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1 Relationship between Self Care Behavior and Diabetes Self-Management Education in Patients with Diabetes Mellitus Type 2

Abstract

Diabetes mellitus type 2 is a disease caused by disruption of insulin secretion and insulin resistance. One aspect that plays an important role in the management of this disease is diabetes self-management education. Good self-care behavior will make diabetes management controlled and prevent complications and make the quality of life better. The purpose of this study is to determine the effect of self-care behavior and the magnitude of the influence of knowledge, patient motivation, family support, and self-efficacy on diabetes self-management education for type 2 diabetes mellitus patients. The method used in this study was a quantitative approach using cross-sectional methods. The sample used was 115 patients with type 2 diabetes mellitus in Palopo Regency. The analytical method used is the Structural Equation Model (SEM) using Amos 2.0 and SPSS 20 (IBM Corp). The findings of the study showed that self-care behavior in patients with diabetes mellitus of type 2 was influenced by knowledge factors by 89%, motivation factors by 82.8%, family support by 84.9%, and self-efficacy factors by 78.4%. Meanwhile, diabetes management of type 2 diabetes mellitus patients was influenced by treatment factors by 75.5%, blood sugar control factors by 88.1%, dietary factors by 60.9%, physical activity factors by 87.3%, and foot care factors 53. , 8%. The structural model of this study explains the variable care cell behavior with self-care management of 47.5%. Therefore, the management of diabetes mellitus must be more active in providing education to sufferers so that their knowledge or family members can increase and understand how to carry out diabetic management properly.

Keywords: *diabetes self-management education; self-care behavior; diabetes mellitus type 2*

INTRODUCTION

Diabetes Mellitus (DM) is one of the most common non-contagious chronic diseases [1]. DM is a metabolic disease with the disruption of the insulin hormone which functions to maintain the body's homeostasis by decreasing blood sugar levels [2], [3]. This disease can cause imperfect death as well as serious complications and disabilities [4]. In addition, this disease can increase blood sugar levels or hyperglycemia because the body lacks the hormone insulin [3]. One of the most common types of DM disease in the world is DM type 2 (85-95%), which is a disease caused by disruption of insulin secretion and insulin resistance [5].

DM of type 2 is a chronic disease and global health problem, affecting approximately 422 million people worldwide [6]. The global diabetes prevalence in 2019 is estimated at 9.3% (463 million people), increasing to 10.2% (578 million) in 2030 and 10.9% (700 million) in 2045 [7]. Global diabetes prevalence is around 5% for the 35-39 year age group, 10% for the 45-49 year age group, 15% for the 55-59 year age group, and close to 20% for the 65-69 year age group. Southeast Asian countries, such as Indonesia, Malaysia, Thailand and Vietnam, have moved up the rankings in the last two decades. Due to large population, China (88.5 million people with diabetes type 2), India (65.9 million), and the US (28.9 million) maintained the top position as the country with the largest total number of individuals with this condition [8].

4 Based on the results of Basic Health Research (Riskesdas) in 2018, the prevalence of diabetes mellitus in Indonesia in 2013 was 6.9%, including TGT of 29.9% and GDP of 36.6%. In 2018, there was an increase of 10.9%, including TGT of 30.8% and GDP of 26.3%. The existence of diabetes mellitus based on age groups, namely, age 15-24 years (21.2%), age 25-34 years (27.2%), age 35-44 years (31.9%), and 45-54 years (32, 4%). The province of South Sulawesi is one of the provinces in Indonesia which has a prevalence of diabetes mellitus, reaching 1.2% in 2013 and an increase in 2018, reaching 1.8% [9]. The increasing number of diabetes mellitus sufferers is evidence that diabetes mellitus is a serious public health problem and needs to be a priority health problem in Indonesia.

The causes of diabetes mellitus type 2 are unhealthy lifestyle, imbalance of dietary regulation, and lack of physical activity; this is influenced by self-care behavior [10]. Factors that influence self-care behavior are factors from the patient himself, namely: knowledge, attitudes, motivation, family support, economy, and self-efficacy [11]. Other studies have stated that behavior greatly influences the self-care of DM patients [12],[13]. Good self-care behavior has an important role in diabetes management, especially in preventing diabetes complications [3].

The application of self-management is one of the aspects that plays an important role in the management of type 2 diabetes, including dietary regulation, physical activity / sports, monitoring blood sugar, compliance with medication consumption, and self / foot care [14]. The process of health education for individuals or families in managing diabetes mellitus type 2 provided by nurses so as to effectively improve clinical outcomes and quality of life for patients with the Diabetes Self-Management Education (DSME) method [15]. Another study states that DSME plays an important role in preventing the progression of neurovascular complications in DM patients type 2, thereby helping to reduce the risk of diabetic foot injury [16]. Therefore, the researcher wanted to know the self-care behavior with diabetes self-management education in diabetes mellitus patients type 2 in Palopo District.

METHOD

11 This type of research is observational correlation with a cross sectional approach, conducted from May to July 2022 in Palopo Regency. The variable used in this study was diabetes self-management education as the dependent variable and the independent variable was self-care behavior. The sampling technique was determined using consecutive sampling technique. The number of samples that were targeted in the research subjects, there were 115 who met the research criteria. The criteria for respondents who were used as subjects in this study were patients with type 2 diabetes mellitus who underwent treatment and outpatients both in hospitals and in community health centers, able to communicate well, aged 35 to 60 years, had blood glucose levels when they ranged from 71-380 mg / dL, and willing to be respondents. All participants agreed to the study protocol and provided written consent. This research has been approved by the Ethics Committee of Mega Buana University and takes into account the principles in the research process.

1 This study focuses on knowing the correlation between self-care behavior and diabetes self-management education for DM patients type 2 using a research instrument in the form of a questionnaire. This research questionnaire is divided into 4 parts, namely the first part is demographic data, the second part is the diabetic management questionnaire to

measure self-management using the diabetes self management questionnaire (DSMQ) [17]. The third part of the questionnaire about the self-care behavior of DM patients type 2. The analysis test used is a linear regression test to determine the relationship between the variable self-care behavior and the diabetes self-management education variable for DM patients type 2 with a value and significance <0.05 which is considered significant and looked at the structural model of research using the Structural Equation Model (SEM) with Amos 2.0 and SPSS 20 (IBM Corp).

RESULTS AND DISCUSSION

<<<Table 1>>>

Table 1 shows that the majority of women experience diabetes type 2 and more dominantly do not have complications such as hypertension and stroke. The average age of DM patients type 2 is the pre-elderly age with an average length of suffering from diabetes type 2 4 years 6 months. Meanwhile, the blood sugar value when they were still in the abnormal category with an average value of 253.8 mg / dL.

The data in Table 2 shows that all indicators or in this case the factors that build the variable self-care behavior and DMSE can be accepted or declared valid and reliable because the test results show that all p values on each indicator are below the value of 0.05 (≤ 0.05) and the CR value on each indicator that builds self-care behavior and DMSE is above 0.07 (≥ 0.07). Another provision which also states that the indicators forming the variable self-care behavior and DMSE are declared valid and reliable is that all the loading factor values (standardized loading) are above 0.03 (> 0.03). So that all indicators are accepted and declared capable of measuring the variable self-care behavior and DMSE so that they will be included in the next full model test.

<<<Table 2>>>

Self-care behavior variables are formed by 4 factors, namely knowledge, motivation, family support, and self-efficacy. From the 4 factors of the self-care behavior variable, information was obtained that all factors had a significant relationship with the formation of the patient's self-care behavior variable, and it was known that the knowledge factor was the most related factor or played a role in the formation of the patient's self-care behavior variable with p value (0.0001) and the estimated value of the effect is 0.890. So that real and strong knowledge plays a role in forming self-care behavior variables.

<<<Table 3>>>

The DMSE variable is formed by 5 factors, namely medication, blood sugar control, diet, physical activity, and foot care. From the 5 factors of the DMSE variable, information is obtained that all factors have a significant relationship with the formation of the patient's DMSE variable, and it is known that the blood sugar controlling factor is the most related factor or plays a role in the formation of the patient's DMSE variable with p value (0.0001)

and the estimated effect value is 0.981. So that controlling blood sugar significantly and strongly plays a role in forming the DMSE variable.

8
<<<Figure 1. Path Coefficient Test>>>

In table 4, it can be seen that self-care behavior has a significant effect on DMSE of type 2 diabetes mellitus patients. To see the percentage of the effect is $R^2 = 0.475$, meaning that self-care behavior has an effect on DMSE by 47.5%, while the remaining 52.5% is the influence of other variables not studied. The overall model validation value can be seen from the goodness of fit value obtained by 0.569 (tends to be moderate), so this value indicates a good fit between the model and the theory used, namely the theory of Orem (Figure 1).

9
<<<Table 4>>>

In this study, researchers have succeeded in developing components of self-care behavior for DM patients type 2, namely: knowledge, motivation, family support, and self-efficacy for diabetes self-management education (DMSE). A DM patient has good self-care behavior if he has good knowledge about diabetes and its management, has a positive attitude, gets positive support from family and people around him, has a strong motivation to recover and has good self-efficacy. The results of this study have proven what components form self-care behavior and how strong the relationship is with DMSE. The implementation of self-care behavior towards DMSE can play an important role in the management of diabetes type 2, including dietary regulation, physical activity / sports, monitoring blood sugar, compliance with medication consumption, and self / foot care [14].

Previous research stated that social support with patient self-care behavior showed a significant relationship, so that diabetes self-management education would be more effective for DM patients type 2 [12],[18]. Other studies have shown that DMSE affects knowledge and self-care behavior [19].

CONCLUSION

This study proves that diabetes self-management education is influenced by the self-care behavior of DM patients type 2. The structural model produced in this study is able to explain more than half of the self-care behavior variables compared to other variables not studied. The knowledge factor is the most related factor or plays a role in the formation of self-care behavior variables for DM patients type 2. This means that the greater the patient's knowledge, the better the self-care behavior and self-care management for type 2 DM patients will be. Therefore, the management of diabetes mellitus must be more active in providing education to sufferers so that their knowledge or family members can increase. and understand how to do diabetes management properly.

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