

## THE INFLUENCE OF AUDIOVISUAL MEDIA ON INCREASING KNOWLEDGE ABOUT CHRONIC KIDNEY DISEASE IN DIABETES MELLITUS PATIENTS AT RSUD DR SOEDOMO TRENGGALEK REGENCY

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### ABSTRACT

Chronic kidney disease (CKD) represents a gradual decline in the capacity of the kidneys, manifested by a persistently reduced GFR below 60 mL/min/1.73 m<sup>2</sup> or demonstrably impaired kidney structure. It is crucial to prioritize the prevention of chronic kidney disease (CKD), particularly among individuals with predisposing factors. Diabetes mellitus (DM) stands out as a primary risk factor associated with CKD. Therefore, health promotion efforts are needed to prevent CKD in patients with DM. One such effort is through the use of audiovisual media, such as educational videos. This study aimed to determine the effect of audiovisual media on knowledge improvement of CKD in patients with DM. A quasi-experimental pre-experimental study with a one-group pretest-posttest design was conducted at RSUD dr. Soedomo Trenggalek Regency. A total of 36 patients with DM participated in this study. The results showed that the majority of respondents were female, aged 45-59 years, had a tertiary education level, had never received information about CKD before, and did not have a family history of CKD. The majority of respondents had an initial knowledge level of moderate. After the intervention, the majority of respondents had a final knowledge level of high. There was a significant effect of audiovisual media on the improvement of knowledge about chronic kidney disease (CKD) in patients with diabetes mellitus (DM) at RSUD dr. Soedomo Trenggalek Regency with a p value <0.001. The study concluded that there was a significant effect of audiovisual media on knowledge improvement of CKD in patients with DM at RSUD dr. Soedomo Trenggalek Regency.

**Keywords:** chronic kidney disease (CKD), diabetes mellitus (DM), knowledge, audiovisual media

### INTRODUCTION

Chronic Kidney Disease (CKD) is a progressive pathological entity characterized by the irreversible decline in nephron function. This manifests as a sustained decrease in GFR below 60 mL/min/1.73 m<sup>2</sup>, often secondary to structural damage within the glomerular and/or tubular compartments of the kidneys.<sup>1</sup> According to the Kidney Disease: Improving Global Outcomes (KDIGO), a person is classified as having CKD if damage or decline in kidney function occurs for more than three months. The severity of CKD is classified based on GFR and albuminuria levels. GFR is used as a marker of renal excretory function, while albuminuria is an indicator of dysfunction in the glomerular filtration barrier.<sup>2</sup> As reported by the World Health Organization (WHO) in 2012, chronic kidney disease (CKD) occupied the 12th position amongst the global leading causes of mortality, with a mortality rate of 12.2 deaths per 100,000 people. This number is expected to continue to increase, with an estimated increase to 14 deaths per 100,000 people by 2030.<sup>1</sup> In 2017, Chronic Kidney Disease (CKD) affected approximately 9.1% of the global population, equating to 697.5 million cases. Women experienced a higher prevalence at 9.5% compared to men

at 7.3%. Remarkably, around one-third of all CKD cases were concentrated in China (132.3 million) and India (115.1 million). The prevalence has increased by 29.3% for all ages from 1990 to 2017.<sup>3</sup> In Indonesia, the prevalence of CKD based on the results of the RISKESDAS 2018 survey increased from 2 per 1,000 people in 2013 to 3.8 per 1,000 people in 2018.<sup>4</sup>

Early detection of CKD is important, especially for people with risk factors for the disease. This can help to prevent or delay the progression of the disease.<sup>5</sup> Diabetes and hypertension are the main risk factors that can cause or worsen CKD. These two risk factors cause CKD in about 5-7% of the world's population and are more common in developing countries, low-income communities, and minorities. Diabetes causes 9.1-29.9% of cases of CKD to progress to end-stage renal disease (ESRD). The mortality rate for people with CKD due to diabetes mellitus (DM) reached 173,000 in 2013.<sup>5</sup> In this regard, public knowledge and awareness, especially among people with diabetes mellitus, about the prevention of serious complications, including CKD, is important. This will help to ensure that preventive programs to prevent the progression of the disease are not hindered.<sup>5</sup> A study conducted by Kurniaty &

Saraswati (2020) on the level of knowledge about the diet of people with diabetes mellitus with chronic kidney disease (CKD) at RSUP Sanglah Denpasar in 2016 showed that 28 of 63 respondents (44.44%) still had a low level of knowledge about diet.<sup>6</sup> A study by Rofiah et al. (2019) at the Sultan Agung Islamic Hospital in Semarang showed that 29 of 67 people with diabetes mellitus (43.3%) had low knowledge about CKD, while 19 respondents (28.4%) had adequate knowledge and 19 other respondents (28.4%) had good knowledge.<sup>7</sup> Increasing awareness and knowledge among the public, especially people with diabetes mellitus, about CKD can provide guidance to health workers, researchers, and organizations working in the field of kidney health when creating health campaigns or education.<sup>5</sup> Health education media is a very important component in the delivery of information because it has the power to capture attention. Attractive media such as audiovisual media will provide conviction, so that cognitive, affective, and psychomotor changes can be accelerated.<sup>8</sup> The purpose of this study was to assess the effect of audiovisual media on increasing knowledge about CKD in DM patients at RSUD dr. Soedomo Trenggalek Regency. This study is expected to be one of the preventive steps in preventing disease complications through health promotion.

## OBJECT AND METHOD

This study is a quasi-pre-experimental study with a one-group pretest-posttest design. The techniques used are descriptive techniques to determine the characteristics of DM patients and analytical tests using the Wilcoxon non-parametric test through Statistical Product and Service Solutions (SPSS) version 26 to determine the effect of audiovisual media on the improvement of DM patient knowledge. The accessible population of this study is long-term DM outpatients who visit when the research is conducted at RSUD dr. Soedomo Trenggalek Regency in 2023. From this accessible population, samples will be

taken that meet the inclusion and exclusion criteria. The inclusion criteria set are outpatients with diabetes mellitus (DM) at RSUD dr. Soedomo Trenggalek Regency who are not first-time visits, aged >18 years, willing to participate in the study, and have not been diagnosed with chronic kidney disease (CKD). The exclusion criteria are respondents who cannot speak Indonesian and respondents who do not complete the questionnaire. The sampling technique used is consecutive sampling with a sample of 36 people. The audiovisual media used is an educational video that has been tested for content validity by experts. Meanwhile, the research questionnaire used comes from the Chronic Kidney Disease Knowledge Questionnaire (CKDKQ) questionnaire which has been simplified to 18 items (Alpha Cronbach=0.88). The study was conducted after obtaining research permission from the relevant hospital and ethics committee. Researchers were stationed in the internal medicine clinic of the hospital. Upon the arrival of each patient, researchers assessed whether the patient met the inclusion and exclusion criteria to be included as a study respondent. After meeting the inclusion and exclusion criteria, respondents were asked to fill out an informed consent first, then asked to fill out a pretest questionnaire. After that, the respondents were given an intervention using audiovisual media supervised by the researcher. Then the respondents were asked to fill out the posttest. This study has been approved by the ethics committee of the Faculty of Medicine, Udayana University with the ethical fitness letter number 827/UN14.2.2.VII.14/LT/2023.

## RESULT

The respondents in this study were outpatients with DM at RSUD dr. Soedomo Trenggalek Regency, with the following characteristics: age, gender, educational level, source of information about CKD, and family history of CKD.

**Table 1.** Distribution of sample characteristics

Characteristics	Frequency (n)	Percentage (%)
<b>Age</b>		
< 45	4	11.1
45-59	23	63.9
≥ 60	9	25
<b>Gender</b>		
Male	16	44.4
Female	20	55.6
<b>Educational level</b>		
Elementary school	4	11.1
Junior high school	3	8.3
Senior high school	2	5.6
Higher education	27	75
<b>Source of information</b>		
Never	23	63.9
Internet	4	11.1

Social Media	4	11.1
Other	5	13.9
<b>Family History</b>		
Yes	9	25
No	27	75

According to Table 1, the majority of respondents were aged between 45 and 59 years, with a total of 23 people (63.9%). The majority of respondents were female, with a total of 20 people (55.6%), while the number of male respondents was 16 people (44.4%). The highest level of education was higher education, with 27 people (75%).

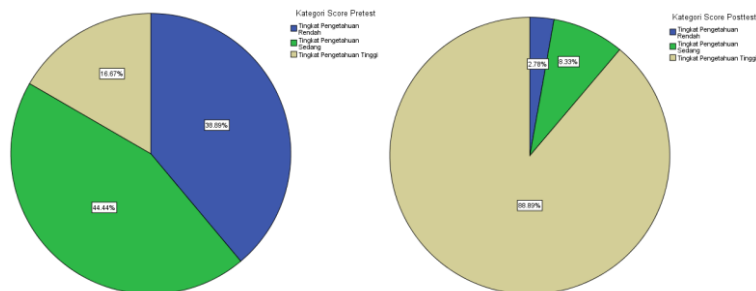
Based on the table, the majority of respondents, a total of 23 people (63.9%), had never received information about chronic kidney disease (CKD) before. In addition, the majority of respondents, a total of 27 people (75%), did not have a family history of CKD.

**Table 2.** Distribution of pretest and posttest scores

Variable	N	Max	Min	Mean	Med
<b>Pretest Score</b>	36	18	0	9.33	11
<b>Posttest Score</b>	36	18	9	15.47	16

Table 2 shows that the mean knowledge score of the respondents before the intervention was 9.33, with a median of 11. The mean knowledge score of the respondents after

the intervention was 15.47, with a median of 16. The difference in mean knowledge scores was 6.14 points.



**Figure 1.** Distribution of pretest and posttest knowledge level categories

Based on Figure 1, The majority of the participants' initial knowledge level was in the moderate knowledge category, with 16 respondents (44.4%). In addition, 14 respondents had a low initial knowledge level (38.9%) and only 6 respondents (16.6%) had a high initial knowledge

level. On the other hand, the majority of the participants' final knowledge level was in the high knowledge category, with 32 respondents (88.9%), and only 1 respondent had a low knowledge level (2.8%) and 3 respondents (8.3%) had a moderate knowledge level.

**Table 3.** Respondent characteristics and knowledge improvement

Characteristics	Knowledge Improvement (points)		
	<7	7-12	>12
<b>Age</b>			
< 45	3 (75%)	1 (25%)	0 (0%)
45-59	15 (65.2%)	5 (21.7%)	3 (13%)
≥ 60	4 (44.4%)	4 (44.4%)	1 (11.1%)
<b>Gender</b>			
Male	9 (56.2%)	5 (31.2%)	12 (12.5%)

Female	13 (65%)	5 (25%)	2 (10%)
<b>Educational level</b>			
Elementary school	1 (25%)	2 (50%)	1 (25%)
Junior high school	2 (75%)	1 (25%)	0 (0%)
Senior high school	1 (50%)	0 (0%)	1 (50%)
Higher education	18 (66.7%)	7 (59.2%)	2 (7.4%)

#### Age and Knowledge Improvement

Based on Table 3, the majority of respondents in the <45 years of age category, 75%, had an increase in knowledge of less than 7 points. In the 45-59 years of age category, the majority, 65.2%, also had an increase in knowledge of less than 7 points. In addition, the proportion of respondents in this age category who received an increase in value of more than 12 points was higher than in the other age categories (13%). Meanwhile, in the ≥60 years of age category, the majority of respondents had an increase in knowledge of less than 7 points and 7-12 points which were the same (44.4%). Although older age groups (45-59 years and ≥60 years) tend to have lower initial knowledge levels, these groups had better knowledge gains than the youngest age group (<45 years).

#### Gender and Knowledge Improvement

Based on Table 3, it shows that in the male category, the majority of respondents, 56.2%, had an increase in knowledge of less than 7 points, while in the female category, the majority of respondents, 65%, also had an

increase in knowledge of less than 7 points. Men had a higher proportion of knowledge gains >12 points (12.5%) than women (10%). From the table, it can be seen that although men had lower initial knowledge levels than women, they had better knowledge gains than women.

#### Educational level and Knowledge Improvement

Based on Table 3, respondents with elementary school education, the majority of 50% had an increase in knowledge of 7-12 points. Respondents with junior high school education, the majority of 75% had an increase in knowledge <7 points. Respondents with senior high school education had the same increase in knowledge between <7 points and >12 points (50%). Meanwhile, respondents with higher education, the majority of 66.7% had an increase in knowledge <7 points. In the table and graph, it can be seen that although elementary school education has a lower initial knowledge level than other levels of education, it has a good enough increase in knowledge compared to other levels of education.

**Table 4.** Respondent characteristics and initial knowledge level

Characteristics	Initial Knowledge Level		
	Low	Medium	High
<b>Source of information</b>			
Never	13 (56.5%)	8 (34.8%)	2 (8.7%)
Internet	0 (0%)	3 (75%)	1 (25%)
Social Media	1 (25%)	2 (50%)	1 (25%)
Other	0 (0%)	3 (60%)	2 (40%)
<b>Family History</b>			
Yes	12 (44.4%)	12 (44.4%)	3 (11.1%)
No	2 (22.2%)	4 (44.4%)	3 (33.3%)

#### Source of Information and Initial Knowledge Level

Based on Table 4, the majority of respondents, 13 people, who had never received information about CKD before had a low level of knowledge. Meanwhile, respondents who had received information about CKD before, either through the internet, social media, or other sources, had a majority of moderate knowledge levels. In the table and graph, it can be seen that respondents who had never received information about CKD before had a lower level of knowledge than other respondents who had already received information about CKD.

#### Family History and Initial Knowledge Level

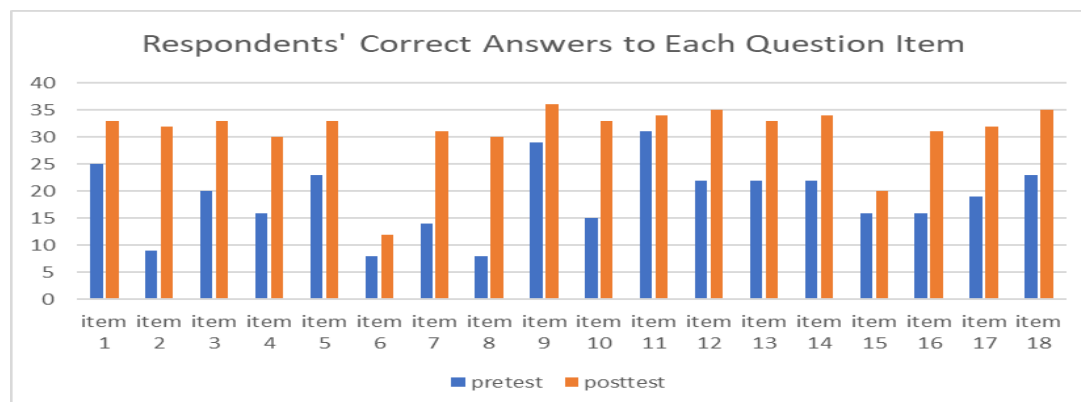
Based on Table 4, the majority of respondents who did not have a family history of CKD had a low or moderate level of initial knowledge (12 people). Meanwhile, the majority of respondents who had a family history of CKD had a moderate level of initial knowledge (4 people). The table and graph show that respondents who had a family history of CKD were more likely to have a higher level of initial knowledge than respondents who did not have a family history of CKD.

**Table 5.** Frequently Missed Question

Question	Correct Response
<b>Pretest</b>	
Herbal supplements are effective in treating chronic kidney disease	9/36
Kidneys function to make urine (pee)	16/36
The kidneys function to help keep blood sugar levels normal	8/36
Kidneys function to help maintain blood pressure	14/36
Kidneys function to help maintain bone health	8/36
Blood pressure monitoring is used to determine kidney health	15/36
Fever is a sign or symptom of chronic kidney disease	16/36
Nausea/vomiting is a sign or symptom of chronic kidney disease	16/36
<b>Posttest</b>	
The kidneys function to help keep blood sugar levels normal	12/36

Table 5 shows the items that were answered incorrectly by many respondents with a <50% accuracy rate. The pretest items that were most commonly answered incorrectly by respondents were "The kidneys function to help keep blood sugar levels normal" and "Kidneys function to help maintain bone health". Only 8 out of 36 respondents answered these

two items correctly. Meanwhile, the posttest item that was most commonly answered incorrectly by respondents was "The kidneys function to help keep blood sugar levels normal". This question was only answered correctly by 12 out of 36 respondents.



**Figure 2.** Respondent's correct answer to each question item



Based on Figure 2, the number of respondents who answered correctly per item question can be seen after completing the pretest and posttest. Based on the graph,

there was an increase in the number of respondents who answered the questions correctly on all item questions after being given education using audiovisual media.

**Table 6.** Wilcoxon non-parametric test

Variable	Rank	N	Mean Rank	Sig (2-tailed)
Pretest Score	Negative Rank	0	0.00	0,000
Posttest Score	Positive Rank	35	18,00	
	Ties	1		
	Total	36		

Based on the results of the Wilcoxon test, there were 35 positive ranks, indicating that 35 samples showed an increase in value. There was 1 tied sample, meaning that 1 sample did not show an increase or decrease in value, and there were no samples with negative ranks or decreases in value. The sig (2 tailed) value was found to be  $<0.001$ , which is less than 0.05 with a 95% confidence level. Therefore, the null hypothesis ( $H_0$ ) proposing no impact was rejected, the alternative hypothesis ( $H_a$ ) suggesting a positive effect was accepted. This indicates that employing audiovisual media demonstrably improved CKD knowledge in diabetic patients at RSUD dr. Soedomo Trenggalek Regency.

## DISCUSSION

### Respondent Characteristics and Level of Knowledge

Most of the respondents were in the age range of 45-59 years. The majority of the respondents were female. The highest number of respondents had a high school education, and the majority of the respondents had never received information about chronic kidney disease (CKD) before. Most of the respondents also did not have family members with a history of CKD. Based on the results of the pretest values for the age category, the majority of respondents, 2 people (50%), in the  $<45$  years age category had an intermediate level of initial knowledge. Then in the 45-59 years age category, the majority of respondents, 11 people (47.8%), also had an intermediate level of initial knowledge. While in the  $\geq 60$  years age category, the majority of respondents, 6 people (66.7%), had a low level of knowledge. Then after being given intervention using audiovisual media, both in the  $<45$  years, 45-59 years, and  $\geq 60$  years age categories, the majority had a high level of final knowledge. Respondents with the 45-59 years age category had a proportion of knowledge increase  $>12$  points more than the other age categories. Age can affect a person's knowledge. The older the person, the greater the level of maturity in thinking, working, and the experiences gained will affect the person's level of knowledge (Sulistyowati et al., 2017).<sup>9</sup> However, at the age of  $\geq 60$  years, which is the elderly category, the increasing age will cause a decrease in cognitive function so that it can reduce the level of knowledge. In addition, research by Brod & Shing (2022) also states that knowledge and memory of new information

will increase with age and growth and generally can be maintained well in old age, but often with increasing age in old age, the level of knowledge and memory will be more difficult to access again.<sup>10</sup> The use of audiovisual media at old age also facilitates understanding for older people because respondents do not need to read. This is supported by research from Sri Widhowati et al. (2022) that audiovisual media can significantly increase knowledge improvement in the elderly group.<sup>11</sup>

Based on the results of the pretest values for gender, the majority of male respondents had a low and intermediate level of initial knowledge, with 7 people (43.8%) each. While the majority of female respondents, 9 people (45%), had an intermediate level of initial knowledge. After being given the intervention, the majority of male and female respondents had a high level of final knowledge. Both men and women had a majority of knowledge increases  $<7$  points. The knowledge increase in men was better than in women after being given intervention using audiovisual media. The increase in a person's knowledge is often associated with their intelligence level. Intelligence is a cognitive factor that plays an important role in determining the success of the learning process or absorbing information. The difference in intelligence between men and women is indirectly often associated with the differences in the anatomy and physiology of the brain. Brain volume is positively correlated with intelligence level. In general, men have a larger brain volume than women and also have a higher average number of neurocortex neurons. As a result, this will affect kinetic action potentials that impact the efficient transfer of information in cortical neurons.<sup>12</sup>

Based on the results of the pretest values for educational level, the majority of respondents with primary school education, 3 people (75%), had a low level of initial knowledge. The majority of respondents with junior high school education, 2 people (66.7%), had an intermediate level of initial knowledge. Then, the majority of respondents with senior high school education had a low and intermediate level of knowledge. Meanwhile, the majority of respondents with higher education, 12 people (44.4%), had an intermediate level of initial knowledge. After receiving education using audiovisual media, the majority of respondents from primary, junior high, senior high, and higher education had a high level of final knowledge. The majority of respondents with higher education also obtained

a knowledge increase  $<7$  points. Educational level can affect how quickly or slowly a person can understand and absorb the information provided, so in general, educational level is directly proportional to a person's level of knowledge. People with higher levels of education are generally considered to have better cognitive skills, which can lead to better knowledge acquisition. Research by Diaz-Quijano et al. (2018) states that educational level can be a determinant of knowledge about a disease, as well as related to the implementation of attitudes and behaviors about prevention. Higher levels of education are associated with better knowledge.<sup>13</sup>

Based on the pretest results of respondents on the source of information related to CKD, the majority of respondents who had never received information about CKD previously had a low level of initial knowledge. The media of information can affect a person's level of knowledge. This is because repeated exposure to information through various media, both print and digital, can broaden a person's knowledge. This is also supported by research by Yulianti (2019), which states that there is a relationship between the source of information and the level of knowledge. The lack of information sources obtained previously can lead to a low level of knowledge about a disease.<sup>14</sup> Meanwhile, respondents who had a family history of CKD had a moderate level of initial knowledge. Family history can provide a higher level of knowledge to a person, but it is not always accompanied by good preventive attitudes.<sup>15</sup>

### **The Influence of Audiovisual Media on Knowledge Improvement**

RSUD dr. Soedomo Trenggalek Regency previously had health promotion media related to chronic kidney disease (CKD) through leaflets. In addition, there were health promotion activities using the lecture method that were carried out at certain events such as on World Kidney Day. The selection of respondent criteria, which are patients who have previously visited the internal medicine clinic at RSUD dr. Soedomo Trenggalek Regency, was carried out with the hope that some of these patients had previously been exposed to information about CKD, either from the printed media available at the hospital or through direct education from health workers.

Based on the pre-test questionnaire, the average score of the respondents was 9.33 points, which is classified as a low level of knowledge. One of the main reasons for the low average level of knowledge of the respondents is that the majority of the respondents had never received information about CKD before, so the disease is still considered a new thing by some of the respondents. The information that the respondents had obtained before the intervention can be called prior knowledge. Someone who already has prior knowledge about a material, in this context about CKD, will have a higher cognitive level and will be able to accept and apply the information they receive more easily than someone who does not have prior knowledge before. Prior knowledge demonstrably facilitates disease prevention information processing, leading to a statistically significant positive relationship between an individual's knowledge

base and their information search behavior. This highlights the crucial role of subjective knowledge in understanding information acquisition, search patterns, and selective information seeking in the context of disease prevention. Individuals who perceive themselves as knowledgeable may be more likely to actively control or prevent a negative event through further knowledge acquisition and/or preventive behavior.<sup>16</sup>

The provision of an intervention in the form of an educational video using audiovisual media increased the average score of the respondents by 6.14 points, so that the average post-test score of the respondents became 15.47 points, which is a high level of knowledge. Based on the results of the Wilcoxon statistical test, a significant difference was found before and after the intervention, with a sig (2 tailed) value of  $<0.001$ , which means  $<0.05$ . These results indicate that there is a significant effect of the intervention on increasing respondents' knowledge about chronic kidney disease (CKD). According to the stimulus organism response (SOR) theory, the stimulus, which in this study is an audiovisual media intervention, is considered effective if it can cause changes in the organism (respondent).<sup>17</sup> These results are also in line with the research of Simanungkalit et al. (2019), who studied the effect of audiovisual media on the level of diet knowledge and attitudes of CKD patients at RSUD Siloam Lippo Village Tangerang. The study found that audiovisual media had a significant effect on increasing respondents' knowledge ( $p$  value=0.0001).<sup>18</sup> In addition, the research of Lumbanbatu (2018) on the effectiveness of audiovisual media on the knowledge of families of CKD patients at the Hemodialysis Unit of RSUD Kristen Indonesia also showed that there was a significant effect on the increase in the average knowledge score in the intervention group after being given education using audiovisual media ( $p$  value=0.001).<sup>8</sup>

Other studies on the effect of audiovisual media on increasing respondents' knowledge about other diseases also provide similar results. A study conducted by Siregar et al. (2019) found that there was a positive effect of health promotion using audiovisual media in increasing knowledge and attitudes towards the dangers of HIV/AIDS in adolescents at SMK Swasta Imelda with a  $p$  value of 0.001.<sup>19</sup> Then, a study by Mansyah & Rahmawati (2021) found that there was a significant difference in the level of knowledge between the intervention group that was given education using audiovisual media and the control group that was given education using the lecture method about diet for the prevention of type 2 diabetes in adolescents at SMAN 1 Katingan Hilir.<sup>20</sup> A study by Deviani et al. (2019) also found that there was a significant increase in knowledge about breast self-examination (SADARI) in SMK Jakarta Timur with a  $p$  value of 0.003.<sup>21</sup>

Audiovisual media can significantly increase respondents' knowledge. Audiovisual media provides stimuli to the senses of hearing and sight, so that more senses process and receive information. This can be achieved because the sense of sight transmits knowledge to the brain more than other senses (about 75% to 87%) (Ambarwati et al., 2021).<sup>22</sup> In accordance with the Stimulus-

Organism-Response (SOR) theory, audiovisual media provides stimuli to the organism (respondent), so that the respondent responds with an increase in knowledge.<sup>17</sup> This stimulus will be processed through multiple pathways from the primary sensory area to the higher associative area, thus speeding up the information processing time. In addition, audiovisual media, which sends a series of electronic messages through sound and images, makes information more interesting, entertaining, not boring, and easy to understand by the public.<sup>23</sup> Health education conducted using audiovisual media is more attention-grabbing and can stimulate someone's enthusiasm in absorbing information and is easier to accept than print or audio media alone.<sup>22</sup> In addition, there is a study by Pujol et al. (2019) that compared brain activity during learning using audiovisual media with traditional textbooks using functional MRI. In this study, learning using audiovisual media resulted in more brain systems involved in information processing. This was observed by observing changes in the signals in the frontal lobe, where the level of knowledge value correlated positively with prefrontal activity and working memory.<sup>24</sup>

## CONCLUSION AND SUGGESTION

The results of a study on the effect of audiovisual media on the improvement of knowledge about chronic kidney disease (CKD) in patients with diabetes mellitus (DM) at RSUD dr. Soedomo Trenggalek Regency concluded that the majority of the respondents were female, with 20 people (55.6%). The majority of the respondents were aged 45-59 years, with 23 people (63.9%). The majority of the respondents had a high level of education, with 27 people (75%). Additionally, the majority of the respondents had never received information about CKD before, with 23 people (63.9%). Finally, the majority of the respondents did not have a family history of CKD, with 27 people (75%). Before receiving the intervention using audiovisual media, the majority of the respondents had an intermediate level of initial knowledge, with 16 people (44.4%). After receiving the intervention, the majority of the respondents had a high level of final knowledge, with 32 people (88.9%). In addition, based on the data analysis and discussion, it can be concluded that there is a significant effect of audiovisual media on the improvement of knowledge about CKD in patients with DM at RSUD dr. Soedomo Trenggalek Regency. This is indicated by the increase in the average posttest score compared to the pretest score, and the results of the data analysis using the Wilcoxon test obtained a p-value of <0.001.

The authors of the study recommend that RSUD dr. Soedomo Trenggalek Regency take preventive measures using audiovisual media in the form of educational videos. These educational videos could be played in the waiting room of the polyclinic before patients undergo examinations. For future researchers, it is hoped that they can conduct a study with a two-group pretest-posttest design using a control group so that they can compare the

audiovisual media used in the study with the educational media that has been available in the hospital previously, as well as assess the suggestions and feedback from the respondents about the audiovisual media used so that further improvements can be made.

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