



The Influence of Audiovisual Education on Foot Care Compliance to Prevent Diabetic Ulcers in DM Type 2, Ngemplak Simongan Public Health Care

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Abstract

Audiovisual education is important to increase foot care compliance to prevent diabetic ulcers in DM Type 2 patients. This study examines the influence of audiovisual education on foot care compliance to prevent diabetic ulcers in DM Type 2. This is a quantitative research with a one-group pre-post-test quasi-experimental design at the working area of the Ngemplak Simongan Community Health Center. The sample consisted of 44 respondents selected by purposive sampling. Variables involved in this research are the audiovisual education and the foot care compliance. Foot care compliance was measured using the foot care compliance questionnaire. Based on the univariate analysis, the majority of respondents are female (72.2%), late elderly aged 56-65 years (43.2%), work as housewives (54.5%), and primary schooled (68.2%), also 50% suffered DMT2 for >5 years, 56.8% had hypertension complications, 79% did not smoke, and 33% did not have hypercholesterolemia history. The univariate analysis also stated that only 4.5% of respondents had foot care compliance behavior before intervention, then increased to 97.7% after intervention. Bivariate analysis stated that there is a significant influence of audiovisual education on compliance with foot care in people with type 2 DM at the Ngemplak Simongan Community Health Center, with p-value of 0.000. Healthy living practices can be influenced by appropriate health information. People with type 2 diabetes can try to avoid diabetic ulcers by learning about good foot care.

INTRODUCTION

Diabetes mellitus is a metabolic disease, in the form of carbohydrates, proteins, and fat in the body. This disorder is caused by a low amount of insulin produced by the body which is needed in the process of converting sugar into energy (Simanjutak, 2021). According to Utomo (2020), diabetes mellitus generally classified into two, the type 1 and the type 2 DM. Type 1 DM is diabetes which is indicated by insulin that is below the normal line. In addition, type 2 DM is diabetes caused by the ineffective insulin's function that is secreted by the body that could lead to weight increase and physical activity decrease (Utomo et al., 2020).

According to the International Diabetes Federation (2021), 537 million adults aged 20-70 years are suffering from diabetes, and this will continue to increase (Ramadhani, 2023). This figure is estimated to be 643 million in 2030 and will increase to 783 million in 2045 (Prameswari, 2023). For the Southeast Asia region, the incidence of diabetes mellitus is 10.7 million people, which places Indonesia in the Southeast Asian member countries in 7th position most DM incidence in 2020 (Yernita et al., 2023). The preliminary study result at the Ngemplak Simongan Health Center, Semarang, showed that data on type 2 diabetes mellitus patients in 2020 was 339 cases, in 2021 there were 1,136 cases, and in 2022 there were 787 cases (RM Ngemplak Simongan Health Center, 2023).

People with type 2 diabetes mellitus have a 15% risk of experiencing diabetic foot ulcers and a 70% risk of recurrence within 5 years (Oktavianti & Putri, 2021). Therefore, the

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best strategy for foot management is to carry out foot care (Oktavianti & Putri, 2021). Foot care is an easy and simple preventative method that can be done every day to prevent disability or even death from diabetic feet, but this foot care action is still often ignored (Ningrum et al., 2021). Chronic diseases such as diabetes, require compliance as well as taking medication, self-care and self-monitoring. One of the factors that determines the success of treatment is the level of client compliance (Ervita et al., 2022).

Obedient behavior for diabetes mellitus sufferers includes clients being able to control blood glucose levels, prevent injury, and care for their feet. Meanwhile, client non-compliance includes not having a treatment schedule and not carrying out recommended recommendations to prevent obstacles in the wound healing process (Nurazizah, 2021). The emergence of non-compliance problems includes misunderstanding of the problem, undergoing inappropriate examinations, showing excessive behavior and lack of information about foot care which causes poor foot care routines in diabetes mellitus sufferers and lack of knowledge (Arifin & Nur, 2021).

Health education for diabetes sufferers plays an important role in changing behavior, by increasing sufferers' understanding to achieve a good quality of life, and the ability to change their lifestyle for the better (Siagan & Manurung, 2019). Effective health education to the target audience that is more interesting and easily accepted could be supported by the use of media, namely audiovisual media (Arikhman, 2020). This is supported by Tjahjono (2013) in his research which states that education through audiovisual media influences the knowledge and compliance of type 2 DM patients with a p-value of 0.005, implies that there is a significant influence between audiovisual education to the type 2 DM patients' compliance in carrying out treatment (Tjahjono, 2013).

Educational media is a technique for educating the public with good information and understanding. The educational media that can be provided to the public is using audiovisual because it is easier to understand (Nurfalah & Kurniasari, 2022). Audiovisual media is media consists of images and sound (Oktavianti & Putri, 2021). This audiovisual has better competencies, audiovisual based media contains additional sound to produce it (Oktavianti & Putri, 2021).

Based on the phenomenon of some DM patients at Ngemplak Simongan Community Health Center and the previous research's result, the researchers were interested in finding out the effect of audiovisual education on foot care compliance in type 2 diabetes mellitus sufferers. The researcher chose the place to conduct research at the Ngemplak Simongan Community Health Center because according to 2022 medical record data there were 787 sufferers of type 2 diabetes mellitus.

RESEARCH METHODS

The method used in this research is a quantitative research method with a Quasy Experimental design (one group pre and post-test). The samples in this research was 44 respondents determined using purposive sampling technique. The research was conducted in the Ngemplak Simongan Community Health Center's working area in March-April 2023 which had received permission from the Head of the Semarang City Health Service with letter No. B/7605/072/III/2023 (Semarang, 20 March 2023).

Data were collected using respondent characteristics sheets based on gender, age, education, occupation, length of suffering, comorbidities, smoking history, history of hypercholesterolemia. Foot care compliance was measured using the foot care compliance questionnaire developed by Munthe (2019) with the measurement results being a compliance score: 21-28, and a non-compliance score of 14-20 using an ordinal measuring scale.

The data analysis used includes univariate analysis and bivariate analysis. Univariate analysis includes data on respondent characteristics such as gender, age, education, smoking status, length of suffering, comorbidities, history of hypercholesterolemia and compliance with foot care which is presented in the form of a frequency distribution. Bivariate analysis used the Mc Nemar test to determine the influence of audiovisual education on foot care compliance in preventing diabetic ulcers in people with type 2 DM at the Ngemplak Simongan Community Health Center. Research ethics in this study are based on ethical principles according to the Ministry of Health (2017), namely respecting human dignity (respect for persons), doing good (beneficence) and not causing harm (non-maleficence), justice (justice).

RESULT

Table 1. Characteristics of Respondents

| Characteristics | Frequency | Percentage (%) |
|----------------------------------|-----------|----------------|
| Gender | | |
| 1. Boys | 12 | 27.3 |
| 2. Women | 32 | 72.7 |
| Total | 44 | 100.0 |
| Age | | |
| 1. 36-45 years (late adulthood) | 1 | 2.3 |
| 2. 46-55 years (early elderly) | 10 | 22.7 |
| 3. 56-65 years (late elderly) | 19 | 43.2 |
| 4. >65 years (elderly) | 14 | 31.8 |
| Total | 44 | 100.0 |
| Education | | |
| 1. SD | 30 | 68.2 |
| 2. Junior high school/Equivalent | 8 | 18.2 |
| 3. High school/Equivalent | 6 | 13.6 |
| 4. Academy/College | 0 | 0 |
| Total | 44 | 100.0 |
| Work | | |
| Entrepreneur | 14 | 31.8 |
| 1. Household | 24 | 54.5 |
| 2. not working | 6 | 13.6 |
| Total | 44 | 100.0 |
| Long suffering | | |
| 1. <1 year | 2 | 4.5 |
| 2. 1-5 years | 20 | 45.5 |
| 3. >5 years | 22 | 50 |
| Total | 44 | 100.0 |

| | | |
|------------------------------------|----|-------|
| Work | | |
| 1. Entrepreneur | 14 | 31.8 |
| 2. Household | 24 | 54.5 |
| 3. not working | 6 | 13.6 |
| Total | 44 | 100.0 |
| Long suffering | | |
| 1. <1 year | 2 | 4.5 |
| 2. 1-5 years | 20 | 45.5 |
| 3. >5 years | 22 | 50 |
| Total | 44 | 100.0 |
| Comorbidities | | |
| 1. Hypertension | 25 | 56.8 |
| 2. Heart | 8 | 18.2 |
| 3. Uric acid | 3 | 6.8 |
| 4. Gastric acid | 8 | 18.2 |
| Total | 44 | 100.0 |
| Smoking history | | |
| 1. Yes | 9 | 20.5 |
| 2. No | 35 | 79.5 |
| Total | 44 | 100.0 |
| History of hypercholesterol | | |
| 1. Yes | 33 | 75 |
| 2. No | 11 | 25 |
| Total | 44 | 100.0 |

Based on table 1, the majority of respondents are female, namely 32 (72.2%) respondents. The majority age was 56-65 years (late elderly), namely 19 (43.2%) respondents. The majority of education levels were elementary school (Primary School), namely 30 (68.2%) respondents. The majority had suffered for >5 years, namely 22 (50%) respondents. Complications of hypertension respondents were 25 (56.8%) respondents. Respondents who did not smoke were 35 (79.5%) respondents. Respondents did not have a history of hypercholesterolemia, namely 33 (75%) respondents. Respondents with housewife jobs were 24 (54.5%) respondents.

Table 2. Level of Compliance with Foot Care in Preventing Wounds in DM 2 Sufferers Pre and Post Audiovisual Education.

| Foot care compliance behavior | <i>Pre</i> | | <i>Post</i> | |
|-------------------------------|------------|------------|-------------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Complying | 2 | 4.5 | 43 | 97.7 |
| Non-complying | 42 | 95.5 | 1 | 2.3 |
| Total | 44 | 100 | 44 | 100 |

Table 2 shows that the compliance behavior of foot care in preventing wounds in type 2 DM sufferers before intervention was given mostly had non-compliance behavior with a frequency of 42 (95.5%) respondents. Meanwhile, compliance behavior in foot care in preventing wounds from DM 2 sufferers after intervention mostly had compliance behavior in carrying out foot care with a frequency of 43 (97.7%) respondents.

Table 3. The Influence of Audiovisual Education on Foot Care Compliance Behavior in Preventing Diabetic Ulcers In People With Type 2 DM

| | <i>Pre Test dan Post Test</i> |
|-------------------|-------------------------------|
| N | 44 |
| Asymp.Sig. | .000 |

Based on the Mc Nemar Test to determine the influence of audiovisual education on foot care compliance in preventing diabetic ulcers in people with type 2 DM at the Ngemplak Simongan Community Health Center shown in table 3 stated that the p-value is $0.000 < 0.05$ which means that there is a significant influence of audiovisual education on compliance with foot care in people with type 2 DM at the Ngemplak Simongan Community Health Center.

DISCUSSION

The description of foot care compliance before being given audiovisual education is that before being given audiovisual education, the majority of people with diabetes mellitus in the Ngemplak Simongan Community Health Center's working area had non-compliant behavior in carrying out foot care, namely 42 out of 44 respondents. In line with research by Rosyada et al (2018), it was stated that before being given education, the majority of respondents did not comply with the diet, namely 29 (87.9%) respondents. Research by Andriani et al (2021) also supported that the majority of respondents before being given audiovisual education did not comply with health protocols, namely 42 (65.6%) respondents.

Non-compliance with foot care is influenced by several factors, including lack of knowledge and family support (Simanullang et al., 2020). Based on conditions obtained in the field, non-compliance in carrying out foot care to prevent diabetic wounds is caused by a lack of knowledge. This is related to the level of education where the majority of people with diabetes mellitus have graduated from elementary school, 30 (68.2%) respondents. Low education causes low knowledge, so that low awareness about treatment will result in complications (Oktavianti & Putri, 2021). The higher the education level, the better the knowledge level possessed and it will be easier for someone to apply the information they have (Darsini et al., 2019).

The description of compliance with foot care after being given audiovisual education is that after being given audiovisual education, the majority of people with diabetes mellitus in the Ngemplak Simongan Community Health Center's working area, 43 (97.7%) of the 44 respondents, are compliant with foot care. Research by Andriani et al (2021) was in line with this research, it shows that as many as 48 (62.5%) respondents complied with health protocols.

Based on research conducted by researchers at the PROLANIS association in the Ngemplak Simongan Health Center's working area, data from respondents showed that respondents were compliant in carrying out foot care. Data from observations made on respondents shows that prevention of diabetic wounds includes carrying out independent foot examinations, always using proper footwear, washing feet, drying feet using a towel, smearing feet with lotion, cutting nails not following the shape of the nail but straight. and the edges of the nails are smoothed, and do not warm the feet using warm water. There was an increase in

obedient behavior in carrying out foot care due to increased knowledge after being given foot care education using audiovisual media. This educational program that is able to provide behavior change is of course supported by good methods, namely audiovisual. Audiovisual is a medium that helps stimulate the senses of sight and hearing so that the message conveyed is easier to receive and understand (Salsabila et al., 2021).

The results of the study showed that there was an influence of audiovisual education on foot care compliance in preventing injuries ($p=0.000$). This difference could occur because there was an increase in foot care compliance in preventing diabetic wounds after being given audiovisual education. So it can be summarized that there is an influence of audiovisual media education on foot care compliance in preventing diabetic wounds in people with type 2 diabetes mellitus at the Ngemplak Simongan Community Health Center.

Respondents who were still disobedient in carrying out foot care after being given audiovisual education, respondents only carried out foot care such as checking their feet independently, using footwear in hot areas, washing their feet, drying their feet using a towel, and respondents did not carry out foot care as usual. does not use moisturizer on the top and bottom of the feet, does not have his feet checked every time he goes to a health service, does not clean the inside of his footwear before wearing if there are foreign objects such as pebbles, still often wears narrow shoes, and likes to warm his feet with a bottle filled with hot water because you often feel discomfort in your feet. One of the factors causing respondents to be disobedient in carrying out foot care is the respondent's negligence in carrying out foot care to prevent the occurrence of diabetic ulcers (Ismonah & Octaviani, 2019). As well as a lack of understanding of the instructions given.

CONCLUSION

There is an influence of audiovisual education on compliance with foot care in people with type 2 DM. Appropriate health knowledge can influence healthy living behavior. With knowledge about proper foot care, people with type 2 DM can make efforts to prevent diabetic ulcers. Respondents' good knowledge about foot care can create good awareness, which will impact and influence discipline in caring for feet. The success of increasing foot care behavior in this study was also supported by observations made by researchers, and respondents were always reminded to carry out foot care.

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