (46.7%) had high school education.

After being given an intervention in the form of animated videos, there was a significant increase in the knowledge of the elderly in the intervention group. The average increase in knowledge levels was also compared between the control and intervention groups.

Table 2. Results of the Paired Sample T-Test for the Intervention Group

	Before Intervention	After Intervention	Difference	p-value
Intervention Group	29.46	41.20	11.73	0.000

Table 2 shows that there was a significant increase in the level of knowledge of the intervention group (p-value=0.000), with an average increase of 11.73

Table 3. Results of the Paired Sample T-Test for the Intervention Group

Group	Knowledge Mean	p-value
Intervention	41.20	0.000
Control	34.80	

Table 3 shows that the intervention group had a greater increase in knowledge than the control group, with a statistically significant difference (p-value=0.000).

DISCUSSION

The results of this study indicate that animated videos about self-care management for diabetes mellitus are effective in increasing the knowledge of the elderly in Rampal Claket Village, Malang City. Before the intervention, the intervention and control groups had almost the same level of knowledge, but there was a significant increase in the intervention group after the intervention.

When compared to previous studies, this study supports the results of Wahyuni's (2019) study, which found that audiovisual media is effective in increasing participants' understanding of managing chronic diseases such as diabetes.

Research by Hidayati and Rahman (2021) also shows that video-based interventions can improve elderly access to relevant health information and their knowledge in managing chronic diseases such as diabetes. This study provides an essential contribution to the health education field, especially in using innovative media, such as animated videos, to improve health knowledge in the elderly population.

By increasing the knowledge of the elderly about self-care management, it is expected to improve their quality of life through diabetes self-management. In addition, animated videos can be a model to be applied in other health interventions involving vulnerable populations, such as the elderly, so that they can improve their health literacy and facilitate more effective preventive actions.

CONCLUSION

This study shows that using animated videos as educational media is effective in increasing the knowledge of the elderly regarding self-care management in diabetes mellitus. The results showed a significant increase in the intervention group's knowledge level after being given animated videos. This indicates that audiovisual-based educational media has a stronger appeal and is able to facilitate better understanding compared to traditional methods such as leaflets.

The findings also suggest that interactive and technology-based education, such as animated videos, can be used to improve health literacy, especially in the elderly population, who tend to have limitations in receiving information. In addition, this study emphasizes the importance of innovative approaches in health education programs to address literacy challenges and improve the quality of life of elderly people with diabetes.

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CONFLICT OF INTEREST

The researcher declares that there is no conflict of interest, either financially or non-financially, related to this research. All results are purely based on research data and are not influenced by any party.

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