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**THE EFFECT OF LOCAL CULTURAL DIETARY EDUCATIONAL VIDEOS ON  
DIETARY SELF-EFFICACY OF TYPE-2 DIABETES MELLITUS PATIENTS IN THE  
VILLAGE**

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**ABSTRACT**

Diabetes Mellitus (DM) is a non-communicable disease with high prevalence and requires proper dietary management. One important factor in the success of dietary management is patient self-efficacy. However, conventional dietary education is often considered boring, especially in rural communities. This study aims to analyze the effect of a local cultural dietary management education video on improving dietary self-efficacy in type 2 DM patients in Bategede Village. The study design used a quasi-experimental design with a control group pre-test post-test. The study sample used a purposive sampling method of 38 respondents [R1.1] who were divided into an intervention group (19 respondents) and a control group (19 respondents). The instrument used was the Diabetes Management Self-Efficacy Scale (DMSES). Data analysis was carried out using univariate and bivariate statistical tests according to data distribution with the Shapiro-Wilk test. Based on the results, there was a significant difference in self-efficacy between the intervention and control groups, with  $p = 0.000$  ( $p < 0.05$ ). This confirms that the local cultural dietary management education video is more effective in improving self-efficacy than without intervention.

Keywords: diabetes mellitus; educational videos; self-efficacy

**INTRODUCTION**

Modern lifestyles can cause several health problems worldwide. Technological advances, changes in dietary habits with high sugar and fat intake, lack of physical activity, and increased stress are factors contributing to the high rate of non-communicable diseases (Simatupang et al., 2023). Among these non-communicable diseases, Diabetes Mellitus is a chronic, non-communicable disease, and the number of sufferers continues to grow, both in Indonesia and worldwide (Tisna et al., 2025). Dietary management is one of the main pillars in the management of Type 2 DM, alongside pharmacological therapy, physical activity, and education. One approach to dietary management for DM patients is the 3J approach (amount, type, and schedule). This 3J approach aims to regulate blood sugar levels, prevent obesity, and reduce the risk of complications. The 3J approach has been proven effective in lowering blood sugar levels in DM patients (Diani Sahwa et al., 2023).

In patients with Type 2 Diabetes Mellitus, a high level of self-efficacy will encourage patients' confidence that they are able to control their diet, engage in physical activity, comply with medication, and manage stress consistently, which ultimately impacts the success of glycemic control and the prevention of complications (Volta Simanjuntak et al., 2022). Strategies for dietary management to improve self-efficacy can be implemented by providing knowledge through education. In today's era, technology is increasingly developing, and video media. The use of video in health education adds a new dimension to learning. Videos present moving images to students with accompanying audio explanations. Videos can display phenomena that are difficult to see in real life, conveying messages quickly and easily (Sukesih et al., 2025). Videos that highlight local culture will be more interesting and easily accepted by many people, especially rural communities. By using video as a means of health education, the information conveyed becomes easier to understand. This is because videos present moving images that can

help respondents more quickly understand the message or material being conveyed. The visualizations in videos make it easier to convey information more clearly and attractively, so that the audience can receive and digest the information better (Eka Dewi, 2023). Given the relevance of the problems faced by diabetes patients, this study aims to examine "The Effect of Local Cultural Dietary Education Videos on Self-Efficacy in Diabetes Mellitus Patients in Bategede Village, Nalumsari District, Jepara Regency."

**METHOD**

This study employed a quantitative method, a systematic scientific study of components and phenomena, as well as their cause-and-effect relationships. The design used was a quasi-experimental design with a pre-test, post-test, and control group (Fadilla et al., 2021). The population in this study was 312 patients. The sampling technique used a non-probability sampling technique with a purposive sampling method (Sugiyono, 2023). The sample size was 38 respondents. This group was then divided into two groups: 19 respondents in the intervention group and 19 respondents in the control group.

The study was conducted in Bategede Village, Nalumsari District, Jepara Regency. This study used the Diabetes Management Self-Efficacy Scale (DMSES) questionnaire, which has been tested for validity and reliability in previous research. This instrument measures patients' self-efficacy in following a diabetes diet. This questionnaire consists of several statements that measure self-confidence in several aspects of diabetes management, such as diet management (numbers 1-8), blood sugar control (9-12), physical activity (13-16), and overcoming problems and challenges (numbers 17-20). The higher the total self-efficacy score, the higher the patient's self-efficacy (Wahyu Untari et al., 2024). Data analysis used univariate and bivariate statistical tests, including the Shapiro-Wilk test. This study used numerical data obtained from questionnaire scores. To analyze differences in self-efficacy before and after education within the same group, a paired sample t-test was used if the data were normal, and a Wilcoxon signed-rank test if the data were not normal. To analyze differences in self-efficacy between the intervention and control groups, an independent sample t-test was used if the data were normal, and a Mann-Whitney test if the data were not normal.

**RESULT**

Table 1.  
Frequency based on age characteristics (n=38)

Age	Mean	Median	SD	Min	Max
Intervention Group	50.2	52.0	10.968	30	70
Control Group	52.2	52.0	11.130	30	70

Table 2.  
Frequency based on characteristics in Bategede Village, Jepara (n=38)

Variable	Intervention Group		Control Group		Total	
	f	%	f	%	f	%
Gender						
Male	4	21.1	7	36.8	11	28.9
Female	15	78.9	12	63.2	27	71.0
Occupation						
Employed	15	78.9	14	73.7	29	76.3
Not Employed	4	21.1	5	26.3	9	23.6
Education						
SD	5	26.3	7	36.8	12	31.5
SMP	5	26.3	4	21.1	9	23.6
SMA	3	15.8	8	42.1	11	28.9
SI	6	31.6	0	0	6	15.7

Table 1, the characteristics of respondents based on age show that the average age of

respondents in the intervention group was 50.2 years with a median of 52.0 years and a standard deviation of 10.968, where the youngest age was 30 years and the oldest was 70 years. In the control group, the average age of respondents was 52.2 years with a median of 52.0 years and a standard deviation of 11.130, with the same age range of 30–70 years.

Based on the characteristics of the respondents, most of the respondents in both groups were female, namely 78.9% in the intervention group and 63.2% in the control group. The majority of respondents in both groups were employed, respectively 78.9% in the intervention group and 73.7% in the control group. Based on education level, in the intervention group most of the respondents had a bachelor's degree (31.6%), followed by elementary school and junior high school each 26.3%, while in the control group the majority of respondents had a high school education (42.1%), followed by elementary school 36.8% and junior high school 21.1%, and there were no respondents with a bachelor's degree.

Table 3.

Frequency based on self-efficacy in the intervention and control groups (n=38)

Group	Mean	Median	SD	Min	Max
<b>Intervention Group</b>					
Before Intervention	53.6	53.0	6.840	40	65
After intervention	74.6	73.0	8.395	57	90
<b>Control Group</b>					
Before intervention	53.6	55.0	7.967	36	68
After Intervention	58.2	59.0	9.848	39	73

Table 3, the average self-efficacy score in the intervention group before the intervention was 53.6 with a median of 53.0 and a standard deviation of 6.840, with the lowest score being 40 and the highest being 65. After the intervention, the average self-efficacy score increased to 74.6 with a median of 73.0 and a standard deviation of 8.395, with a minimum score of 57 and a maximum of 90. In the control group, the average self-efficacy score before the intervention was 53.6 with a median of 55.0 and a standard deviation of 7.967, with a lowest score of 36 and a highest score of 68. After the measurement, the average self-efficacy score increased to 58.2 with a median of 59.0 and a standard deviation of 9.848, with a minimum score of 39 and a maximum score of 73.

Table 4.

Data normality test using the Shapiro Wilk

Variable	Shapiro Wilk	
	n	P value
Pre	19	0,496
Post	19	0,795

Based on the data normality test table above, it shows that the data is normally distributed, because the data normality test using Shapiro Wilk is seen in the pre Sig value = 0.496 and post 0.796, meaning the value is more than 0.1. This means that the p value > 0.05, thus H0 is accepted. It can be concluded that the data is normally distributed, so the statistical test in this study uses the Paired t test.

Table 5.

The Effect of Local Cultural Dietary Education Videos on Self-Efficacy in Type-2 Diabetes Mellitus Patients (n=38)

Variable	n	Mean ± SD	Difference Mean ± SD	95% CI	t	p
<b>Intervention Group</b>						
Before	19	53,68 ± 6,84	20,95 ± 5,07	18,50 – 23,39	18,00	0,000
After	19	74,63 ± 8,40				
<b>Control Group</b>						
Before	19	53,63 ± 7,97	4,63 ± 7,22	1,15 – 8,11	2,80	0,012
After	19	58,26 ± 9,85				

Table 5, In the intervention group, the average self-efficacy score increased from  $53.68 \pm 6.84$  before the provision of local culture-based diet education videos to  $74.63 \pm 8.40$  after the intervention, with a difference of  $20.95 \pm 5.07$  (95% CI 18.50–23.39;  $t = 18.00$ ;  $p = 0.000$ ) which showed a significant increase in type 2 Diabetes Mellitus patients. Meanwhile, the control group experienced a smaller increase, from  $53.63 \pm 7.97$  to  $58.26 \pm 9.85$ , with a difference of  $4.63 \pm 7.22$  (95% CI 1.15–8.11;  $t = 2.80$ ;  $p = 0.012$ ). Overall, local culture-based diet education videos were proven to be more effective in increasing self-efficacy compared to no special intervention.

Table 6.  
Differences in self-efficacy after treatment between the intervention group and the control group (n=38)

Self-efficacy	n	Mean± SD	Difference Mean (95% CI)	t	P
Intervention Group	19	74,63 ± 8,40	16,37 (10,35 – 22,39)	5,51	0,000
Control Group	19	58,26 ± 9,85			

Table 6, the average self-efficacy score after treatment in the intervention group was  $74.63 \pm 8.40$ , while in the control group it was  $58.26 \pm 9.85$ . The results of the statistical test showed a mean difference in self-efficacy of 16.37 with a 95% CI of 10.35–22.39,  $t$ -value = 5.51, and  $p = 0.000$  ( $p < 0.05$ ). These findings indicate that there was a significant difference in self-efficacy between the intervention and control groups after treatment, where the intervention group had higher self-efficacy than the control group.

## DISCUSSION

### Self-efficacy before educational video intervention

The results showed that the average pre-intervention self-efficacy score in the intervention and control groups was 53.6, with relatively close medians (53.0 in the intervention group and 55.0 in the control group). Low self-efficacy in patients with type 2 diabetes mellitus reflects low confidence in their ability to self-manage their disease, particularly regarding diet. According to Bandura's self-efficacy theory, self-efficacy is a key determinant of health behavior change, as individuals with low self-efficacy tend to be hesitant, less committed, and more likely to give up on ongoing self-care behaviors (Bandura, 2021).

Respondents' low pre-intervention self-efficacy may be influenced by their age and education level. The average age of respondents in the intervention group was 50.2 years, while in the control group, the average age was 52.2 years, which falls within the late adulthood to early elderly age range. At this age, individuals tend to experience a decrease in their ability to adapt to changes in health behavior due to long-standing lifestyle habits, which can reduce self-confidence in managing chronic diseases such as type 2 diabetes mellitus. In addition to age, education level also plays an important role in shaping self-efficacy. Based on education level, in the intervention group, the majority of respondents had a bachelor's degree (31.6%), followed by elementary school and junior high school (26.3% each), while in the control group, the majority of respondents had a high school education (42.1%), followed by elementary school (36.8%) and junior high school (21.1%), and there were no respondents with a bachelor's degree. Low education is associated with limited understanding of health information, so individuals become less confident in implementing diet management independently (Kurniawan & Pebrianti, 2025).

### After educational video intervention

The results of the study showed that after receiving education, the self-efficacy of respondents in the intervention group experienced a significant increase. After the intervention, the average self-efficacy score in the intervention group increased to 74.6, while in the control group, after measurement, it only increased to 58.2. Individual confidence in their abilities can increase through the learning process, the provision of clear information, and indirect experiences relevant to daily life. Individuals who receive easy-to-understand and contextualized education

will be more confident in managing health behaviors, including dietary management in patients with type 2 diabetes mellitus (Bandura, 2018). Furthermore, effective educational interventions can strengthen self-efficacy, thus encouraging sustainable health behavior change (Glanz et al., 2021).

The age and education level of respondents also contributed to the increase in self-efficacy in the intervention group. The average age of respondents was 51, which falls within the late adulthood to early elderly group. In this age group, visual and contextual educational methods are considered more effective because they help respondents understand health information without complex cognitive demands. In addition to age and education level, respondents' gender was significantly affected. The majority of respondents in both groups were female, with 78.9% in the intervention group and 63.2% in the control group. Women generally play a greater role in household food management and are more responsive to health education, thus increasing their self-confidence in implementing dietary management after receiving education (Sari & Nurhayati, 2022).

Research (Yulisetyaningrum et al., 2020) from the Muhammadiyah University of Kudus found that education level and knowledge about the DM diet were significantly associated with dietary adherence in patients with diabetes mellitus ( $p < 0.05$ ). Lower education levels can potentially limit patients' understanding of health information, thus reducing their confidence in implementing independent dietary management. According to the researchers, this difference in mean improvement indicates that the educational video intervention on local cultural diet management had a greater impact on increasing self-efficacy than no specific intervention. This suggests that education had a greater impact on increasing self-efficacy in the intervention group than in the control group.

### **Differences in self-efficacy before and after receiving education in the intervention group**

The results of the study showed that the educational video on local cultural dietary management significantly increased the self-efficacy of patients with type 2 diabetes mellitus in the intervention group. This was evident in the change in self-efficacy distribution, with respondents having an average score of 53.68 before the intervention, increasing to  $74.63 \pm 8.40$  after the intervention. A p-value of 0.000 ( $p < 0.05$ ) indicated that the difference in self-efficacy before and after the intervention in the intervention group was statistically significant.

According to the researchers, in the pre-intervention phase, the majority of respondents were in the low self-efficacy category, viewing managing a type 2 diabetes mellitus diet as a difficult task and beyond their perceived capabilities. After being exposed to the educational video based on local culture, self-efficacy increased, as evidenced by a shift to the medium and high categories. This indicates that respondents began to feel confident that dietary management could be applied in various daily life situations. Furthermore, the emergence of a high self-efficacy category and the significant difference in self-efficacy improvement in the intervention group reflect respondents' consistent confidence in their abilities despite challenges in diet management.

Thus, the results of this study confirm that culturally based dietary education videos have a more significant impact on improving self-efficacy in patients with type 2 diabetes mellitus compared to no specific intervention. The significant difference demonstrated through statistical testing, supported by theory and previous research, suggests that the use of contextual and culturally appropriate video media can be an effective educational strategy for increasing self-efficacy and supporting sustainable chronic disease management.

### **Differences in self-efficacy before and after receiving education in the control group**

Although there was a shift in self-efficacy in the control group, the average pre-measurement self-efficacy score was  $53.63 \pm 7.97$ , which increased to 58.26. A p-value of 0.012 indicates a change, but the increase was relatively small compared to the intervention group. The increase in self-efficacy in the control group was likely influenced by internal factors, such as personal experience in managing the disease, informal interactions with healthcare professionals, or exposure to health information from the surrounding environment. However, because the control group did not receive a structured and contextualized educational intervention, the increase in self-efficacy was limited and did not significantly drive changes in self-beliefs. This situation suggests that without systematic educational resources, patients tend to experience slow and inconsistent increases in self-efficacy.

Self-efficacy will not increase optimally without meaningful learning experiences, clear behavioral models, and systematic information reinforcement. Bandura explains that changes in self-efficacy that rely solely on personal experience without educational support tend to produce weak and unsustainable improvements (Bandura, 2018). Thus, although there was a statistically significant change in self-efficacy in the control group, the increase was relatively small and not comparable to that in the intervention group. This confirms that structured and context-specific dietary education interventions are essential to produce more meaningful improvements in self-efficacy in patients with type 2 diabetes mellitus.

### **Differences in self-efficacy after receiving education in the intervention group and the control group**

These results were supported by a t-test, which showed a significant difference in self-efficacy between the intervention and control groups. The p-value was 0.000 ( $p < 0.05$ ). This value indicates that the increase in self-efficacy in the group receiving the educational video was significantly higher than in the control group. This finding confirms that the educational video intervention significantly impacted patient confidence in managing their type 2 diabetes mellitus diet. This significant difference in self-efficacy occurred because the educational video presented dietary information visually, systematically, and in a manner consistent with local eating habits. The contextual presentation of the material made it easier for respondents to understand, internalize, and apply health messages, resulting in stronger and more sustained increases in self-confidence in managing their diet. Conversely, in the control group, which did not receive a specific intervention, the increase in self-efficacy was limited because it relied solely on personal experience and exposure to unstructured information.

Presenting information through a combination of visuals and audio enhances comprehension and retention, which in turn strengthens individual self-confidence (Mayer, 2020). Self-efficacy will increase optimally if individuals receive meaningful learning experiences, information reinforcement, and relevant behavioral examples. The results of this study are supported by Ramadhani, Widyastuti, and Handayani (2024), who showed that providing Diabetes Self-Management Education (DSME) based on educational media significantly increased the self-efficacy of type 2 diabetes patients compared to the control group ( $p < 0.05$ ).

Another study by Wahyuni et al. (2023) also reported that health education using audiovisual media resulted in a higher increase in self-efficacy than educational methods without media, because patients more easily understood and imitated the behaviors exemplified. Therefore, the results of the difference test showing a significant difference in self-efficacy between the intervention and control groups reinforce the conclusion that culturally based dietary education videos are effective in increasing the self-efficacy of type 2 diabetes mellitus patients and are suitable as an applicable and contextual health education strategy in nursing practice and health

promotion.

## CONCLUSION

The results showed that providing educational videos on dietary management based on local culture significantly increased the self-efficacy of type 2 Diabetes Mellitus patients, as seen from the shift in the category from predominantly low to moderate and high ( $p = 0.000$ ). In contrast, the control group only experienced a small increase and remained predominantly low despite changes before and after the measurement ( $p = 0.001$ ). Overall, there was a significant difference in self-efficacy between the two groups ( $p < 0.05$ ), thus the educational video proved more effective than no intervention.

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