Personal Agency Enhancing Model in Prevention of Diabetic Foot Ulcer

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ABSTRACT

Diabetes mellitus (DM) is an increase in blood sugar levels which can cause complications. Uncontrolled diabetes can cause various complaint in patients. Objective: Analyzing the characteristics of respondents with psychosocial, the characteristics of respondents with the personal agency, and psychosocial with the personal agency for the prevention of diabetic foot ulcer. Method: The design used was a cross-sectional study with simple random sampling using psychosocial instruments and the personal agency for diabetic foot ulcer prevention with a total of 329 respondents from the age of 30 to 75. The data were analyzed using SEM-PLS software. Results: 221 patients had no history of diabetes, and most of them had good knowledge, 4 respondents experienced severe stress, mostly with high perceived control (52.3%), low self-efficacy (53.2%), and low personal agency (51.1%). There is no relationship between the characteristics of the respondent and the personal agency. There is no relationship between the psychosocial with the personal agency. There is a relationship between psychosocial with the personal agency for preventing diabetic foot ulcer. Conclusion: The variables of knowledge and stress have a large direct contribution to the improvement of the personal agency for diabetic foot ulcer prevention.

INTRODUCTION

Diabetes mellitus is a lethal, degenerative disease. Gorontalo Province ranks 6th in Indonesia in terms of the highest incidence of diabetes. Complications that can be caused by diabetes are uncontrollable and include the eyes, brain, kidneys, blood vessels, and diabetic foot ulcer (Perkeni, 2015). Prevention efforts have often been made to reduce the incidence of diabetic foot ulcer. However, this is not as expected because various things affect the incidence of diabetic foot ulcer, one of them is behavior. Patient behavior, in this case, is an individual personal agency which is one part of the individual that can determine success in behavior. According to Ajzen (2005), personal agency plays an important role for individuals in their behavior. The personal agency consists of perceived control and self-efficacy. According to Pakaya N. (2020), knowledge is not sufficient to improve patient behavior. Other things such as attitude and personal agency also play a very important role. According to Ajzen I. & Icek (1969), personal agency is related to perceived control and self-efficacy in preventing diabetic foot ulcer. The personal agency can increase if the individual has good knowledge. Likewise, low stress will increase the patient’s personal agency in preventing diabetic foot ulcer. This study’s objective was to analyze the characteristics of respondents with psychosocial, to analyze the characteristics of respondents with the personal agency, and to analyze psychosocial with the personal agency for the prevention of diabetic foot ulcer.
MATERIALS AND METHODS

The design used was a cross-sectional study conducted on 329 diabetic patients who had never experienced diabetic foot ulcer. The study was conducted from January 2nd, 2019, to May 31st, 2019. Patients were selected by simple random sampling from the age of 30 to 75 years. The variables consist of respondent’s characteristics, psychosocial, and personal agency. The study was conducted with an ethical test, and the instrument used was a questionnaire that had been through the validity and reliability tests. The data were analyzed using Sem-PLS analysis.

RESULTS AND DISCUSSION

Table 1.1 Characteristics, knowledge, and stress levels of diabetic patients

| Karakteristik                  | Classification      | Amount | Percentage | Mean ± SD, Min - Max |
|--------------------------------|---------------------|--------|------------|----------------------|
| Age:                           | 24 – 35 Years of Age| 1      | 0,3        | Mean: 57.29          |
|                                | 36 – 45 Years of Age| 30     | 9,1        | SD: 8,88             |
|                                | 46 – 55 Years of Age| 62     | 18,9       | Min: 35              |
|                                | 56 – 65 Years of Age| 213    | 64,8       | Max: 84              |
|                                | 65 – 75 Years of Age| 23     | 6,9        |                      |
| Sex:                           | Male                | 89     | 27,1       |                      |
|                                | Female              | 240    | 72,9       |                      |
| Occupation:                    | Unemployed          | 215    | 65,3       |                      |
|                                | Peasant             | 61     | 18,6       |                      |
|                                | Entrepreneur/ Honorary| 30 | 9,1       |                      |
|                                | Employee            | 23     | 7,0        |                      |
| Family Record related to Diabetes Mellitus | Have a diabetes record | 108 | 32,8  |                      |
|                                | Have no diabetes records | 221 | 67,2  |                      |
| Knowledge about Diabetes Mellitus | Poor               | 3      | 0,9        | 93,26 ± 10,95        |
|                                | Fair                | 32     | 9,7        | 39 - 100             |
|                                | Good                | 294    | 89,4       |                      |
| Stress Level                   | Not Stressed        | 254    | 77,2       | 13,64 ± 3,72         |
|                                | Light               | 40     | 12,2       | 9 - 32               |
|                                | Medium              | 31     | 9,2        |                      |
|                                | Heavy               | 4      | 1,4        |                      |

Table 1.1 showed that most of the respondents at the age of 56 – 65 years old are female, unemployed, come from families with no diabetes record, have a good knowledge related to diabetes (>75%), and more than 75% of respondents do not experience stress.

Table 1.2 showed that the diabetes patients personal agency are mostly categorized as low. Figure 1.1 shows the loading factor> 0.5 and the T statistic value that is less than 1.96, which means that all indicators are valid and significant.

Table 1.2 Personal agency of diabetes patients

| Personal agency indicator | Low |          |          |          |          |          |
|---------------------------|-----|----------|----------|----------|----------|----------|
|                           | Amount | %      | Amount | %      | Mean, SD | Min,Max |
| Perceived control         | 157   | 47,7    | 172    | 52,3    | 18,89 ± 6,04 | 7 – 34 |
| Self-efficacy             | 175   | 53,2    | 154    | 46,8    | 13,44 ± 1,80 | 8 – 16 |
| Total of personal agency  | 168   | 51,1    | 161    | 48,9    | 32,38 ± 6,08 | 19 – 46 |

Figure 1.1 SEM Partial Least Square Structural Equation Analysis
characteristics (age, education, gender, family history of diabetes) with psychosocial, especially knowledge. According to the researcher, it is due to the most patients that are late in age so that they are more focused on self-care and health because the level of individual’s maturity increases with age.

The relationship between characteristics with the Personal Agency for the prevention of diabetic foot ulcer

The results showed that there was no relationship between the characteristics and the patient's personal agency in Gorontalo City. Table 1.1 showed that the characteristics of occupation of most patients are unemployed and retired. According to Riskesdas (2013), the highest number of diabetes patients is in patients with TGT (impaired blood sugar tolerance) in unemployed patients (Ministry of Health 2013). The results showed that physical activity was mostly spent at home. More activities at home cause patients to interact less with the surrounding environment. This condition, when it occurs for a long time, can cause the individual not to interact with the surrounding environment so that the patient is easily senile or forgetful and less passionate about various social life. It was revealed from the results of interviews with patients, which found that the physical activities carried out were not in accordance with what health workers recommended. According to respondents, patients are still confident that they will be able to prevent diabetic foot ulcer even though they only work at home.

Taking drugs for a long time will cause forgetfulness, especially when taking insulin with an incorrect dose (Susanti EY (2017)). High blood sugar in diabetes and excessive insulin in the blood will have a bad effect on the brain. It will cause damage to brain cells resulting in Alzheimer if it happens over a long period of time. It is strengthened by the research conducted by Puji A. (2019), which stated that one thing that can cause diabetes patients to experience the risk of senility or forgetfulness is taking diabetes drugs. A study conducted by Leung Y.M.A et al., (2019) shows that there is no relationship between characteristics and personal agencies, especially self-efficacy in carrying out physical activities. Patients that rarely exert physical activity will gain a significant increase in body weight. According to Perkeni (2015), the calorie requirement for obese people with diabetes can be reduced by 20-30% since it can aggravate diabetes. Therefore, diabetes patients should be able to organize both indoor and outdoor activities.

Another study conducted by Wichita N., et al., (2017) shows that there is a relationship between characteristic relationship with the personal agency (0.11), there is a relationship between psychosocial with the personal agency (7.04).
increasing confidence in individuals to improve their quality of life. Perceived control and self-efficacy are variables that play a role in shaping confidence resulting in the intention to behave.

The relationship between psychosocial with the personal agency of diabetic patients for the prevention of diabetic foot ulcer

The study shows that there is a relationship between psychosocial with personal agency. The results of interviews with patients revealed that the patients find difficulty in implementing the diet, especially on a carbohydrate diet. It is because patients are unable to regulate the amount of daily food consumption due to the feeling of emptiness in the stomach when the patients do not consume a large amount of rice. It is committed daily so that it is difficult for the patients to control their carbohydrate consumption. In theory, if the patients can reduce carbohydrates, they will be able to control the increase in blood sugar. Controlling the consumption of carbohydrates will be more difficult in areas dif which have a habit of consuming sweet foods. Gorontalo is one of the regions that have this habit compared to other regions where sugar consumption is quite low. According to Ramdhani N. (2011), patients' behavior can always change depending on the situation around them and the knowledge they have since individuals who have good knowledge will be able to control their diet.

Knowledge and stress are factors that can increase personal agency. Better knowledge and reduced stress will increase personal agency. According to Ajzen (2005), individuals who are unable to control their thoughts as a result of stress will find it difficult to increase confidence in taking preventive actions. It shows that better knowledge and reduced stress will increase personal agency. The study is strengthened by Chamroonsawasdi K., et al., (2017) where there is a relationship between knowledge and increased self-efficacy in diabetes mellitus patients.

The study shows that the knowledge on the proper diabetic foot care is gained by the patients who know how to conduct the foot care properly through the health center staff that often provides counseling about foot care and complications prevention. Thus, the patient is very confident and capable of preventing wound sand other complications. It shows an increase in individuals' good self-efficacy along with increasing knowledge of how to conduct wound prevention. According to Wagner K.A. et al., (2017), after 6 months of providing information about the prevention of diabetes complications, self-efficacy and personal agency for diabetes patients, including routine checks at the health service unit, will increase. This study is strengthened by Fan L. et al., (2014), who conducted counseling on diabetes patients to increase personal agency and self-efficacy in terms of preventing diabetic foot ulcer. The results show that good knowledge about foot care will be able to increase self-efficacy and can be optimized to prevent complications in diabetes patients.

Research Limitation

The research sampling was not conducted on patients who have/or temporarily suffered from diabetic wounds so that psychologically the patient's knowledge and stress level are not known.

CONCLUSIONS AND RECOMMENDATIONS

There is no relationship between the characteristics of the respondent and the personal agency. There is no relationship between psychosocial with the personal agency. There is a relationship between psychosocial with the personal agency for preventing diabetes foot ulcer. The variables of knowledge and stress directly contributed to the improvement of the personal agency for diabetes foot ulcer prevention.

Recommendation

Further research is needed regarding the stress of patients who suffer from diabetic foot ulcer and provide counseling about the knowledge of preventing diabetic foot ulcer to increase perceived control and self-efficacy in preventing diabetic foot ulcer.

Conflict of Interest

The researcher does not have a relationship or conflict of interest with other parties either organizationally or financially in the publication of this study.

REFERENCES

Abbas Y.F., See G. O., Ping Y. N., Pandian G., Hoon C. Y., Paruchuri S., (2018) Diabetes Knowledge, Attitude, And Practice Among Type 2 Diabetes Mellitus Patients In Kuala Muda District, Malaysia- A cross-sectional study. Diabetes & Metabolic Syndrome: Clinical Research & Review, https://doi.org/10.1016/j.dsx.2018.06.025.

Ajzen I. (2005) The Influence Of Attitudes On Behavior. Open University Press, London.

Ajzen I. & Icek (1969) The Prediction of Behavioral Intentions in a Choice Situation. Journal of Experimental Social Psychology, 5(5), 400–416.

Chamroonsawasdi K., Chottanapund S., Tunyasitsithisundhorn P., Phokaewsuka N., Ruksujaat T., Phasusakthaporn P. (2017) Development and Validation of a Questionnaire to Assess Knowledge, Threat and Coping Appraisal, and Intention to Practice Healthy Behaviors Related to Non Communicable Diseases in the Thai Population. Article

Fan L., Sidani S., Brathwaite C.A., Metcalfe K.(2014) Improving Foot Self-Care Knowledge, Self-Efficacy, and Behaviors in Patients With type 2 Diabetes at Low Risk for Foot Ulceration: A Pilot Study, Clinical Nursing Research Vol 23 (6) hal 627–643

Kemenkes RI. (2013) Riset Kesehatan Dasar, 1–306. https://doi.org/1 Desember 2013

Leung M. Y. A., Chau H. P., Leung S.H. I., Tse M., Wong L.C. P., Tam M. W., Leung Y.P. D. (2019) Motivating Diabetic and Hypertensive Patients to Engage in Regular Physical Activity: A Multi-Component Intervention Derived from the Concept of Photovoice, International journal of Environ. Res. Public Health 2019, 16, 1219; doi:10.3390/ijerph16071219

Maskari A.F., Sadig E. M., Kaabi A.M. J., Afandi B., Nagelkerke N., Yeatts B. K(2013) Knowledge, Attitude and Practices of Diabetic Patients in the United Arab Emirates www.plos one.org Vol 8 hal 1-8

Pakaya N. (2020) The Development of Diabetic Foot Ulcer Prevention Model based on Psychosocial Perspectives, https://doi.org/10.11596/jurnal.06.2020.01.001

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Perkeni (2015) Konsensus Pengelolaan Dan Pencegahan Diabetes Mellitus Tipe 2 di Indonesia. Penerbit PB Perkeni

Puji A. (2019) Pikun Tidak Selalu Gejala Alzheimer, https://hellosehat.com/hidup-sehat/fakta-unik/penyebab-pikun-selain-alzheimer/ Diakses 17 Agustus 2019

Ramdhani N. (2011) Penyusunan Alat Pengukur Berbasis Theory of Planned Behavior, Buletin Psikologi Fakultas Psikologi volume 19, no. 2, 2011: 55 - 69 issn: 0854-7108

Riskesdas (2013) Info Datin, Pusat Data Dan Informasi Kementrian Kesehatan RI.

Susanti E.Y. (2017) Hati-hati, Punya Penyakit Diabetes Berarti Anda Lebih Berisiko Pikun, https://hellosehat.com/pusat-kesehatan/diabetes-kencing-manis/hati-hati-diabetes-berisiko-pikun/ Diakses 1 September 2019

Tjokroprawiro A. (2018) Symposium Diabetes Discussion Forum (DDF) Sulfonyluria: assets from the past, present and future for Asian patient, Pusat Diabetes Surabaya

Wagner A. K., Brauna E., Armah M. S., Horana D., Smithb G. L., Pikeb J., Tub W., Hamiltonc T., Delp J. E, Campbell W. W., Bousheye J. C., Hannon S. T., Miller G. N. (2017) Dietary Intervention For Glukosa Tolerance In Teens (Dig It); Protocol Of Randomized Controled Trial Using Health Coaching To Prevent Youth Onset Type 2 Diabetes, Journal elsevier

Wichita N., Mnatzaganianc G., Courtneya M., Schulza P., Johnsond M.(2017) Randomized Controlled Trial Of A Family-Oriented Self-Management Program To Improve Self-Efficacy, Glycemis Control And Quality Of Life Among Thai Individuals With Type 2 Diabetes, Diabetes Research And Clinical Practice, vol 123 hal 37–48 elsevier
