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The Effect of Health Education on the Implementation of Foot Gymnastics Using Audiovisual Methods on Increasing Knowledge of Diabetics

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ABSTRACT

Diabetes mellitus has increased due to several factors, one of which is knowledge. Thus, increasing knowledge can be applied in many ways, one of which is to provide teaching using audiovisual methods. The type of research used is quassy experiment design research design with one group pre test-post test design. In this study, initial knowledge of the sample will be tested before the intervention (pretest) and after the intervention (posttest). Providing foot gymnastics education through audiovisual media and demonstration methods can increase the knowledge and ability of people with type 2 diabetes in doing foot exercises. A positive rating with an N value of 48, which means that out of 54 respondents, the pre and post test scores increased with a mean rank or average increase of 21.00 and the number of ratings was 861.00. The obstacle value is N 7, meaning that there are 7 respondents with the same score between the previous test and the final test. Based on the results of statistical tests, a significance value of 0.000 is obtained which means that H0 is rejected because of the significance value of p <; 0.05 and Ha is accepted, it can be concluded that foot motor education through audiovisual affects the knowledge of diabetics.The use of audiovisual media and demonstration methods can be used by puskesmas nurses as a means of advertising and prevention of diabetic ulcer complications to improve the quality of life of patients with type 2 diabetes.

Keywords: *Audiovisual Methods, Diabetics, Foot Gymnastics, Health Education.*

1. INTRODUCTION

The World Health Organization [19] describes diabetes mellitus as a chronic disease in which the pancreas does not produce enough insulin or when the insulin produced by the body is not absorbed effectively. Blood sugar or glucose levels are regulated by the hormone insulin [19]. Diabetes mellitus, more commonly known as sugar disease, is a serious, long-term (or "chronic") disease that occurs when a person's blood sugar is high because his body cannot produce sufficient or sufficient amounts of insulin. unable to effectively use the type of insulin they are using [9]. Thus, diabetes is a state of persistently high blood sugar and is caused by the pancreas not producing enough insulin.

The World Health Organization (WHO) reports that the number of adult diabetics increased by 8.5% to 422 million diabetics worldwide [19]. The American Diabetes Association (ADA) states that every 21 seconds someone is diagnosed with diabetes, almost half of the adult population in the United States has it (ADA, 2011). According to data from the International Diabetes Federation (IDF), Indonesia has an alarming diabetes status when it ranks 7th out of 10 countries with the highest number of diabetics, the proportion of diabetes in Indonesia reaches 6.2% or more than 10.8 million. people. will have diabetes in 2020 [9].

Data from RISKESDAS (2018) shows that based on blood sugar examinations, the prevalence of diabetes in Indonesia has increased. In 2013 it showed diabetics by 6.9%, while in 2018 the prevalence of diabetes according to the 2011 PERKENI consensus in humans. the population ≥ 15 years increased to 8.5%, while according to the 2015 PERKENI consensus, the population of ≥ 15 years was 10.9% [17]. The prevalence of diabetes in South Sulawesi still ranks second among non-communicable diseases after heart and blood vessel disease (PJPD) in 2020 at 15.79% and diabetes is the main cause of death in South Sulawesi at 41.56% (Dinkes Sulsel, 2021). South Sulawesi Province is also one of the provinces with the 3rd highest prevalence of diabetes in Indonesia and many epidemiological studies show an increasing trend in the prevalence of type 2 diabetes in South Sulawesi [12].

In Makassar City, according to data from the Makassar City Health Office in 2007, diabetes was ranked fifth out of the top ten causes of death with 65 cases. The incidence of this disease continues to increase quite sharply. In 2011 5700 cases were detected and jumped in 2012 to 7000 cases. This phenomenon shows that diabetic behavior control in diabetics, especially in the city of Makassar, has not achieved optimal results. (Haskas, 2017). In 2015, there were 8,457 cases in men. As for women there were 12,561 cases, so that the number of diabetics in the city of Makassar in 2015 was 21,561 cases, while the death rate due to diabetes was 450 men and 361 women, making the total Diabetes deaths in Makassar city as a whole. In 2015 there were 811 cases. [7]

From the data above, it can be seen that the prevalence of diabetes is still quite high globally and domestically in the South Sulawesi region, especially in the city of Makassar. According to the International Diabetes Federation (IDF), the long-term effects of diabetes can lead to complications such as damage to many organs in the body, disability and risk of death. Many complications can result from diabetes, such as cardiovascular disease (CVD), nerve damage (neuropathy), kidney damage (kidney disease), foot trauma (ulcers) leading to limb amputation, loss of foot tissue, and eye disease. (especially those related to the retina). causes vision loss and even blindness [11]

Complications caused by diabetes are acute complications and chronic complications. Chronic complications are complications that arise as a result of uncontrolled diabetes that persists for many years. These complications are divided into two, namely macrovascular diseases and microvascular diseases, including complications in the form of diabetic foot ulcers (Safitri et al., 2022). The prevalence of diabetic ulcers in Indonesia is around 15% with a risk of amputation of 30%, mortality of 32%, and diabetic ulcers are the cause of most hospitalization in 80% of people with diabetes mellitus [20].

The data above shows that diabetic foot ulcers are the most common complications due to DM so that proper treatment is needed so that diabetic foot ulcers do not occur. There are several risk factors that contribute to the occurrence of diabetic foot ulcers. According to [19] these risk factors include blood glucose levels, exercise, foot care, foot deformity, diabetes mellitus, smoking, male gender, and old age. [2].

Efforts that can be made in preventing diabetic foot ulcers are by conducting education about the implementation of diabetic foot exercises. Diabetic foot gymnastics is a form of physical exercise for diabetics of all ages to prevent injury and facilitate blood circulation in the feet. One way to treat diabetes is to do foot exercises in diabetics to overcome limited joint mobility, foot deformities, strengthen small muscles in the legs, thighs, calves, facilitate blood circulation. [4].

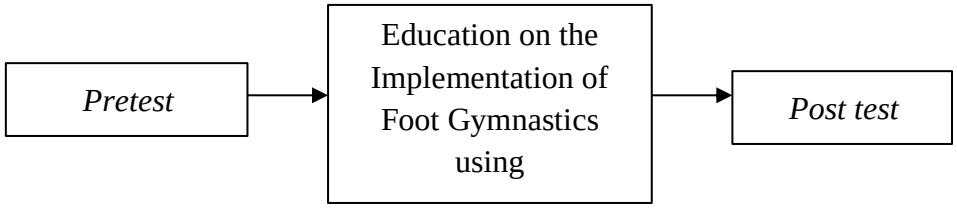
Based on the data above, the prevalence of diabetes mellitus has increased due to several factors, one of which is knowledge. Thus, increasing knowledge can be applied in many ways, one of which

is to provide teaching using audiovisual methods. Based on preliminary data taken by researchers from the Head of the Administrative Implementation Section of the Perumnas Antang Health Center, the data obtained that the number registered in 2023 from January was 64 patients, February 86 patients, March 50 patients and April 54 patients suffering from Diabetes Mellitus.

Audiovisual is a form of learning media or counseling media used to provide important information conveyed. This method contains sound and images that can be directly viewed through video, animation, illustration film, etc. This method is also used as a supporting medium for counseling or education because the information provided is easier to understand, short, clear and interesting. therefore, mothers are easy to understand this media and can also increase one's knowledge [14].

2. METHODS

The type of research used is quassy experiment design research design with one group pre test-post test design. In this study, initial knowledge of the sample will be tested before the intervention (pretest) and after the intervention (posttest). This research design was used to determine the effect of the intervention given. The intervention used in research is in the form of health education using Audiovisual methods.



Respondents filled out a pretest questionnaire on the knowledge of people with diabetes mellitus regarding the implementation of foot gymnastics first, then after all respondents had collected the questionnaire, health education was carried out. Health education begins with a video playback that lasts about ± 5 minutes. After education, respondents again filled out a post-test questionnaire on the knowledge of people with diabetes mellitus regarding the implementation of diabetic foot exercises.

RESEARCH RESULTS AND DISCUSSIONS

Results

1. General characteristics of respondents
   a. By Age

Table 1. Characteristics of respondents based on the age of diabetics

Umur Responden	n	Persentase
< 60	28	51,8
➢ 60	26	48,2
Total	**54**	**100**

Based on Table 1.a shows the distribution of respondents, the most age characteristics obtained are under 60 years old as many as 28 people or 51.8%). While the smallest was over 60 years old, namely 26 respondents (48.2%)..

b. By Gender

Table 2. Characteristics of respondents by gender

Gender	n	Persentase

Male	15	27,3
Female	39	72,3
Total	**54**	**100**

Based on table 1.b shows the distribution of respondents obtained more female sex characteristics, namely 39 respondents or 27.3%, men as many as 15 respondents or 27.3%.

c. By Education

Table 3. Characteristics of Respondents Based on the Education of Diabetics

Education	n	Persentase
PT	8	14,8
SLTA	24	44,4
SLTP	16	29,6
SD	6	11,1
Total	**54**	**100**

Based on Table 1.c shows that the distribution of respondents obtained the most education is high school as many as 24 respondents or 44.4%, junior high school 16 respondents or 29.6%. PT as many as 8 respondents or 14.8% and the lowest SD as many as 6 respondents or 11.1%.

2. Univariate Analysis

a. Knowledge of Respondents Before and After Education

Table 4. Knowledge Distribution of Before and After Respondents Education on the Implementation of Foot Gymnastics with Audiovisual Method is Given

Knowledge	Pre Test		Post Test	
	n	%	n	%
Good	48	88.9	54	100.0
Less	7	11.1	0	0
Total	**54**	**100**	**54**	**100**

Based on the table, it shows that before foot gymnastics education through audiovisual media was given from 54 respondents, there were 48 (88.9%) respondents with good knowledge category and there were 7 (11.1%) respondents with less knowledge category. Meanwhile, after being given foot gymnastics education through audiovisual media from 54 respondents, 54 (100%) respondents were obtained with good knowledge categories.

3. Bivariate Analysis

Table 5. The Effect of Health Foot Gymnastics Education Using Audiovisual Methods on Knowledge

		N	Mean Rank	Sum of Ranks	*P*
Post Test - Pre Test	Negative Ranks	0[a]	.00	.00	0.000
	Positive Ranks	48[b]	21.00	861.00	
	Ties	7[c]			
	Total	54			

Based on Table 3.a, it is obtained that after the normality test, the data is not normally distributed, because the data is not normally distributed, the analysis used is the Wilcoxon test. The results of the respondents' knowledge research before and after leg exercise obtained

negative ratings from 54 respondents, none of whom experienced a decrease in scores before and after being carried out.

A positive rating with an N value of 48, which means that out of 54 respondents, the pre and post test scores increased with a mean rank or average increase of 21.00 and the number of ratings was 861.00. The obstacle value is N 7, meaning that there are 7 respondents with the same score between the previous test and the final test. Based on the results of statistical tests, a significance value of 0.000 is obtained which means that H0 is rejected because of the significance value of p <; 0.05 and Ha is accepted, it can be concluded that foot motor education through audiovisual affects the knowledge of diabetics.

Discussion

The Effect of Health Foot Gymnastics Education Using Audiovisual Methods on the Knowledge of Diabetes Mellitus Patients. Knowledge is a process after sensing certain objects that produces a sense of knowledge in a person. Sensing can come from several sources, namely sight, hearing, smell, and sense of taste or touch. Most of a person's knowledge is acquired according to sight and hearing [23]

Education is an activity or effort to convey messages to communities, groups, or individuals in the hope that they can obtain better knowledge so that they can influence attitudes and behaviors. Some factors that affect the educational process are the material or message, the speaker who does it, and the tools or media used to convey interesting messages and methods. Interesting methods include the Audiovisual method [22].

Audiovisual is one of various media that brings out elements of sound and images in an integrated manner when conveying information or messages [3]. Based on the results of research conducted at the Antang Health Center in Makassar City using audiovisual media, there has been an increase in knowledge before and after education, so it can be concluded that there is an influence of Health Education on the implementation of foot gymnastics using audiovisual methods on increasing knowledge of people with diabetes mellitus.

This study is in line with research conducted by Dari and Novelia Wulan stating that there is an influence of foot gymnastics health education through audiovisual media on knowledge of foot gymnastics implementation in Type 2 DM patients. The results of this study are in line with research [6] which states that there is an influence of Health Education through audiovisual on knowledge of the implementation of diabetes mellitus foot gymnastics.

According to the assumption of researchers using audiovisual methods are able to provide information that is quickly understood because it is accompanied by clear and visual sounds so as to provide a direct picture to the audience (people with diabetes mellitus). Using audiovisual methods also makes it easier for educators to deliver effective educational materials. The education given to respondents in addition to influencing knowledge also affects the ability to do foot gymnastics because in education there is a learning process that results in behavioral changes. The form of behavior change from the results of the process. [3]

Audio visual media has several advantages over other media. That is, information can be provided to the wider community, a large population, and does not require complicated equipment in delivering information. Another advantage of audio-visual media is that the information produced is in the form of sounds and images that can be received by the senses of hearing and sight as well as which will make it easier for respondents to digest or understand the content of information [28]

4. CONCLUSION

Providing foot gymnastics education through audiovisual media and demonstration methods can increase the knowledge and ability of people with type 2 diabetes in doing foot exercises. The use of audiovisual media and demonstration methods can be used by puskesmas nurses as a means of advertising and prevention of diabetic ulcer complications to improve the quality of life of

patients with type 2 diabetes.

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