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Effectiveness of Educational Media Leaflet with Video on Diabetes Mellitus Patients

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ABSTRACT: Diabetes mellitus (DM) is a chronic disease that occurs when the body cannot produce enough insulin or cannot use insulin (insulin resistance) which is characterized by increased blood sugar levels in the body. Purpose: This study aims to determine the effectiveness of leaflet education compared to videos in patients with diabetic foot mellitus. Method: The study is an observational analytic with a retrospective cross-sectional design using medical records data at Haji General Hospital Surabaya. The total sample of this study was 50 respondents. Data was collected using a total sampling technique and data from a google form questionnaire filled out by respondents. Results: Women were more numerous than men, namely 14 patients (56%), while men were 11 patients (44%). The largest age group in this study was the age range between > 60 years, namely 13 patients (52%). The most recent educational history was high school / vocational school, as many as 11 patients. There was an insignificant difference between the pretest and posttest results using leaflets with a p value of 0.035. There is no significant difference between the pretest and posttest results using educational videos with a p value of 0.021. Conclusions: There is no significant difference between the pretest and posttest results using leaflets and educational videos. Leaflet and educational video media are effective in people with diabetes mellitus.

KEYWORDS: leaflet, video edukasi, diabetes mellitus.

INTRODUCTION

Diabetes mellitus (DM) is a metabolic disease characterized by high blood sugar levels, better known as diabetes. DM occurs when the body cannot use the insulin produced or produce enough insulin due to disruption of the pancreas organ in the human body.[1]

Diabetic foot ulcers (DFU) are one of the serious complications of diabetes. Approximately 15% of patients suffer from DFU, which causes more than 80,000 amputations per year in the United States.[2] Diabetic foot ulcers or wounds are prevalent and tend to increase along with the increasing number of cases of diabetes mellitus sufferers. DFU can occur due to a lack of blood circulation to the feet. DFU is 2 one of the complications that begins with two risk factors, namely neuropathy and angiopathy.[3] Diabetic foot ulcers are a serious problem for sufferers. In addition to taking a long time to heal and possibly having to be amputated, patients also cannot work and become a burden on their families, where family members have to work to earn money. Patients must also go to the hospital repeatedly to get checked and treated.

In this situation, patients with diabetes mellitus or who have already had diabetic foot wounds need attention in management. Education is critical to provide knowledge, from preventing diabetic foot wounds to wound care when diabetic foot wounds have already occurred. Education can be done in many methods. In this study, we are comparing leaflet learning methods with videos for diabetic patients to find out which method is more effective in increasing patient knowledge and willingness to carry out diabetic foot care both before wounds occur and after diabetic wounds occur.

METHODS

The study was conducted using an observational cross-sectional method, which involved giving a pretest, and then an educational intervention was carried out with leaflets or videos. After that, a post-test was conducted to determine how much the patient's knowledge had increased. This study will be conducted from September to October 2024. This study will be conducted at the Haji Hospital in Surabaya.

The population in this study were patients with a history of Diabetes mellitus who checked into the Haji Hospital in Surabaya. The sample was taken as a total of 50 patients divided into 25 with leaflet learning and 25 with video learning who met the inclusion

and exclusion criteria. The inclusion criteria were patients diagnosed with diabetic foot disease. In contrast, the exclusion criteria were uncooperative diabetic foot disease sufferers and diabetic foot disease sufferers who refused to participate in the study.
The sampling technique looks at data from the medical records of RSU Haji Surabaya and data from the PPI Committee of RSU Haji Surabaya. The research will be assessed statistically to compare the effectiveness of leaflet learning with videos in patients with diabetes mellitus. General characteristic data in the assessment data collection sheet are arranged in table form; the data are tabulated and processed statistically.

RESULT

This study was conducted at RSUD Haji Surabaya, East Java Province from September-October 2024. The sample of this study was taken from all research subjects who met the inclusion and exclusion criteria. A sample of 50 patients was obtained and divided into 25 patients with leaflet learning and 25 with video learning.

1. Leaflet Pretest-Posttest Research

The basic data recorded in this research using leaflet media includes gender, age, and last educational history.

Table 1.1 Distribution by gender, age and last education

Variable	n	Percentage (%)
Sex		
Male	11	44%
Female	14	56%
Total	25	100%
Age		
38-48 years old	5	20%
49-59 years old	7	28%
>60 years old	13	52%
Total	25	100%
Last Education		
Elementary School	9	36%
Junior High School	3	12%
Senior High School	11	44%
Bachelor	2	8%
Total	25	100%

In the leaflet media study, the sample size of women was more significant than men, namely 14 patients (56%) while men were 11 patients (44%). The largest age group in this study was the age range of > 60 years, namely 13 patients (52%). The age range of 49-59 years included 7 patients (28%). At the same time, the smallest age group in this study was in the age range of 38-48 years as many as 5 patients (20%). Based on the table above, the most recent educational history was high school / vocational school as many as 11 patients (44%), elementary school education as many as 9 patients (36%), junior high school education as many as 3 patients (12%) and the least was undergraduate education as many as 2 patients (8%).

Table 1.2 Differences between Pretest and Posttest Leaflet

	Total score	Mean	P value
Pretest	397	15	0,035
Posttest	468	19	

* Lack of knowledge (10-15); Good knowledge (16-20)
Based on the table above, there is a difference in the pretest and posttest values with leaflet media; in the pretest, the total score is 397, while in the posttest, it is 468. The average score of the pretest and posttest is also different. In the pretest, the average score was 15, while in the posttest, the average score was 19. There is an insignificant difference between the pretest and posttest results using leaflets with a p-value of 0.035.

2. Video Pretest-Posttest Research

The basic data recorded in this research using video media includes gender, age, and last educational history.

Table 2.1 Distribution by gender, age and last education

Variabel	n	Presentase (%)
Sex		
Male	11	44%
Female	14	56%
Total	25	100%

Age		
40-50 years old	4	16%
51-560 years old	8	32%
>60 years old	13	52%
Total	25	100%
Last Education		
No school	3	12%
Elementary School	6	24%
Junior High School	1	4%
Senior High School	11	44%
Bachelor/ Master	4	16%
Total	25	100%

Based on table 2.1 in the study using video media, the sample size of women was greater than men, namely 14 patients (56%), while men were 11 patients (44%). The largest age group in this study was the age range of > 60 years, namely 13 patients (52%). The age range of 51-60 years was 8 patients (32%). While the smallest age group in this study was in the age range of 40-50 years as many as 4 patients (16%). Based on the most recent educational history, the most were high school / vocational school as many as 11 patients (44%), elementary school education as many as 6 patients (24%), S1 / S2 education as many as 4 patients (16%), junior high school education as many as 1 patient (4%) and no school as many as 3 patients (12%).

Table 2.2 Difference between Pretest and Posttest Educational Videos

	Total score	**Mean**	**P value**
Pretest	415	16	0,021
Posttest	480	20	

* Lack of knowledge (10-15); Good knowledge (16-20)

Based on table 2.2, there is a difference in the pretest and posttest scores with educational video media, namely in the pretest the total score is 415 while in the posttest it is 480. The average score of the pretest and posttest is also different. In the pretest the average score is 16 while in the posttest the average score is 20. There is an insignificant difference between the pretest and posttest results using educational videos with a p value of 0.021.

DISCUSSION

Diabetes mellitus is a heterogeneous metabolic disorder characterized by hyperglycemia due to impaired insulin secretion, damaged insulin or both.[4] Where Hyperglycemia is one of the typical signs of DM disease whose medical condition is an increase in blood glucose levels that exceed normal limits. DM is a chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces.[3]

The most common complications in people with diabetes mellitus are skin and foot problems, usually in the form of wounds that do not heal. This is caused by damage to blood vessels and nerves, so that blood flow to the feet is limited. Diabetic foot is a condition that occurs because diabetes has damaged nerves (diabetic neuropathy) and disrupted blood circulation (peripheral vascular disease) in the feet. People with diabetes are at higher risk of skin infections due to a weak immune system and inflammation. Infections may not heal properly: Diabetes can damage blood vessels and reduce blood flow in the feet including antibiotics given, so diabetic foot infections are difficult to heal.[5]

Education or also called education is all efforts planned to influence others, whether individuals, groups, or communities so that they do what is expected by the educator. Education is a learning process from not knowing to knowing. A leaflet is a sheet of printed paper that can be folded into 2-3 pages. Leaflets contain information or messages that are conveyed to the wider community. Learning videos are media that present audio visuals containing learning materials containing concepts, principles, procedures, theories and examples of knowledge with the hope that viewers of the video can understand the contents of the learning material.

The media is needed to increase the effectiveness of education. According to Notoatmodjo (2018), health promotion media are all tools, means or efforts to display messages or information that the communicator wants to convey to the target, either through print, electronic or outdoor media, so that individual or group targets can increase their knowledge and attitudes, which will ultimately change their behavior in a positive direction towards health.[6]

One of the educational media that has variations in presenting knowledge is electronic media, for example, playing animated videos. Animated video media that contains moving images and is accompanied by sound will be more interesting and easier to understand. However, animated video media has disadvantages; for example, each education participant has a different ability to remember the material, so the material is not conveyed completely. This differs from leaflets, where education participants can read the leaflet repeatedly, increasing the opportunity to remember the material presented. On the other hand, using leaflets also has disadvantages, namely that the message conveyed is not as complete as video media.[7]

Supported by the research results of Heriansyah (2014) stating that there is an influence between educations with the approach of the principle of diabetes self-management education on increasing respondent knowledge. [8] According to a research study conducted by JW Muchiri (2016) health education using leaflet media has proven to be effective in increasing respondent knowledge using lectures and face-to-face with evaluation of the results that the information provided by nurses or health workers is essential to increase understanding about dietary behavior in DM patients. [9] Taiwan conducted a study by Ouyang (2017) stated that compliance with the diet of type 2 DM patients by regulating diet and nutritional intake so that blood sugar levels are normal. Health workers can provide health proposition information through lectures and discussions using leaflet media. [10]

Nonce's research (2019) also states that educational media using video is one of the message delivery media considered adequate with the acceptance of knowledge that exists in a person being received through the senses.[11] According to research by experts, the sense that most transmits knowledge to the brain is the sense of sight. Approximately 75% to 87% of human knowledge is transmitted through the sense of sight, 13% through the sense of hearing, and another 12% through other senses.[12]

Kallo's research (2018) states that health education using the video method is very effective in increasing the knowledge of DM patients. A more interesting method helps patients absorb information. Information provided via video is also easier to obtain because respondents can re-view the education via the internet anytime. Such an educational method allows patients to be more interested in participating in subsequent health counseling that will be held. [13]

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Disclosure of Interest

The authors report no conflicts of interest or relevant financial and non-financial competing interests in this study. They are responsible for the content and writing of this article.

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