

## The Effect of Education Through Video on the Knowledge, Attitudes, and Skills about Foot Care in Type 2 Diabetes Mellitus Patients

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### Abstrak

Penyakit diabetes melitus dapat menimbulkan berbagai komplikasi salah satunya ulkus kaki diabetik. Penanganan ulkus kaki yang tidak tepat mengakibatkan terjadinya infeksi yang cepat dan meluas. Hal ini akan berakibat pada tindakan amputasi. Perawatan kaki merupakan upaya untuk menghindari terjadinya gangguan pada kaki sehingga dapat meminimalisir tindakan amputasi. Tujuan penelitian ini adalah untuk mengetahui ada tidaknya pengaruh edukasi perawatan kaki melalui video terhadap pengetahuan, sikap, dan keterampilan pada pasien diabetes melitus tipe 2. Metode penelitian menggunakan desain pre eksperimen dengan pendekatan one group pre test – post test. Sampel penelitian sebanyak 68 pasien diabetes melitus tipe 2 di wilayah kerja Puskesmas Mangkung tahun 2023 yang diambil dengan teknik simple random sampling. Pengumpulan data menggunakan kuesioner kemudian dianalisis dengan uji Wilcoxon. Hasil penelitian sebelum edukasi didapatkan sebagian besar memiliki pengetahuan kurang sebanyak 64 responden (94,1%), sikap rendah 68 responden (100%), dan keterampilan kurang 68 responden (100%). Setelah dilakukan edukasi sebagian besar berpengetahuan baik 46 responden (67,6%), sikap tinggi 65 responden (95,6%), dan keterampilan baik 61 responden (89,7%). Hasil uji statistik menunjukkan nilai pengetahuan, sikap, dan keterampilan diperoleh nilai  $p < 0,001 < \alpha = 0,05$ . Dapat disimpulkan bahwa ada pengaruh edukasi perawatan kaki melalui video terhadap pengetahuan, sikap, dan keterampilan.

**Kata kunci:** Perawatan kaki; edukasi; video; diabetes melitus tipe 2; pengetahuan

### Abstract

Diabetes mellitus can cause various complications, one of which is diabetic foot ulcers. Improper management of foot ulcers results in rapid and widespread infection. This will result in amputation. Foot care is an effort to avoid disturbances in the feet so as to minimize amputation. The purpose of this study was to determine whether there is an effect of foot care education through videos on knowledge, attitudes, and skills in patients with type 2 diabetes mellitus. The research method used a pre-experimental design with a one group pretest - posttest approach. The sample was 68 patients with type 2 diabetes mellitus in the working area of the Mangkung Health Center in 2023 who were taken by simple random sampling technique. Data collection using a questionnaire and then analyzed with the Wilcoxon test. The results of the study before education were obtained most had poor knowledge as many as 64 respondents (94.1%), low attitudes 68 respondents (100%), and lack of skills 68 respondents (100%). After education, most of them had good knowledge 46 respondents (67.6%), high attitudes 65 respondents (95.6%), and good skills 61 respondents (89.7%). Statistical test results show the value of knowledge, attitudes, and skills obtained  $p < 0.001 < \alpha = 0.05$ . It can be concluded that there is an effect of foot care education through video on knowledge, attitudes, and skills.

**Keywords:** Foot care; education; video; type 2 diabetes mellitus; knowledge

## INTRODUCTION

Diabetes mellitus is an important health problem and one of the priority non-communicable diseases that are targeted for follow-up and pose a serious threat to global health. The International Diabetes Federation (IDF) reports that every year there is an increase in the prevalence of diabetes globally. Diabetes mellitus can cause various complications, one of which is diabetic foot ulcer which has become a global health issue.

Based on IDF data in 2021 around 537 million people have diabetes mellitus. In a study at the Institute of Health Metrics and Evaluation at the University of Washington released information in June 2023 that there were 529 million people with diabetes mellitus. The prevalence of diabetic foot ulcers in the world in 2021 is 6.3%. The latest data released by the National Institutes of Health in 2023 the annual incidence of diabetic foot ulcers in the world is between 9.1 to 26.1 million. Meanwhile in Indonesia, the number of people with diabetes mellitus in 2021 is 19.5 million. The Indonesian Ministry of Health stated that the death rate due to gangrene is 32% and the amputation rate is 30%.

Diabetes mellitus continues to spread in all provinces in Indonesia, one of which is NTB. Based on data from the NTB Provincial Health Office, the prevalence of diabetes mellitus in 2021 was 63,488 and in 2022 was 64,544. Central Lombok Regency is one of the districts in NTB Province with a prevalence of people with diabetes mellitus of 16,195 in 2021 and 10,017 in 2022. The prevalence data for diabetic foot ulcers in 2022 is 5%. Mangkung Health Center is one of the health centers in Central Lombok Regency. Based on data from the Mangkung Health Center, the prevalence of diabetes mellitus in 2021 was 750 patients to 803 in 2022. While in January - July 2023 the diabetes mellitus rate was 470 with a prevalence of diabetic foot ulcers of 1.6% in 2023.

Foot care is an effort to avoid foot disorders and minimize amputation. Foot care is quite easy to do independently. However, due to lack of knowledge, a person is unable to do it. Therefore, the patient must have the ability to do it. To improve the ability, it is necessary to provide education. Effective education must be supported by the use of media that is attractive and more easily accepted by the target (Harmawati & Patricia, 2020). One of the media commonly known to the public is video. Video is an audio-visual media that involves the senses of sight and hearing.

## METHOD

This study used a pre-experimental design with a one group pretest-posttest approach. Sampling used a probability sampling technique with a simple random sampling method. The sample was 68 patients with type 2 diabetes mellitus. The research instrument used to measure knowledge is the Diabetic Foot Knowledge Scale (DFKS) questionnaire which consists of 65 questions. Each correct answer is given

a value of 1 and the wrong answer is given a value of 0. Then categorized into 3 categories, namely good knowledge (76 - 100%), sufficient (56 - 75%), and poor (< 56%). The instrument measures attitude using the Foot Care Confidence Scale (FCCS) questionnaire consisting of 12 question items. Each number has a score between 1-5 so the possible score of this questionnaire is between 12-60. The low category score is 12-35 while the high category has a score of 36-60. The instrument measuring skills using the kuesioner Nottingham Assessment of Functional Foot Care (NAFF) consists of 27 question items. Each number has a score between 0-3, so the possible score of this questionnaire is between 0-81. A score of 0 - 43 means poor foot care behavior and a score of 44 - 81 means good foot care behavior. The results of the study were analyzed using non-parametric statistical tests, the Wilcoxon test to determine the effect of foot care education through videos on knowledge, attitudes and skills.

## RESULTS

Based on the results of the research that has been carried out, the results of the study will be discussed in the form of an overview of the characteristics of the respondents and an overview of the research results.

Table 1 Respondents based on age, education, occupation, and history of ulcers

| Age                           | n         | %          |
|-------------------------------|-----------|------------|
| Early adulthood (26-35 years) | 12        | 17,6       |
| Late adulthood (36-45 years)  | 10        | 14,7       |
| Early elderly (46-55 years)   | 20        | 29,4       |
| Late elderly (56-65 years)    | 22        | 32,4       |
| Elderly ( > 65 years)         | 4         | 5,9        |
| <b>Total</b>                  | <b>68</b> | <b>100</b> |
| Education Level               |           |            |
| Elementary school             | 17        | 25,0       |
| Junior high school            | 22        | 32,4       |
| Highschool                    | 19        | 27,9       |
| Higher education              | 10        | 14,7       |
| <b>Total</b>                  | <b>68</b> | <b>100</b> |

| Employment status    |    |      |
|----------------------|----|------|
| Employed             | 39 | 57,4 |
| Unemployed/housewife | 29 | 42,6 |
| Total                | 68 | 100  |
| History of ulcer     |    |      |
| Yes                  | 10 | 14,7 |
| No                   | 58 | 85,3 |
| Total                | 68 | 100  |

Table 1 shows that the largest age group is in the late elderly agroup (56 - 65 years) as many as 22 respondents (32.4%). Most of the respondents were junior high school graduate (32.4%). The employment status of most respondents was employed (57.4%). Most respondents have no history of ulcer (85.3%).

### Knowledge, Attitudes and Skills

Based on the results of pre-education research, the level of knowledge is as follows.

Table 2. Knowledge of respondents before foot care education through video

| No    | Knowledge  | pre-test |      | post-test |      |
|-------|------------|----------|------|-----------|------|
|       |            | f        | %    | f         | %    |
| 1.    | Good       | 0        | 0    | 46        | 67,6 |
| 2.    | Sufficient | 4        | 5,9  | 22        | 32,4 |
| 3.    | Poor       | 64       | 94,1 | 0         | 0    |
| Total |            | 68       | 100  | 68        | 100  |
|       | Attitude   | pre-test |      | post-test |      |
|       |            | f        | %    | f         | %    |
| 1.    | High       | 0        | 0    | 65        | 95,6 |
| 2.    | Low        | 68       | 100  | 3         | 4,4  |
| Total |            | 68       | 100  | 68        | 100  |
|       | Skills     | pre-test |      | post-test |      |
|       |            | f        | %    | f         | %    |
| 1.    | High       | 0        | 0    | 61        | 89,7 |
| 2.    | Low        | 68       | 100  | 7         | 10,3 |
| Total |            | 68       | 100  | 68        | 100  |

Table 2 shows that the level of knowledge before education mostly in poor category (94.1%), no respondents has a positive attitude and no respondents has a high skill. However, in post test, there is an increase in the level of knowledge, attitude and the skills of the respondents.

Table 3 Wilcoxon test results of knowledge, attitudes, and skills

| Posttest – Pretest       |       |
|--------------------------|-------|
| Asymp. Sig. (2 – tailed) | <,001 |

Table 3 shows the results of the Wilcoxon test, it showed the  $p$  value  $0,001 < \alpha = 0,05$ .

## DISCUSSION

### Knowledge Before and After Education

Based on the results of the study, 64 respondents (94.1%) had poor knowledge. This is caused by various factors such as education, age, occupation, and experience. Judging from the characteristics of the level of education, it shows that 22 respondents (32.4%) have junior high school. The higher the education, the better the level of knowledge. This happens because education plays a role in increasing a person's information and knowledge. Rachmawati's theory (2019) states that a high level of education will result in good knowledge so that life is of higher quality. Research by Darsini et al., (2019) states that education can make it easier to gain knowledge so as to create disease prevention efforts.

Judging from the characteristics of age, it shows that most of the respondents are aged 56-65 years (late elderly) with a total of 22 respondents (32.4%). The change of age into elderly causes a decrease in memory and thinking ability, thus affecting knowledge. Notoatmodjo (2018) in (Ramadhesia & Fadia, 2022) stated that age will affect the increase in knowledge but at a certain age development will not be as fast as when you are in your teens. With increasing age there will be a decrease in memory in receiving information (Nursa'iidah & Rokhaidah, 2022).

Judging from job characteristics, 39 respondents (57.4%) were working. Researchers argue that respondents who work but have less knowledge are because none of their work backgrounds are in the health sector. This is supported by the theory (Wawan & Dewi, 2019) in (Putri, 2022) that the work environment will provide experience. Experience can be gained either through the experience of others or oneself so that the experience that has been obtained can increase one's knowledge. Hartono's research (2019) states that types of work outside of health will have less interaction with medical personnel so that they know less about health. Judging from the characteristics of ulcer history, 58 respondents (85.3%) had never had a foot ulcer. Someone who has never had a foot ulcer may not have experience with foot care so their knowledge is lacking. Rachmawati's theory (2019) states that experience is a source of gaining knowledge or a way to obtain truth. The results of research by Tuba et al., (2022) that experience can be used as learning material for someone who can ultimately change behavior to prevent themselves from returning about something.

After education, 46 respondents (67.6%) obtained good knowledge. This happened because through educational activities there was a learning process so that those who initially did not know became aware. In addition, repeated provision of education is carried out so that the information conveyed sticks in the respondent's memory and turns into good behavior. According to Djannah et al., (2020) that education is a form of intervention to help someone overcome their health problems through learning activities. Learning is an effort to increase new knowledge, attitudes, and skills through strengthening certain practices and experiences (Mahendra et al., 2019). Sentana et al.'s research (2023) that providing regular visits can help improve foot care knowledge and behavior.

The results of the Wilcoxon test obtained  $p$  value  $0.001 < \alpha = 0.05$ , meaning that there is an effect of foot care education through video on knowledge. Video media displays images and sounds that can attract attention, making it easier to understand the material presented. According to Santoso et al., (2023) that video media is effectively used to increase knowledge because it shows images and has sound that stimulates the senses of hearing and vision so that a message is easier to capture and understand. The results of Luthfiani's research (2021) show that increasing knowledge is influenced by the help of using media which can make it easier to remember the material provided.

### **Attitudes Before and After Education**

The results of the study before education showed that 68 respondents (100%) had a low attitude. This is due to the fact that most respondents have junior high school and have less knowledge. Rachmawati's theory (2019) states that a person with a higher level of education is believed to have increased knowledge because he gets a lot of information in both formal and non-formal education and will influence attitudes to seek information both from other people and from the mass media. Research by Handayani (2022) that knowledge can increase respondents' awareness and will affect respondents' attitudes in carrying out an activity. In line with Prabhakar's research (2023) that an inner response (attitude is formed from knowledge).

After education, the attitude of 65 respondents (95.6%) was obtained in the high category. This happened because after education respondents gained knowledge that influenced attitudes. In addition, the interaction process during education can influence respondents to behave better. According to Angelina Putri (2022) that education can influence individuals and groups so that they can do what is expected. The process of influencing someone requires good interaction so that the target can change its attitude and behavior independently. Research by Fitriani et al., (2022) that in educational activities there is an element of communication that can change attitudes. However, in this study there were 3 respondents (4.4%) who still had a low attitude. This happens due to lack of motivation. The existence of good learning motivation will encourage to achieve the desired goals (Atmaja, 2022).

The results of the Wilcoxon test obtained  $p$  value  $0.001 < \alpha = 0.05$ , meaning that there is an effect of foot care education through video on attitude. Video media can change a person's attitude because it displays moving images and sound so that it will make someone interested and pay attention to the broadcast. The theory of Pagarra et al., (2022) states that video media can present various information, explain processes, explain complex concepts, teach skills, shorten or extend time, and influence attitudes. The results of Ulya's research (2023) that providing counseling with video media makes respondents enthusiastic about watching so that it will form a good attitude.

### **Skills Before and After Education**

Based on the results of the study, it shows that the skills of respondents before education were all in the poor category. Lack of knowledge is one of the obstacles in carrying out foot care. Rachmawati's theory (2019) states that the factors that influence a person's skills are knowledge and attitude. Good knowledge will encourage the formation of a good attitude. Research by Ningrum et al., (2021) that there is a relationship between the level of knowledge and foot care behavior. The better the respondent's level of knowledge, the better the behavior will be.

After education, 61 respondents (89.7%) obtained good skills. This happens because after someone has good knowledge and a high attitude, good skills will follow. In addition, after repeated education, it will make respondents more skilled in performing foot care. Rachmawati's theory (2019) states that to improve skills must go through learning activities in order to increase knowledge. Then that knowledge will raise awareness and finally cause people to behave in accordance with their knowledge (Maulidina, 2019). However, in this study there were still 7 respondents (10.3%) lacking skills due to lack of motivation to apply their knowledge. Someone who is highly motivated is likely to get good skills (Liyanto., et al 2021).

Wilcoxon test results obtained  $p$  value  $0.001 < \alpha = 0.05$ , meaning that there is an effect of foot care education through video on skills. Video media allows respondents to see directly related to how to do foot care so that respondents can follow the steps shown. The theory of Pagarra et al., (2022) states that through video they will immediately get visual feedback on their abilities so that they are able to try skills related to the movements contained in the video. Sumartini et al. research, (2021) that through videos they can see and try to practice so that they can change skills about basic life support.

## **CONCLUSION**

Based on the results of the research it can be concluded that there was a difference between the level of respondents' knowledge, attitudes and skills before and after the education. Statistical analysis showed

that education through video about foot care affects knowledge, attitudes, and skills of type 2 diabetes mellitus patients.

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