Self Regulation Effect on Glycemic Control of Type 2 Diabetes Melitus Patients

by Leo Yosdimyati Romli

Self Regulation Effect on Glycemic Control of Type 2 Diabetes Melitus Patients

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Abstract

Background: Self regulation is an effective way for people with Diabetes Mellitus in order to get good glycemic control for the diabetes mellitus patient recovery. The purpose of this study was to analyze the effect of self regulation on the patient glycemic control. **Method:** This research used pre experimental pre post test design. The population of this research is all DM patients in Bulurejo Village, Diwek District, Jombang Regency with a sample of 30 respondents. In this research we used purposive type sample. The variable of this research are: self regulation and glycemic control. The way of collecting data is by laboratory test. **Result and analysis**: The results showed that self regulation affect on glycemic control in DM patient according to the wilcoxon test, the glycemic control score p=0.046 (p<0,05). The glycemic control before the intervention almost all respondents had uncontrolled HbA1C levels of 28 respondents or 93.3% and after intervention almost all respondents had uncontrolled HbA1C levels of 24 respondents or 80%. **Discuss and conclusion**: Self regulation can improve glycemic control quite well, but still needs integration with other components related to treatment and care in diabetes mellitus patient, with self regulation it is expected that they will be able to increase their motivation to support increased self care abilities, change behavior and carry out activities to maintain glycemic control.

Keyword: *Self Regulation, Glycemic Control, Diabetes Mellitus*

Introduction

Diabetes mellitus in some developing countries has increased significantly due to the increasing population of aging, changes in diet, severe physical activity, and unhealthy behavior patterns. The level of blood glucose in diabetes mellitus is also influenced by low self regulation in which sufferers cannot control themselves against factors that can trigger disorders of blood glucose level regulation in patients with type 2 diabetes mellitus [3]. Diabetes mellitus has a severe impact on the psychological, social, physical, economic and cultural aspects of individuals, a person with diabetes mellitus tends to try to adapt as best they can, but not infrequently they do not have the knowledge and skills to make decisions and act accordingly so that a sustainable process is appropriate with the patient's condition, hospital care is more meaningful if it is continued with home care, but until now the planning for patients treated has not been optimal [6].

International Diabetes Federation (IDF) calculates the incidence of Diabetes Mellitus in the world in 2012 was 371 million, in 2013 it increased to 382 million and it is estimated that in 2035 people with Diabetes Mellitus will increase to 592 million [2]. Based on the 2013 Annual Report of Hospitals in East Java, Diabetes Mellitus sufferers (102,399 Cases). Based on data from the Jombang district health office, the number of people with Diabetes Mellitus in 2014 was 21,992 [3].

Various problems that arise due to diabetes mellitus can not be separated from the occurrence of various kinds of complications, especially long-term complications, so that maximum effort is needed to prevent the occurrence of complications, the main key to delaying even preventing complications of diabetes mellitus is by controlling blood sugar [12]. Besides that we also need to improve the quality of life of patients. So the goal of managing patients includes two important things, namely metabolic control and quality of life of patients[9]. Recurrence of diabetes mellitus can be done in many ways to reduce recurrence. One of them is self regulation, where the method of self regulation is

a person's self control process in controlling behavior and monitoring behavior to achieve certain goals by using strategies and involving physical, cognitive, motivational, and social elements. Components which also constitute self regulation include: self monitoring/ self observation and self evaluation/judgmental process [8].

Self monitoring/self observation is a process where individuals observe and feel sensitivity to everything about themselves and their environment [4]. Self evaluation / judgmental process is how a person evaluates himself against his behavior in the surrounding environment. Self response is someone who can evaluate themselves positively or negatively, cognitive function makes a balance that can evaluate positive or negative becomes less meaningful individually [9].

Materials and Method

This study uses a pre-experimental pre-post test design. The study population was all DM patients in Bulurejo Village, Diwek District, Jombang Regency with a sample of 30 respondents. The sampling technique is purposive sampling. The variables of this study include: self regulation and glycemic control. Glycemic control data collection using laboratory tests HbA1c levels.

The process of data collection begins first by selecting prospective respondents and given the opportunity to understand about research. Filling out the questionnaire sheet for the pre test is done after the prospective respondent gives approval, then the HbA1c value is measured by the family.

Respondents were then given self regulation interventions, after the intervention period was completed, the researcher conducted a post test on the respondents of the study by measuring HbA1c levels. The collected data is then processed by the researcher and analyzed for the results and conclusions of the study using the Wilcoxon test.

Research Result

The results of the study of the effects of self regulation on glycemic control of patients with type 2 diabetes mellitus in the village of Bulurejo, District of Diwek, Jombang Regency, collected data including general data such as age, gender, education and employment.

Table 1 Characteristics of Age

No.	Age	f	%
1.	<20 year	0	0
2.	20-35 year	6	20,0
3.	>35 year	24	80,0
Total		30	100

Table 2. Characteristics of Education

No.	Education	f	%
1.	Elementary School	8	26,7
2.	Junior High School	8	26,7
3.	Senior High School	9	30,0
4.	Diploma/Bachelor	5	16,7
Total		30	100

Characteristics of respondents based on education according to the results of research as shown in table 3, it is known that almost half of them have high school education, namely as many as 9 respondents or 30%.

Table 3. Characteristics of Job

No.	Job	f	%
1.	Does not work	6	20,0
2.	Farmer	6	20,0
3.	Entrepreneur	14	46,7
4.	Civil Cervant	4	13,3
Total		30	100%

Characteristics of respondents based on work according to the results of the study as shown in table 4, it is known that half of them have self-employment, namely as many as 14 respondents or 46.7%.

Table 4. Characteristics of HbA1C

No.	HbA1C	Pre	
		f	%
1.	Controlled	2	6,7
2.	Not controlled	28	93,3
Total		30	100

[1] Characteristics of respondents based on HbA1C levels according to the results of the study as shown in table 4, it is known that before the intervention almost all respondents had uncontrolled HbA1C levels of 28 respondents or 93.3%.

Table 5. Characteristics of HbA1C

No.	HbA1C	Post	
		f	%
1.	Controlled	6	20,0
2.	Not controlled	24	80,0
Total		30	100

[1] Characteristics of respondents based on HbA1C levels according to the results of the study as shown in table 5, it is known that after intervention almost all respondents had uncontrolled HbA1C levels of 24 respondents or 80%.

Table 6. Crosstab of HbA1C

No.	Pre	Post				Total	
		Controlled		Not Controlled			
		f	%	f	%	N	%
1.	Controlled	2	6,7	0	0	2	6,7
2.	Not controlled	4	13,3	24	80,0	28	93,3
Total		6	20,0	23	80,0	30	100
	p=0,046 (p<0,05)						

Characteristics of respondents based on HbA1C levels in accordance with table 7 shows that almost all respondents before the intervention and after intervening remained had uncontrolled HbA1C levels of 24 respondents or 80% and a small proportion of respondents before intervention and after intervention had controlled HbA1C levels namely as many as 4 respondents or by 13.3%.

Discussion

[10] Glycemic control of diabetes mellitus patients before self regulation

[10] Glycemic control in people with diabetes mellitus based on the results of research before giving self regulation shows that almost all of the study respondents had uncontrolled glycemic control and only a small proportion of the study respondents had controlled glycemic control.

Self-care for people with diabetes mellitus is a process of developing knowledge or awareness to learn [3] survive the complex nature of diabetes mellitus and self-care in people with diabetes mellitus should be directed related to healthy food behavior, physically active, monitoring blood glucose levels, appropriate treatment, problem solving with healthy coping, as well as behaviors that reduce risk (Shrivastava, 2013).

Poor control of glucose metabolism is characterized by increasing blood sugar levels or hyperglycemia [6].

The results of the study also showed that almost all respondents were over 35 years old and a small percentage were under 35 years old.

States that there are several factors that can affect the glycemic control of people with diabetes mellitus such as type of diabetes, type of treatment, degree of control to be achieved, age of the patient, available facilities, knowledge and motivation of the patient [3].

The age factor according to the researcher influences the condition of the respondents' glycemic control. Although no age-related analysis was carried out, the age of respondents according to the researchers significantly contributed to uncontrolled glycemic control conditions because knowledge and attitudes with increasing age play a role in shaping a person's health behavior, although there are also other factors that influence health behaviors such as personality systems, experiences, customs held by individuals and the existence of supporting factors or conditions that allow such adequate facilities [7].

Glycemic control of diabetes mellitus patients after self regulation

Glycemic control in people with diabetes mellitus based on the results of the study after being given self regulation showed that almost all of the study respondents had uncontrolled glycemic control and only a small proportion of the study respondents had controlled glycemic control.

States that one of the factors that influence self regulation is an environment that depends on the form of support from the environment, the existence of family support coupled with health workers causes the client's controlled self regulation to be high because of two sources of support that trigger pressure greater for self-regulation, support from health workers in the form of monitoring the course of therapy triggers patients to try to meet external demands, namely managing diabetes mellitus well. People with diabetes mellitus should get education about self-care because it is important to support self care, their glycemic control and education is an important element because it helps optimize blood glucose control to prevent complications [2]. This is also supported by the opinion of Shrivastava, who states that self-care of people with diabetes mellitus is a process of developing knowledge or awareness to learn to survive

the complex nature of diabetes mellitus and self care in people with diabetes mellitus. physical, monitoring blood glucose levels, appropriate treatment, solving problems with healthy coping, and reducing risk behavior [12].

The results of the study also showed that almost half of the study respondents had education at the high school, junior high and elementary levels and only a small proportion possessed education at the level of D3 or Bachelor. Knowledge or cognitive is a very important domain for the formation of a person's actions or behavior. The patient's knowledge of diabetes mellitus is a tool that can help patients to manage diabetes during their lives so that more and more people understand the disease better understand how to change their behavior [14]. Education and training for people with diabetes mellitus is an education about knowledge and skills for people with Diabetes Mellitus to support behavior change, improve understanding of the disease so that optimal health is achieved, adjusting psychological conditions and improving quality of life [13].

Age factors according to researchers although in this study no statistical analysis was conducted, educational factors also contributed to changes in glycemic control conditions in people with diabetes mellitus. Patients who have higher education will be able to receive the knowledge provided through education, so that it will change the mindset of patients and can increase knowledge about diabetes mellitus and management. In addition, with a good education base, people with diabetes mellitus will be easier and able to respond well to any intervention given so that changes in the condition of the glycemic control are able to change to be controlled. However, the absence of significant changes related to the condition of glycemic control in respondents indicates that management in Diabetes Mellitus patients does not only focus on one model or intervention method, but also requires treatment, care or education and requires a comprehensive approach in an effort to meet complex needs. for Diabetes Mellitus patients both physiological related needs, education and psychological support [14].

Effect of Self Regulation on Glycemic Control in People with Diabetes Mellitus

Glycemic control based on the results of the study showed that almost all respondents after self regulation still had uncontrolled glycemic control as many as 24 respondents but the results of the analysis statistically

...wed that there was an effect of self regulation on glycemic control in people with diabetes mellitus.

Management of Diabetes Mellitus to prevent complications includes 5 pillars, namely eating planning, physical exercise, medication, counseling, and monitoring glucose levels themselves, management of this Diabetes Mellitus must be done for life so often patients are not obedient and tend to become discouraged [10]. The characteristics of people who are able to perform self-regulation properly depend on one of them is the regulation of emotions, a process that always checks or intentionally changes feelings that might lead to counterproductive behavior [11].

Sudden changes in life related to the management of disease treatment and care for people with diabetes mellitus who have to undergo routine life make people with diabetes mellitus lead to the emergence of several negative psychological responses such as anger, feeling useless, increasing anxiety, and stress. Such conditions according to researchers indeed play an important role in the ability of patients to carry out self-care management and if they are able to do so the results they get can be seen one of which is a controlled blood glucose condition[7].

Glycemic control based on the results of the study showed that a small proportion of respondents who had glycemic control from uncontrolled became controlled after being given self regulation and respondents who before being given self regulation had controlled glycemic control and after that remained constant controlled [11].

Controlled self regulation is caused by interpersonal or intrapsychic pressure [5]. One form of self regulation is external, one example of this external form of self-regulation is that people are involved in an activity or pursue goals to meet external demands, avoid punishment, or get prizes [4].

Controlled self regulation according to researchers is influenced by external factors that cause a person to experience pressure so that they conduct self regulation. This is what distinguishes patients who get support only from families. Patients who get support from the family feel that they do not get support from health workers in undergoing therapy so that the external demands they feel are fewer, this causes respondents to have low self-regulation so that the ability to change glycemic control conditions is affected[3].

Conclusions

Glycemic control of diabetes mellitus sufferers is almost entirely before uncontrolled self regulation. Glycemic control of people with diabetes mellitus are almost entirely partially before uncontrolled self regulation is given but there are changes. Self regulation affects the glycemic control in people with diabetes mellitus

Conflict of Interest : None

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