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Impact of Foot Care Education Program Using *WhatsApp Group* on Knowledge and Foot Care Practice in Diabetic Patients

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ABSTRACT

Background: Diabetic ulcers are still one of the complications of diabetes that cause high costs for treatment and disability in diabetic patients due to leg amputation. Diabetic ulcers can be prevented by properly controlling blood sugar levels and foot care practice. Primary care doctors can provide knowledge about foot care practice to the community through *WhatsApp* groups. *WhatsApp* is one of the social media that is easily accessible via mobile phone and can be used to carry out health education to the community continuously. **Objectives:** To determine the impact of foot care education through *WhatsApp* group on knowledge and foot care practice of diabetic patients. **Methods:** Quasi experimental one group pretest and posttest design was utilized in this study. Samples were obtained by purposive sampling from diabetic patients who visited and participated in *Program Penanggulangan Penyakit Kronis* (Prolanis) activity in a primary healthcare clinic in Semarang from December 2020 until January 2021. Data were analyzed using the Friedman test and posthoc Wilcoxon test. **Results:** Thirty-six diabetic patients met the inclusion criteria. The median, minimum, and maximum scores of the foot care knowledge before education through the *WhatsApp* group were 10 (4-13) and the scores of foot care practice were 40 (21-56). Immediately after education, the scores of knowledge were 12 (9-14) and foot care practice were 49.5 (23-69). One month after education, the knowledge scores were 13 (9-14) and the foot care practice scores were 50 (26-73). The Friedman test obtained p value = 0.00 ($p < 0.05$) and the Wilcoxon post hoc test p value = 0.00 ($p < 0.05$) for the knowledge and foot care practice before and immediately-one month after education. The post hoc Wilcoxon test had results p value = 0.24 and p value = 0.79 for the score of knowledge and foot care practice immediately and one month after education. **Conclusion:** Foot care education through the Prolanis *WhatsApp* group has an impact on knowledge and foot care practice for diabetic patients. There is an increase in knowledge and foot care practice after providing education through *WhatsApp* group.

Keywords: *foot care education, WhatsApp group, knowledge, foot care practice, diabetes.*

BACKGROUND

Diabetes is one of the chronic diseases with a prevalence that increases every year. There are many complications of diabetes including macrovascular and microvascular complications that can cause increased morbidity and mortality. One of the most common microvascular complications is neuropathy in the nerve endings of peripheral organs, such as the legs. Neuropathy accompanied by peripheral vascular disease increases the risk of diabetic foot ulcers which can increase the risk of leg amputation up to three times higher¹.

Management of patients with diabetic neuropathy and peripheral vascular disease should be done well. If this condition is not managed properly, it can lead to leg ulcers and non-trauma related amputations in the lower extremities. The condition of the foot is too constricted in patients with diabetic neuropathy, which causes blockages and provides a good growing medium for fungi on the toes. Moist foot conditions occur because both feet are too tight which also can lead to the formation of a good living environment for bacteria and to infection later².

Recent research shows that the right way to perform foot care can reduce the risk of complications and leg amputation or toes³. Some steps that can be done to reduce the risk of complications and amputations in diabetic patients are: health counseling for diabetic patients (done by health care workers), doing foot care correctly, controlling blood sugar levels, regulating nutrition, maintaining an ideal weight, doing physical activity regularly, and regular medical check-ups⁴. The role of health care workers is very important to provide knowledge about proper foot care and demonstrate how to check the feet regularly especially for diabetic patients with high risk and patients who have less education³.

The use of technology in the modern era can be done by the public to find information related to health problems and how to prevent them. The use of the Internet and Smartphones have long been studied and proven effective in improving public health status. Internet service today is very easy for people to search information and increase knowledge specifically medical conditions. People can conveniently use mobile phone to search many information. This is an opportunity for health practitioners to convey health information through social media to patients and the public⁵.

WhatsApp is a popular social media application with the highest number of users in the world. On *WhatsApp* there are various features that make it easier for *WhatsApp* users to chat. People can send text messages, pictures, videos and video calls through *WhatsApp*. *WhatsApp* is the most used application with the longest duration by Smartphone users^{6,7}. This networking causes *WhatsApp* application can be used by health workers to provide education and learning about foot care to diabetic patients. From the literature review conducted by researchers, there is no study that conducts studies on the impact of foot care education in diabetic patients who have no diabetic ulcers by using social media such as *WhatsApp* in order to prevent diabetic ulcers. Therefore, this study was conducted to determine the impact of foot care education through *WhatsApp* group on the knowledge and foot care practice of diabetic patients to prevent diabetic wounds/ulcers.

MATERIAL AND METHODS

This research uses quasi experimental one group pretest and posttest design. Sampling techniques were conducted purposive sampling. The subjects in this study were all people with diabetes mellitus who visited the clinic or participated in *Program Penanggulangan Penyakit Kronis (Prolanis)* activities in a primary healthcare clinic in Semarang from December 2020 until January 2021. The number of subjects in this study were 36 subjects. Inclusion criteria in this study were subjects aged 18-65 years, had diabetes since 6 months ago or more, did not have diabetic wounds, did not get diabetes foot care training in the last 6 months, was able to communicate and use *WhatsApp* well, and signed informed consent forms. Exclusion criteria were people with diabetes mellitus who work as health workers.

The independent variable in this study was health education, while dependent variables were the knowledge and foot

care practice. Instruments used to assess knowledge of foot care practice were questionnaires, that were previously used in the Magbanua and Lim-Alba research⁸. The entire questionnaire consists of 14 items with a yes/no/I don't know answer options. Each correct answer is rated 1 and incorrect answers rated 0 so that the total possible score is 14. The instrument used to assess foot care practice was the Nottingham Assessment of Functional Foot Care consisting of 26 statements with a score of 0-3.

This research consisted of three phase. The first phase, researchers gave a briefing related to the research to subjects. After obtaining approval from people with diabetes mellitus to be involved in the study, subjects were asked to fill out a questionnaire given by the researchers.

The questionnaire contains questions about demographic data and questions to assess the knowledge and foot care practice in the prevention of diabetic foot ulcers before being given foot care health education. The questionnaire used to assess the knowledge of foot care is a modified questionnaire that was used by Magbanua and Lim-Alba⁸ and consists of 14 questions. The foot care practice questionnaire used the Nottingham Assessment of Functional Foot Care questionnaire. This questionnaire was modified into 26 questions based on the expert panel's results. In the expert panel, experts performed the validity of the questionnaire content with a value of Content Validity Index = 0.95. Researchers also conducted tests to determine the reliability of both questionnaires. The reliability of questionnaire was determined by Cronbach Alpha value. The Cronbach Alpha Value was 0.76 for the foot care knowledge questionnaire and 0.88 for the foot care practice questionnaire.

The second phase, after the pretest, the researchers conducted foot care health education for the subjects. Subjects who participated in the study were invited into the Health Education *WhatsApp* group. Health education was further provided through *WhatsApp* group, in the form of text messaging and voice messages for educational materials as well as the provision of educational images and videos of presentations on how to care feet. This educational activity was conducted in 8 sessions for 14 days or meetings. In each session, after health education was given, the subjects could discuss about the material that was delivered through the *WhatsApp* group. The researchers also gave subjects the opportunity to share their experiences about foot care.

The third phase, after providing health education, researchers conducted a posttest by giving the same questionnaire as the pretest regarding the knowledge and practice of foot care. Posttest was given twice: immediately and one month after health education. The researchers used SPSS Statistic 23 (IBM Corp., Armonk, NY) software to analyze the data. The researchers conducted data analysis using nonparametric statistics with Friedman's test. Next, the researchers conducted a follow-up analysis with a post hoc Wilcoxon test. This research received ethical approval from the Medical and Health Research Ethics Committee of the Faculty of Medicine, Public Health and Nursing of Universitas Gadjah Mada.

RESULTS

Diabetic patients who received foot care education training through the *WhatsApp* group are diabetic patients with an age group between 38-65 years old with a total of 36 subjects. The median age of subjects who participated in the study was 57 years. Most of the subjects were female (55.6%). The majority of subjects (19 people) were retirees/unemployed (52.8%).

Most of the subjects (18 people) had a final education in the university level (50.0%). Most of the subjects (33 people) were married (91.7%). Subjects' income was mostly less than 2,750,000 rupiahs (52.8%). The same number of subjects were obtained between subjects who had a family with a history of diabetes and subjects with families who did not have a history of diabetes. Most of the subjects had diabetes <10 years (69.4%).

Table 1. Basic characteristics of the subject

Characteristic	N= 36	%
Gender		
Male	16	44.4
Female	20	55.6
Age 57 (38-65)		
<45 year	8	22.2%
45-55 year	8	22.2%
55-65 year	20	55.6%
Education		
<input type="checkbox"/> Elementary school	3	8.3
<input type="checkbox"/> Junior high school	1	2.8
<input type="checkbox"/> Senior high school	14	38.9
<input type="checkbox"/> University	18	50.0
Profession		
<input type="checkbox"/> Civil servant/teacher	7	19.4
<input type="checkbox"/> Private	5	13.9
<input type="checkbox"/> Retired/housewife	19	52.8
<input type="checkbox"/> entrepreneur	3	8.3
<input type="checkbox"/> Soldier/Police	2	5.6
Marital status		
<input type="checkbox"/> Marriage	33	91.7
<input type="checkbox"/> Widow	3	8.3
Income		
<input type="checkbox"/> ≥ 2.715.000,00	17	47.2
<input type="checkbox"/> < 2.715.000,00	19	52.8
Family history of diabetes		
<input type="checkbox"/> Yes	18	50
<input type="checkbox"/> No	18	50
Suffering diabetes		
<input type="checkbox"/> <10 year	25	69.4
<input type="checkbox"/> ≥ 10 year	11	30.6

Before being given foot care education through the *WhatsApp* group, subjects' knowledge was measured using foot care knowledge questionnaires. From the pretest results the minimum score of foot care knowledge was 4 and the maximum score was 13, with a median score 10. Immediately, after education for 2 weeks, from the posttest, the minimum score of foot care knowledge was 9 and the maximum score was 14, with a median score 12. One month after health education, the posttest results for the minimum score of foot care knowledge was 9 and the maximum score was 14, with a median score 13.

Before being given foot care education through *WhatsApp* Group, subjects' foot care practices were measured using a foot care practice questionnaire using the Nottingham

Assessment of Functional Foot Care questionnaire. From the pretest results the minimum score of foot care practice was 21 and the maximum score was 56, with a median score 40. After being given education for 2 weeks, from the posttest results immediately after the education, the minimum score was 23 and the maximum score was 69, with a median score 49.5. One month after health education, the minimum score of foot care practice was 26 and the maximum score was 73, with a median score 50.

Researchers used non-parametric statistic tests to perform bivariate analysis using Friedman's tests because the number of samples was relatively small. The results of Friedman tests that were conducted found the p value = 0.00 ($p < 0.05$), thus it can be concluded that there were at least two different measurements of knowledge and foot care practice score. To find out which measurements were different, the researchers conducted a post hoc analysis using Wilcoxon tests, and found that there was a difference between the knowledge score and the foot care practice score in diabetic patients before and immediately after health education, with p value = 0.00 ($p < 0.05$).

There was a difference between the knowledge score and foot care practice score in diabetic patients before and one month after the administration of health education, p value = 0.00 ($p < 0.05$). There was no difference between the knowledge score and foot care practice score in diabetic patients immediately and one month after the administration of health education, with p values = 0.24 (> 0.05) and 0.79 (> 0.05).

DISCUSSION

In this study, the majority of subjects who had diabetes mellitus were 55-65 years. This is similar with Idris's study in 2017, where the majority of subjects who suffered from diabetes based on Riset Kesehatan Dasar (*Riskesdas*) 2013 data were in the age range of 55-64 years⁹. From the Idris research in 2017, it was also found that individuals aged 35-54 years are more at risk of diabetes compared to individuals aged 15-34 years. The result of the Idris research was similar with the results of this study, where no subjects had diabetes under the age of 38 years. The prevalence of diabetes mellitus, especially type 2 diabetes mellitus increases with age. This is due to increased glucose intolerance with age. The function of the body's organs decreases together along with the increase of age, with no exception in the function of the pancreas, which is an organ that produce insulin hormones that change glucose in the blood to glycogen⁹.

The majority of subjects in this study were female (54.6%). This finding is in accordance with previous research conducted by Saleh *et al.* in 2012, where most of the subjects were female¹⁰. Research conducted by Fouad in 2009 in Egypt stated that more than half of diabetic patients are women¹¹. The results of this study are also in accordance with the research conducted by Idris *et al.*, which took data from *Riskesdas* Indonesia 2013, where the majority of subjects who have diabetes are female⁹. Gender is one of the risk factors that play an important role in the incidence of diabetes due to genetic, hormonal and social factors.

Table 2. Friedman test results of knowledge of foot care practice score before, immediately, and one month after foot care education

Knowledge score	Median (minimum-maximum)	P value
Before education	10 (4-13)	Friedman test = 0.00 P value at post hoc Wilcoxon: Before vs immediately = 0.00; Before vs one month = 0.00; immediately vs one month = 0.24.
Immediately after education	12 (9-14)	
One month after education	13 (9-14)	

Table 3. Friedman test results of foot care practice score before, immediately, and one month after foot care education

Foot care practice score	Median (minimum-maximum)	P value
Before education	40 (21-56)	Friedman test = 0.00 P value at post hoc Wilcoxon: Before vs immediately = 0.00; Before vs one month = 0.00; immediately vs one month = 0.79
Immediately after education	49,5 (23-69)	
One month after education	50 (26-73)	

Genetically and hormonally, women are more at risk of fat buildup in the body compared to men. The tendency of women to become obese after the age of 45 is one of the risk factors for increasing the prevalence of diabetes in women over the age of 45 years. From social factors, a woman is more at risk of stress due to environmental and social factors compared to men. Stressful conditions can interfere with metabolic processes in the body through neuroendocrine mechanisms, autonomic systems and immune responses, including glucose metabolism. This increases the risk of women suffering from diabetes. Women also tend to have a high glycemic index diet and sedentary lifestyle, which can increase the risk of type 2 diabetes mellitus¹².

The demographic characteristics in this study are slightly different from previous studies. In the previous study conducted by Munali *et al.*, researchers only took subjects with the characteristics of junior and senior high school education only¹³. In this study, all subjects with elementary to college education level were taken. In this study, the majority of subjects had a higher education as many as 18 people (50%). This is in contrast to previous research conducted by Mahdalena *et al.* which stated that the majority of subjects who have diabetes mellitus are uneducated¹⁴. Patients with higher education level will make their access to health information better. In this study, most of the subjects were taken from *Prolanis* participants. Registered *Prolanis* participants have good literacy and knowledge in the use of universal health insurance, including participating in *Prolanis* activities which are additional facilities for universal health insurance participants who suffer from chronic diseases (diabetes and hypertension). The results of this study are slightly different from the research conducted by Idris *et al.*, where the majority of subjects who suffered from diabetes in Idris's study were subjects with low education⁹. In this study, most of the subjects had the last education of the college because a large number of subjects were retirees who had previously worked as teachers. In Indonesia, currently people in the profession of teachers must study at least to a bachelor's degree level.

In this study, the majority of subjects with diabetes had married status (91.7%). This is in accordance with the

research conducted by Saleh *et al.*, where most of the subjects of the study were married¹⁰. The results of this study are also in accordance with research from Moradi *et al.*, where subjects who are the subjects of research and suffer from diabetes are mostly married¹⁵. In the study conducted by Ali and Samah, it was also found that 73.5% of subjects were married¹⁶. This is supported by research conducted by Oliveira *et al.* in Brazil, where there was a significant increase in weight experienced by married couples compared to unmarried subjects. This weight gain is one of the risk factors for type 2 diabetes mellitus¹⁷. However, according to the results of research conducted by Idris *et al.* using Riskesdas 2013 data, it was obtained that the incidence of diabetes is also found in divorced subjects. Marriage will increase adherence to treatment due to the support of the spouse. In addition, marriage can reduce the stress experienced by a person due to romantic problems. Marriage also can make changes in healthy lifestyles that can reduce the risk of diabetes⁹.

The majority of subjects in this study were unemployed/retired (52.8%). This is in contrast to Ali's research in 2019, where the majority of subjects worked in the private sector¹⁶. This difference is because most of the subjects were taken from diabetic patients who participated in the *Prolanis* program. *Prolanis* activities are mostly followed by people who are no longer working/retired because they have more time compared to people who are still working. This is because *Prolanis* activities are conducted on weekdays, mostly on Saturdays.

Work can be one of the risk factors for the development of diabetes. Jobs with severe stressors and work that takes place with shift work models can trigger the emergence of diabetes due to the increase in the cortisol hormone triggered by stress. Cortisol can increase levels of sugar in the blood. People who do not have a job also have an increased risk of developing diabetes. This is because people who are not working will experience a decrease in economic status because they do not have a fixed income. Unemployment is associated with a diet of foods that are low in nutritional content, smoking and alcohol habits, and a sedentary lifestyle that can increase the risk of type 2

diabetes¹⁷.

The majority of subjects with diabetes have incomes below the regional minimum wage. This is in contrast to research conducted by Magbanua and Lim-Alba in the Philippines, where the majority of subjects with diabetes have an upper middle income (earning >15,000 pesos per month)⁸. This difference is because the majority of subjects in this study were retirees/housewives who did not have a permanent job so their income was also not fixed. The level of economy is related to the diet. This concerns the previous explanations related to the relationship of work with diabetes, where unemployed people tend to have irregular incomes and eat foods with low nutritional content. Foods containing low nutrition and unbalanced nutrition can be a risk factor for increased blood sugar levels that can trigger the occurrence of type 2 diabetes¹⁸.

In this study, most subjects had a history of diabetes less than 5 years. The results of this study are similar to research conducted by Ali and Samah, where most subjects have a history of diabetes less than 10 years¹⁶. In the study conducted by Moradi *et al.*, most subjects had a history of diabetes more than 5 years¹⁵.

The number of subjects who had a history of diabetes in family members was the same as subjects who did not have a family member with a history of diabetes. The results of this study are different with the research conducted by Ali and Samah where more than half of subjects had family members with a history of diabetes¹⁶. Diabetes is a chronic disease with multifactorial causes, and one of them is related to genetics. Two kinds of polymorphism that can be related to type 2 diabetes include mutation of 16-3t/c exon and 18 T/C exon on ABCC8 gene. However, in further research in the United Kingdom variants of polymorphism of this gene were not directly related to diabetes¹⁹.

In this study, there was a difference between foot care knowledge score before education and knowledge score immediately and one month after being given health education. This is similar with research conducted by Rahman, where there is an increase in the knowledge scores before and after being given health education on foot care²⁰. In this study the median score and minimum-maximum score before counseling were 10 (4-13). Median score and minimum-maximum score of foot care knowledge score immediately and one month after being given health education were 12 (9-14) and 13 (9-14).

In this study, there was a difference between the foot care practice score before being given education and immediately and one month after being given health education. This is similar with the research conducted by Rahman, where there is an increase in the foot care practice scores before and after being given health education on diabetic foot care²⁰. In this study the median score and minimum-maximum score of foot care practice score before being given education was 40 (21-56). The median score and minimum-maximum score of foot care practice immediately and one month after being given education amounted to 49.5 (23-69) and 50 (26-73).

Providing health education on foot care to diabetic patients is very important to do. Providing education about foot care can increase awareness of diabetic patients to treat their feet properly to avoid diabetic ulcers. The increased of awareness will be the first part of the behavior change¹⁵. Knowledge of risk factors is one of the key factors of behavioral change²¹.

According to the World Health Organization (WHO), the role of providing health education related to diabetes is an important part of the management process of diabetic patients. Providing health education related to diabetes is very important for patients to handle their own disease²². According to Bandura, a person's behavior in daily practice, in this case behavior regarding foot care, can be formed when a person has gained previous experience. One needs to know and carry out the correct foot care practices in advance, in order for the behavior to form and be maintained continuously²³.

From the results of the study, it was obtained that subjects' knowledge about foot care increased after getting foot care education through the Prolanis *WhatsApp* group. This is in accordance with research conducted by Saleh *et al*, that the provision of Health Education Program has an effect on improving the knowledge of diabetes mellitus patients regarding foot care after the provision of health education¹⁰. In this study, the provision of interventions is different from previous research. In Ali's research, health education was given in the form of Small Group Discussions with face-to-face sessions. The materials discussed include type of diabetes, diabetes ulcer risk factors, causes, complications, symptoms and signs of diabetes, the importance of controlling diet, staying away from cigarettes and achieving glycemic control as part of the prevention of diabetic ulcers. The next session discussed foot inspection and hygiene, skin and nail care, wearing proper footwear, injury prevention, and seeking professional health assistance, on how to check feet and footwear and how to do diabetic foot gymnastics. Each session lasts 25-30 minutes¹⁶. There are differences in the implementation of health education sessions with this study, where health education sessions are conducted with 8 sessions in 14 meetings. All meeting sessions are conducted online through *WhatsApp* application in *WhatsApp* group. Each session lasts for 30 minutes-1 hour.

In this study, educational materials are displayed in various forms. Educational materials are displayed in the form of text messages, voice messages, images, and videos. Material displayed in the form of videos through *WhatsApp* group is also displayed by researchers in the YouTube application. The material made in the form of a video is material about diabetes and care in diabetic patients recorded using the Zoom application. The advantage of delivering this material is that the video material can be viewed and accessed anytime and anywhere by health education participants without disrupting the daily activities of the educational participants.

In this study, subjects had different levels of education, ranging from elementary school to higher education. The level of education relates to the health literacy of a person.

The higher the level of education, the higher is the health literacy of a person²⁴. The researchers used the media of foot care education in the form of written messages, voice messages, pictures and videos so that the delivery of information about foot care for diabetic patients can reach subjects with various levels of education.

Providing health information to subjects with a low level of health literacy conducted with a voice video, may be better in improving memory to health information and attitudes that will later affect behavioral practices compared to the provision of health information in the form of written messages. The provision of health information will be better if the video also shows the writing text of what the presenters are talking about²⁵.

The posttest method to see the knowledge score conducted in this study was the same with the research conducted by Saleh *et al.* in 2012 where the posttests to assess the knowledge and foot care practice score were conducted immediately and one month after the intervention was completed¹⁰. But this approach is in contrast to the research conducted by Ali and Samah in 2019 where posttest was done immediately after the intervention was completed, 3 months, and 6 months after intervention¹⁶.

After receiving foot care education through the *WhatsApp* group, there was an increase in foot care practices from subjects. This is similar with research conducted by Ali and Samah in 2019 that the provision of health education programs has an effect on improving the behavior practice of diabetes mellitus patients on the correct way of foot care¹⁶.

The use of the *WhatsApp* group as a tool of communication between researchers and subjects is still ongoing until this day. After the posttest, the researchers still provided some other additional educational materials to group members, especially health education related to the COVID-19 pandemic. The researchers as group administrators deliver educational information in the form of images, writings, and voice messages. Subjects can also ask direct questions about the information provided and discuss with other group members related to information. Some subjects also shared their experiences related to the COVID-19 pandemic.

The new findings that contribute to science in this study is the novel way of conducting a module of health education by health workers to the public via online methods, in this case it involved education on foot care practice for diabetic patients. Online health education is needed to facilitate the provision of health information to the diabetic patients, especially in the era of the COVID-19 pandemic as it is today. Providing health information still needs to be done so that diabetic patients in primary healthcare facilities still get additional information related to the disease, especially information on how to do foot care practice, as well as how to do the correct diet and exercise patterns. The information is expected to increase the knowledge of diabetic patients in order to maintain a healthy lifestyle and proper foot care practice, thus preventing the occurrence of diabetic foot ulcers.

Sampling in this study was conducted using consecutive sampling so that it does not describe the condition of diabetes actually in the population. In this study, the foot care behavior questionnaire used the Nottingham Assessment and Functional Foot Care questionnaire, which is based only on the patient's memory of foot care practices conducted in the past month, making it vulnerable to the appearance of recall bias in the results of this study. The study also only conducted posttests twice, so it was unable to describe the retention of knowledge and practice of foot care from diabetic patients after being given health education for the next year after education. There needs to be a posttest evaluation to assess the knowledge and practice of foot care after health education within a period of 3 months, 6 months, and 12 months after education to determine the retention of knowledge and practice of foot care.

In this study, information was given uniformly between respondents with a history of diabetes less than 10 years and with a history of diabetes more than 10 years. Prior knowledge of respondents who have diabetes for a long time or have recently had diabetes is certainly different. Diabetic patients who have diabetes for a long time certainly have more initial information about diabetes compared to diabetic patients who have developed diabetes recently. There needs to be further research to make modifications to give health information that suits the patients' individual needs. Information can be provided simultaneously between basic information that is important for diabetic patients such as information about: understanding diabetes, symptoms, signs, and how to carry out the correct diet and physical activity patterns for diabetic patients and additional information that is important for diabetic patients who have diabetes for a long time, for example the information about various complications of diabetes and how to prevent them.

CONCLUSIONS AND SUGGESTIONS

There is an increase in the knowledge and foot care practice of diabetic patients after obtaining health education on foot care through the Prolanis *WhatsApp* group. Further research is needed to see the influence of health education through social media, in this case *WhatsApp* group on the knowledge and practice of diabetic foot care in the 3, 6, and 12 months after health education. More studies are needed to be able to modify the provision of health information related to diabetes in accordance with the prior knowledge and characteristics of diabetic patients. For example, providing diabetes information on basic diabetes-related matters that are important for patients who have recently had diabetes and providing more information related to diabetes complications and how to prevent those complications that are more emphasized for patients who have had diabetes for a longer period of time. Doctors working in primary care can apply this method to give health information to the community through social media. It can facilitate health counseling to the community, especially in the pandemic era as it is today.

Conflict of Interest

None.

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