The Effect of Patient Centered Modul on Diabetes Mellitus Patients Based on Conservation Theory Toward Adaptation Ability

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Abstract. Patient centered is designed for self-regulation in a case, one of them is Diabetes mellitus . It makes lifestyle changes to increase adaptability and behavior among patients. It may reduce patient visits and become one of the activity programs in the nursing care delivery system. However, it is not appropriate and not optimal practically. This study aimed to determine the implication of patient centered application in patients with diabetes mellitus based on conservation theory on the ability to adapt. The research uses a cross-sectional with a comparative descriptive approach. The researchers took 140 respondents from Bangil Regional General Hospital, and it was taken from April to May 2023. The researchers use non-probability purposive sampling as a sampling technique. This study found that 56 percent of males and 46 percent of females have diabetes mellitus . There is 19 percent of patients relatively have more than one year of illness. On the other hand, 81 percent of patients have less than one-year of illness. In real terms, it is based on the relationship structure consisting of the patient's emotional interpretation and social support factors. Furthermore, each factor significantly affects the representation of a patient's attitude towards kidney failure. Moreover, the patient's attitude can influence the patient's coping factors. Sequentially, it intervenes patients' self-regulation toward diabetes mellitus to be more adaptive. The implementation of the patien centerd modul in patients with diabetes mellitus will improve the patient's ability adaptation. So, it will directly reduce pain due to complications and mortality rate. The increased self-regulation ability of the intervention, respectively, was caused by the patient's coping factor, the representation of attitudes, the presence of social support, and the interpretation of the patient's emotional response. This new finding is based on the impact on improving the quality of patient's life due to self-regulation intervention in patients with diabetes mellitus .

Keywords: Patient, Centered, Diabetes Mellitus , Patient Centered.

1   Introduction

Diabetes mellitus   becomes as one of the leading cause of death. diabetes mellitus is a progressive condition that affects more than 800 million people or 10% of the overall population worldwi. diabetes mellitus patients loss their kidney function over a

period of months or years. The high prevalence of diabetes mellitus is caused by several factors related to self-regulation and people's bad behavior, such as smoking, drinking alcohol, eating fatty foods, stress, and lack of physical activity [1][2,3]. These factors can cause a high risk of diabetes mellitus . diabetes mellitus causes several severe impacts on the psychological, social, physical, economic, and cultural aspects of individuals [4,5].

A person with diabetes mellitus tends to try adapting as best they can. However, mostly, they do not have the knowledge and skills to act and make decisions accordingly [6]. Therefore, they need a sustained process based on the patient's condition because the patient centered intervention will grow an integrated relationship between the care received during hospitalization and post-hospitalization. Hospital care will be effective if it is continued with home care. Meanwhile, treatment plan for patient has not been optimal yet due to limited nurse's role in routine activities, such as providing information about re-control schedules [7–9].

Self-regulation applied in patient centered intervention requires patients to focus on the self-regulation process to achieve optimum recovery. This process has a significant role for patients and their families while patients are still hospitalized and post-hospitalization. It can increase patient and family knowledge, awareness of providing care, knowledge of medication, and awareness of complications indication. Patient centered intervention is designed according to the process of patient centered theory [10]. It combines the basic principles of behavior modification to assist individuals in making lifestyle changes to increase the ability to adapt and change behavior. Behaviour modification has few impacts on shortening the length of hospitalization and reducing the patient's recurrence rate [11]. Those become one of the program activities in providing a nursing care system to patients. However, the implementation is not compatible and optimal yet [12].

Failure to provide and document post-hospitalization planning will cause some risks of disease severity, life-threatening, and physical dysfunction. In post-hospitalization planning, it is necessary for patients and families to understand home care. Therefore, nurses should deliver the planning with efficient and directed communication. The implementation of self-regulation intervention aims to prepare patients and families to anticipate post-treatment problems, including overcoming those problems [13,14]. One of the chronic disease treatment models is diabetes mellitus which focuses on active patient interactions with a proactive healthcare team. It shows a relationship between patients who have the knowledge, skills, motivation, and confidence to make important decisions about their health and a proactive healthcare team who can provide good quality information, support, and care resources. Patients with diabetes mellitus need encouragement to get the best health status and maintain their function as long as possible [15]. This study aimed to analysis the implication of patient centered application in patients with diabetes mellitus based on conservation theory on the ability to adapt [16,17].

2   Material and Methods

This research used a descriptive design with a cross-sectional approach. The design, based on conservation theory, aims to apply a patient centered intervention model to adaptability in patients with diabetes mellitus . This research examines the implementation of a patient centered intervention to the life quality of patients with diabetes mellitus .

   The researchers use purposive sampling technique to get 140 samples consist of all patients with diabetes mellitus who underwent hemodialysis at one of the regional general hospital in Pasuruan, East Java, Indonesia. Inclusion criteria was implemented including undergo hemodialysis treatmenr, chronic phase of diabetes mellitus , cooperative patient, and compos mentis awareness. While the exclusion criteria was having a hearing loss and visual impairment. This sudy conducted May-June 2023, Variables Health status, individual coping, self-regulation, and quality of life/adaptation. Instrument: using a questionnaire with a conceptual framework using Myra Estrin Levine's Self regulatory intervention theory developed by researchers in phase 1 research. Currently, researchers are applying the findings of phase 1 by measuring respondents twice, namely before and after [one week later]. the treatment carried out on respondents is to provide modules on self-regulation [procedures for managing healthy living while at home], Data Analysis The statistical test technique uses the t-test. This study was obtained the ethical approval from health research ethics committee Jombang Medical Scholars College of Health Sciences with number 012/KEPK/ICME/IV/2021.

3   Results and Discusion

The respondent's character includes the respondent's education consisting of gender, level of education, marital status, dialysis duration, patient's main caregiver, and age. The majority of respondents were male [56.7%], married [80.0%], age 50.73 year, and having education at elementery school [38.1%]. Most of respondents have more than 12 months dialysis duration [81.0%] and able to maintail their care or self care [50.0%] (Table 1).

Table 1**.** Characteristics of Respondents with Diabetes mellitus Patients.

Variables	Frequency	Percentage [%]
Gender		
Male	79	56.7
Female	61	43.3
Level of Education		
Elementery	53	38.1
Junior High School	17	11.9
High School	43	31.0
Higher Education	27	19.0
Marital Status		

Married		112	80.0
Single		20	20.0
Dialysis Duration			
12 Months Less Than		27	19.0
12 Months More		113	81.0
Patient's Main Caregiver			
Self-Care		70	50.0
Spouse		37	26.7
Parents		0	0.0
Children		33	23.3
Total		140	100
Age [years]			
Minimum	Maximum	Mean	Std. Deviation
26.0	74.0	50.73	10.32

Based on Table 1, the male gender is the most, namely 56.7% of patient education is known to be spread across all school levels. The highest level of elementary school 38.1% and high school 31%. Duration of chronic kidney failure, it is known that the majority is less than 1 year, 81%. Then the average age of respondents is 50.73 years with the youngest 26 years and the oldest 74 years with a deviation value around the average of 10.32 years.

Table 2. Comparison of Self Management Before and After the Implementation of Self Reguylatory Modul Theory.

Variabel		before		after		Patient centered modul		p-value
		f	[%]	f	[%]	Pre [Mean ±SD]	Post [Mean ±SD]	
Emotional Respon	Accept	4	2.9%	69	49.5%	11,3 ±2.1	14,8 ±2.4	0.000
	Emotional	136	97.1%	71	50,5%			
Family support	Less	2	1.4%	1	1,1%	32.4 ±5.2	40.4 ±50	0.000
	Enough	4	2.9%	3	1.9%			
	Good	134	95.7%	136	97%			
Health service support	Less	4	2.9%	4	3%	27.7 ±3.5	30.1 ±2.4	0.000
	Enough	9	6.7%	4	2,5%			
	Good	127	90.5%	132	94.5%			
Health status	Less	54	38.1%	33	23.3%	22.2 ±5.7	27.5 ±5.9	0.000
	Enough	40	29.0%	11	8.1%			
	Good	46	32.9%	96	68.6%			
Coping Individu	Destructive	136	97.1%	55	15.7%	8.7 ±2.1	9.8 ±2.4	0.000

	Constructive	4	2.9%	85	60.7%			
Self management	Less	59	42.4%	8	5.7%	35.4 ±5.2	41.4 ±5.5	0,031
	Enough	20	14.3%	11	7.6%			
	Good	61	43.3%	121	86.7%			
Quality of Life	Less	34	24.3%	8	5.7%	16.7 ±3.5	20.1 ±3.6	0.001
	Enough	76	54.3%	11	7.6%			
	Good	30	21.4%	121	86.7%			
	Total	140	100.0%	140	100%			

Based on Table 2, before the application of the self-regulation module was obtained as follows: Emotional response of chronic renal failure patients, it is known that the majority are emotional as much as 97%. Family support is good as much as 95.7%, Health service support is good as much as 90.5%, Health Status is less 38.1%, Individual Coping is destructive as much as 97.1%, Self management is less as much as 42, 4% and quality of life is most in sufficient 54.3$ after the application of a module containing self-regulation, the following results are obtained: Emotional response of chronic renal failure patients, it is known that the majority of emotional decreases as much as 50.5%. Good family support increased to 97%, Good health care support increased to 94%, Health Status became good as much as 68.6%, Individual Coping became constructive as much as 60.7%, Self management changed to good as much as 86.7% and quality of life as much as most in good as much as 86.7%. Based on statistical calculations, all variables are meaningful enough that there are differences before and after the self-regulatory module is applied with P values all ranging from 0.031-0.000.

4   Discussion

The self-regulation intervention model for patients with diabetes mellitus quality of life is a good and relevant predictive model. It is based on the coefficient of determination. It meets the criteria for the goodness of fit and predicted relevance of a model. Structurally, the model is composed of factors that have a significant relationship. The relationship structure starts from the patient's emotional interpretation factor and social support factor, each of which significantly affects the representation factor of the patient's attitude towards kidney failure. Furthermore, this representation factor impacts the patient's coping factor. Then it sequentially affects the self-regulation intervention of diabetes mellitus patients and ultimately their quality of life [16].

According to the influence value [path coefficient] of the model, the relationship between factors is a positive linear, including direct, indirect, and combined [total] relationships. Those mean that the higher the influence of exogenous factors, the higher the impact on endogenous factors. It concludes based on the results of total testing of the relationship that all the influence values between the factors were significantly related, except for the influence value of the emotional response interpretation factor on the quality-of-life factor. This means that the interpretation of the emotional

response of patients with diabetes mellitus is not closely related to their quality of life. Furthermore, social support factors, attitude representation, coping, and self-regulation intervention are related to the quality of life of patients with diabetes mellitus . Therefore, if these factors are 1 unit, it will improve the quality of life of kidney failure patients by the value of their influence [18][19,20].

Moreover, the self-regulation intervention of patients with diabetes mellitus is significantly influenced by the interpretation of emotional responses, social support, attitude representation, and patient coping. According to the magnitude of the positive linear effect, if these factors are given a value of 1 unit, it will increase the patient's self-regulation intervention as much as the value of the effect [21,22].

Coping factors of patients with diabetes mellitus are significantly influenced by factor of interpretation of emotional responses, social support, and representation of patient attitudes. The influence value is positive linear, which means that if it is increased by 1 unit from the interpretation factor of emotional response, social support, and representation, it will increase the patient's coping factor by the value of the effect. Likewise, the representation of diabetes mellitus patients' attitude is significantly influenced by the interpretation of emotional responses and social support factors [23,24].

In the measurement model, the intervention self-regulation model for the quality of life of patients with diabetes mellitus was composed of valid and reliable factors. It refers to the convergent validity test result, discriminant validity test result, and factor reliability. Specific to the factor's component indicators, the patient's interpretation factor is measured by the patient's emotional response related to diabetes mellitus . Furthermore, family support and nursing services are measurements of social support factors. Those indicators are valid because the loading factor is more than 0.5. Meanwhile, there are four valid indicators to measure the patient's attitude representation factor such as: preventive, increase, detection, and patient self-care. Besides, the coping system is the measurement of a patient's coping factors. Additionally, there are three indicators to assess self-regulation factors, they are fluid balance, hemodynamics, and electrolytes. Thus, the quality-of-life factor has four indicators as measurement, namely the quality of physical, psychological, environmental, and social relationships [25,26].

The new findings of the model in this study are the findings of predictive models. Its impact on improving patients' quality of life due to self-regulation intervention in diabetes mellitus patients has answered the research objectives. According to the model, self-regulation intervention improves the quality of life for patients with diabetes mellitus . Improving the patient's quality of life will directly reduce pain due to complications and mortality. The increased self-regulation ability of the intervention, respectively, was caused by the patient's coping factor, then the representation of attitudes and the presence of social support, and the interpretation of the patient's emotional response.

5   Conclusion

This new finding in this study is found a significant effect on improving the quality of life of patients with diabetes mellitus caused by self-regulation intervention. In fact, the previous research or concept found this novelty.

   bibliography provides a sample reference list with entries for journal articles [1], an LNCS chapter [2], a book [3], proceedings without editors [4], as well as a URL [5].

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