

Study Phenomenology Of Wound Care In Diabetic Foot Ulcer (DFU) Patients With Theory Of Planned Behavior Approach

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Abstract – Background: Diabetic Foot Ulcer (DFU) is one of the most common complications in patients with type 2 Diabetes Mellitus, so it is necessary to carry out continuous wound care. The Theory of Planned Behavior (TPB) is a theory of behavior that can be implemented in wound care in the study of attitudes and beliefs, subjective norms, and perceived control. **Objective:** This study aims to determine the behavior of wound care in DFU patients based on the Theory Of Planned Behavior (TPB). **Method:** Qualitative study with a phenomenological approach with a total of 14 participants obtained through purposive sampling. Data was collected through in-depth interviews and analyzed using qualitative thematic analysis. **Results:** The results of the study found that wound care was carried out because they had a positive attitude and belief in wound healing if they were treated regularly according to the program, received emotional support, motivation for healing for the family, family support, and control, as well as convenience and quick treatment in health services. **Conclusion:** This finding recommends for health professionals that a positive attitude and belief in recovery in patients, support and motivation to recover, family control, and professional health services can change the behavior of patients to carry out DFU treatment regularly.

Keywords – diabetes mellitus, DFU, theory of planned behavior, wound care

I. INTRODUCTION

The countries with the largest number of adults with diabetes aged 20–79 years in 2019 were China, India, and the United States, and are expected to remain so by 2030. Of the 10 countries, for the number of adults (20–79 years) with diabetes in 2019, Indonesia is in 7th place (*Diabetes Federation International*, 2019). The main complications of DM in Indonesia are neuropathy (13% -78%), microvascular complications (16% - 53%) and DFU (7.3% - 24%)(Soewondo et al., 2013; Yusuf et al., 2016).

One of the most severe complications associated with diabetes mellitus (DM) is diabetic foot ulcers or commonly known as diabetic foot ulcers (DFU). DFU can lead to a significant increase in mortality and lower limb amputations (Martin et al., 2014; Jupiter, et al., 2016; Alosaimi et al., 2019). Patients with DFU feel more irritable, frustrated, depressed, and helpless than diabetic patients without foot ulcers (de Jesus Pereira et al., 2014; Gilpin & Lagan, 2008; Sari et al., 2018).

DFU is one of the most common complications of diabetes with a prevalence of 4 to 10% in the affected population (Paisey et al., 2018; Haq et al., 2017; Pourkazemi et al., 2020). It is estimated that 463 million people had diabetes in 2019. It is estimated that 578 million people will have diabetes by 2030 and the number will increase by 51% (700 million) by 2045 (Saeedi et al., 2019).

Diabetic foot patients are more likely to experience depression and anxiety than diabetic patients without foot complications (Prinz N et al, 2017; Chapman Z et al, 2014; Ahmad et al., 2018). There are several other complications such as damage to many organs and mental suffering of patients due to diabetes mellitus where amputation of limbs can further worsen

the patient's quality of life (Zil E. A et al., 2017; Arshad et al., 2020). If the patient can comply with the care and treatment programmed, the risk of further complications can be minimized, so that the DFU does not end badly, or even lead to amputation.

Many factors can influence patient compliance behavior in DFU treatment, one of which is compliance. Adherence is an attempt to agree between a person's health-related behavior and the recommended action or advice proposed by a health care provider, including glucose monitoring, medication administration, healthy diet, foot care, and physical activity. However, because of complex treatment that lasts for a long time and its adherence requires unwanted lifestyle changes, adherence rates for diabetes treatment are low (Albery et al., 2008; Dilekler et al., 2019).

Patients' misconceptions about diabetes, beliefs about treatment, lack of awareness, and negative attitudes towards diabetes are among the intrapersonal factors that hinder adherence to the relationship management plan and patient interactions with family and close friends, especially regarding family support, information sources and environment are among interpersonal relationship (Al-Sahouri et al., 2019).

Compliance behavior can be predicted from intention, which is determined by the individual's attitude towards the behavior. As explained in Theory of Planned Behavior (TPB) which assumes that behavior can be predicted from intentions, which are determined by individual attitudes towards behavior, subjective norms, and perceived behavioral control. Attitudes toward behavior consist of beliefs about behavioral outcomes and evaluation of expected outcomes of behavior. Subjective norms involve people's perceptions of what others think they should do and the value that people place on behaving following the expectations of others (Ajzen, 2012). Perceived control is determined by the control's beliefs about the presence or absence of a facilitator and behavioral barrier to performance, weighted by the perceived strength or impact of each control factor to facilitate or inhibit the behavior (Karen et al., 2008).

Regarding diabetes management, TPB has been applied to the compliance behavior of patients diagnosed with type I and II DM as well as the health behavior of people with diabetes risk. Type II DM patients have higher intentions to comply with medical measures, more positive attitudes toward diabetes-related self-care behaviors, and support subjective norms (i.e., care about important people's thoughts about one's involvement in diabetes-related self-care behaviors), then they become more likely to engage in actual compliance behavior (Dilekler et al., 2019).

Based on the results of a preliminary study of interviews conducted by researchers with nurses at the clinic, it was found that there were several clients with diabetic foot injuries who did not routinely come to the clinic for wound care, one of which was due to demographic conditions such as long distances. It is suspected that family support when the client needs treatment is also less than optimal, to economic conditions and the COVID-19 pandemic situation.

The nurse also said that the client's wound condition had worsened due to non-routine or delayed wound care, which should have started to improve, but turned out to be bad. Many factors are suspected as the cause of non-compliance behavior as described in the TPB theory. Until now, no research has been carried out on the in-depth exploration of DFU treatment with the TPB theory approach by conducting phenomenological studies on aspects of attitude, subjective norms, and perceived control, which encourage the intention to perform DFU treatment. Based on these problems, researchers are interested in conducting research on the exploration of wound care behavior in DFU patients with the theory of planned behavior (TPB) approach.

II. RESEARCH METODOLOGY

This study uses a qualitative study with a phenomenological approach. The study of phenomenology aims to provide an accurate description of the phenomenon being studied or to understand the life experiences of individuals and their life goals (informants) and not to produce theories or models or develop general explanations (Masturoh & Anggita T, 2018). Participants in this study amounted to 14 participants at the "Sahabat Care Clinic" Pontianak. With the purposive sampling technique. Methods of data collection with in-depth interviews. On the validity of the data, the researcher did member checking and triangulation techniques. This research was started after obtaining approval from the ethics committee of STIK Muhammadiyah Pontianak no 173//II.1.AU/KET.ETIK/VI/2021. Analysis technique with thematic analysis, as a method to identify, analyze, and report patterns (themes) in the data (Utomo, 2018).

III. RESULT

A. Attitudes and beliefs and benefits of wound care

Patients have a positive attitude and believe in the benefits of wound care, and the importance of wound care as stated by the following participants:

"This wound...? It's important, look at the person alone... it's okay. It's been a long time, but it's getting a little better." (P1).

"Important... very important. Right... this is... it's like a disease... we don't know that from the outside, the skin is normal, but we don't know what's inside... that's why we have to take care of it" (P8)

Participants feel the results of the treatment and positively express the benefits if the treatment is carried out according to the schedule set by the health worker, as stated by the following participants:

"Eeeh, get well soon, thank God, it feels really fast, I don't feel like it... At first, yesterday I felt like I was recovering, I don't think so..." (P4).

While other participants felt that the results were as expected, but felt the amount of money that had to be spent on healing their wounds, as expressed by the following participants:

"That's the cost, if you don't want to participate in the race if you want 10 days, how much does it cost. Right, it feels like I can't..." (P5)

B. Subjective norms on motivation to adhere to wound care

Participants' motivation in performing wound care consisted of the desire for healing and the sake of the family. The patient followed various advice on what not to do and what to do during the treatment of his leg wound. As stated by the following participants:

"... ask to be healed, want to be healed. So we abstain, what can we eat when we are under treatment so that it dries quickly." (P6)

"So I can meet my grandchild... The grandchild are expected, the grandchild are coming here, happy..." (P2)

"Go to the children, think that my children are still young... I was sick when I was sick, oh God, what if I gave up... I can't help but think that my children are still small, who will take care of them..." (P4)

C. Perceived control

Obedient patients who come for treatment feel that family control is very important for patients to routinely carry out care. Support and control of the closest people motivate patients to continue to treat their wounds regularly according to schedule, as explained by the following participants:

"...sir, don't let it go, sir, it will be damaged, sir, rotten, said die. Support, support all, support all the children... If you don't know that, why are you here, father? Si A takes, everywhere he takes an "ojek". Sometimes my sister used to bring the deck" (P6).

"Mom, it's cleaned like that, washed, and treated for the plague. From the first time I was injured until now, it was the patient who accompanied my mother. All ordered to bring here, all families, treatment. If you know that you are injured, have you brought your mother yet, please support everyone." (P7)

In addition, controls from families who have the same history also greatly help the patient's intention to perform wound care, as quoted from the following participants:

"... even though if we are sick like this we have to be careful, especially since we have a history of blood sugar right... we have to be forced too..." (P2)

"...because, her husband and children knew that this mother had blood sugar from her parents and what history did she have...hmm her brother-in-law, this mother-in-law died. Because of his blood sugar and also because of this, his family had dialysis, so the family and the patient were more careful with their blood sugar (P14).

D. Factors influencing wound care behavior decisions

Several identified factors that influence decisions on routine wound care according to schedule, among others, are due to the convenience factor in health services, immediate treatment when patients come to treat wounds, and family support, as stated by the following participants:

"It's easy, it doesn't take long to queue, straight away, it's handled..." (P3)

"...excellent family support...parents, husband...the plague of looking for cork, eggs...doesn't want to eat eggs..." (P4)

Difficult factors experienced by participants during wound care such as treatment costs, weather conditions, and environmental conditions were revealed by the following participants:

"... my mother usually doesn't want to treat it, but what if you don't get it treated, get it treated... If the weather is good right, have you ever had a bad day when it rains, you can't get rained on, geez two children are wearing coats."(P1)

"...Yes, it should have been yesterday before it broke, but I know it was just right when it broke, so that's why I've been using traditional medicines all this time..." (P8)

"...I can't, of course, I just came in yesterday, asking for help, how much will it cost for 5 days, aren't you afraid... Wait, I thought that if you take medicine you can heal yourself...wait for who knows, after you take the medicine, you can stand up and then you can take it. . Yes, that's the cost deck, it must be treated like this..." (P11)

IV. DISCUSSION

Wound care was carried out because the participants considered the importance of treatment, and believed in the healing of the wound if it was treated regularly following the treatment program. This belief made some participants feel the positive benefits. Based on the TPB, attitudes are determined by individual beliefs about the outcomes of performing the behavior (behavioral beliefs), which are weighted by the evaluation of these outcomes or attributes. Thus, a person who holds firmly to the belief that a positively rewarded outcome will result from the behavior will have a positive attitude towards the behavior (Karen et al., 2008). Behavioral belief is a person's subjective probability that performing an interesting behavior will lead to a certain outcome or provide a certain experience. This makes a person must comply with the recommended behavior that will direct his goals. Behavioral beliefs are theorized to produce positive or negative attitudes toward behavior (Ajzen, 2012). Behavioral belief is a person's subjective probability that performing an interesting behavior will lead to a certain outcome or provide a certain experience. This makes a person must comply with the recommended behavior that will direct his goals. Behavioral beliefs are theorized to produce positive or negative attitudes toward behavior (Vedhara, et al., 2014; Tsai et al., 2021).

Participants get emotional support, especially from the closest people, namely family, information support, family efforts that support so that participants can recover, and previous experiences from family members about wound care, all of which are supported so that participants can quickly recover from their wounds. A person's subjective norm is determined by his normative beliefs, that is, whether the individual approves or disapproves of the behavior (Karen et al., 2008). The family is the closest individual or group whose advice the participants may listen to, and who supports or opposes their behavior with the treatment. Qualitative and quantitative studies find that family and friends can help patients manage diabetes (Ishak, et al., 2017; Tsai et al., 2021). Not only support from family, but participants also revealed that they have family members with a history of the same disease. It made the participants compelled to do wound care because they did not want the wound to get worse, complications, and even death like family members who have the same history. The individual's family history has a strong influence on positive health behavior change for the participants involved (Ard et al., 2020).

Facilitating and complicating factors can be situational facilitators and barriers that make the treatment behavior easy or difficult to perform (behavioral control). Factors that facilitate wound care were stated by participants, namely, health services and family support. Participants perform treatment at one of the wound clinics, with health workers who are experts who treat wounds, treatment at the clinic does not take long, compared to having to do treatment in other places such as health centers and hospitals. Access to health care facilities such as transportation difficulties (poor road network), time-consuming (long queues), and meeting different doctors on clinic days. Patients complain of long queues and delays at the hospital (Kwakye et al., 2022).

The availability of facilities is one of the factors that can encourage and motivate people to take advantage of health services or treatment efforts (Girma, 2011; Basith & Prameswari, 2020). In addition, it is necessary to have support from supportive family members for treatment. DFU is very disturbing so it is necessary to have the right support that can increase self-confidence, both support from family, friends, and neighbors so that diabetics continue to socialize with their surroundings and even stay active in daily activities. (Basri, 2019).

While the factors that make it difficult for participants to carry out the treatment are maintenance costs, environmental conditions, and weather conditions. The cost of diabetes care is quite high, which makes participants complain about the costs they have to spend. The high cost of treatment and the length of time needed for wound healing have an impact on the family's economic burden, to overcome these problems it is necessary to have access to appropriate care to reduce complications and amputations. (Basri, 2019). Environmental conditions generally make participants choose to self-medicate. Usually, participants will wait until their condition improves after self-medicating so that the condition of the participants' wounds can get worse because they are left unattended and not treated by health workers who are experts in treating wounds. Belief in alternative medicine is a barrier to treatment initiation and adherence. Some doctors mention that negative influence from neighbors is reported as a barrier to continuing drug intake and physical exercise (Adhikari et al., 2021). Respondents who feel that accessibility is easy but do not take advantage of health services are caused by a low assessment of the disease, they prefer to buy drugs at pharmacies or in stalls rather than going to the Health care center (Basith & Prameswari, 2020).

Patients with DFU also experience psychological disorders, the more psychological disturbances in patients with DFU will be able to make their wounds hampered healing. Most of the families expressed fear, helplessness, and worry when treating patients with diabetes mellitus. Fear that arises among family members due to possible complications related to diabetes mellitus can lead to premature patient death (Wulandari et al., 2020).

Anxiety about their challenge to heal their wounds is fully balanced with the hope of returning to being 'normal' people and regaining control of their lives. The dynamic between hope for wound healing and fear of wound damage further reveals the reality of their struggle for normality. Many also struggle with frustration due to the hassle of wounds and the lengthy healing process (Zhu et al., 2020).

Most of the participants stated that the motivation for doing wound care was for healing. Motivation is the driving force of behavior towards a goal based on the existence of a need that can arise from within the individual or can be obtained from outside and encouragement from other people/family. (Azwar, 2005; Mayenti et al., 2020). The motivation to do wound care is for the sake of the family. Another impact of suffering from Type II DM is the fear that arises, such as these fears, including the fear of not being able to see their children grow up and the fear of not being able to meet the needs of their children. (Arifin et al., 2020). When sharing concerns about their diabetes, some described witnessing family members' diabetes-related complications and deaths as a strong motivation for behavior change (Cunningham et al., 2020).

V. CONCLUSION

This study reported that wound care was carried out because participants considered the importance of care, and belief in wound healing if treated regularly following the treatment program. Participants get emotional support, especially from the closest people, namely family, information support, family efforts that support so that participants can recover, and previous experiences from family members about wound care. Participants' motivation in performing wound care consisted of the desire for healing and the sake of the family. The patient followed various pieces of advice on what not to do and what to do during the treatment of his leg wound. Obedient patients who come for treatment feel that family control is very important for patients to routinely carry out care. The support and control of the closest person motivate the patient to continue to treat his wound regularly according to a schedule. In addition, controls from families who have the same history are also very helpful in the patient's intention to carry out wound care,

Several factors were identified that influenced decisions in routine wound care according to a schedule, among others, due to the convenience factor in health services, immediate treatment when patients came to treat wounds, and family support. Factors that make it difficult for participants such as maintenance costs, environmental conditions, and weather conditions. Facilitating and complicating factors can be situational facilitators and barriers that make nursing behavior easy or difficult.

VI. SUGGESTION

Maintain and improve good service for wound care. This study recommends for health professionals that a positive attitude and belief in healing in patients, support and motivation to recover, family control and professional health services can change the behavior of patients to carry out DFU treatment regularly.

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