



Factors related to controlled blood sugar levels in diabetes mellitus patients at Hospital

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Article Info	ABSTRACT
Article history: Received Oct 28, 2022 Revised Nov 24, 2022 Accepted Nov 30, 2022 Keywords: Charonic; Diabetes mellitus; exposure; Patients; Proximity exposure.	Chronic disease is a disease condition or health problem related to symptoms or disabilities who need long-term management. The results showed that there were 75 people from 54 (72.0%) patients with diabetes who controlled their blood sugar levels, while 21 (28.0%) patients with diabetes who were not their blood sugar levels under control. Thus, the proportion of patients with uncontrolled blood sugar levels is more than in patients who do not have blood sugar levels under control. In addition, based on data analysis using chi square analysis, correlation and logistic regression obtained results indicate that there is no relationship between knowledge, education, proximity and exposure to sources of information, food intake, physical activity of the patient, the patient's drug intake, as well as other complications of disease (P value = 0.622; 0.612; 0.743; 0.903; 0.564; 0.503; 0.649) with control of blood sugar levels. Based on these research results suggest the author's family to better provide support to members who have diabetes in the family to perform control of blood sugar levels. For health workers in order to further enhance socialization, counseling and services in the management of diabetes mellitus to patients' blood sugar levels can be controlled, so as to improve health status.

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1. INTRODUCTION

Chronic disease is a medical condition or health problem associated with symptoms or disability that requires long-term management. Passive lifestyle changes, consuming foods high in fat, cholesterol, smoking and high stress, are reported to increase the incidence of chronic diseases (Smeltzer & Bare, 2002). One disease that is categorized as a chronic disease is Diabetes Mellitus (DM).

Diabetes Mellitus is said to be a collection of anatomic and chemical problems which are the result of a number of factors in which absolute or relative insulin deficiency and impaired insulin function are obtained (WHO, 2002 in the integrated management of diabetes), while according to the American Diabetes Association (ADA) 2003, Diabetes Mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both. The diagnosis of Diabetes Mellitus will generally be established if there are typical symptoms of diabetes mellitus in the form of polyuria, polydipsia, weakness and decreased body weight. Other

symptoms that are often encountered by patients are tingling, itching, blurred vision and impotence in males and pruritus vulvae in female patients. If there are typical complaints and symptoms and the finding of blood sugar when > 200 mg/dl is enough to establish the diagnosis of Diabetes Mellitus. The results of HbA_{1c} examination $\geq 8\%$ can also be used as a benchmark for the diagnosis of Diabetes Mellitus (PERKENI, 2002).

Based on data from a government general hospital in Jakarta, the number of Diabetes Mellitus patients from 2007 to May 2009 was 1,504 Diabetes Mellitus cases with the following details: in 2007 there were 631 Diabetes Mellitus patients consisting of 32 type-1 and 599 type-2 Diabetes Mellitus patients, while in 2008 it increased, namely there were 699 Diabetes Mellitus patients consisting of 17 type-1 Diabetes Mellitus patients and 682 type-2 Diabetes Mellitus patients, while from January to in May 2009, there were 229 diabetes mellitus patients consisting of 6 type-1 diabetes mellitus patients and 223 type-2 diabetes mellitus patients. From the data above it can be concluded that the situation due to cases of diabetes mellitus has increased (Asdie, 2009).

The results of the situation analysis carried out at the Fatmawati General Hospital also showed an increase in Diabetes Mellitus patients taking treatment at the Fatmawati General Hospital, both outpatient and inpatient treatment. The number of Diabetes Mellitus patients who were hospitalized at Fatmawati General Hospital from January to December 2008 was 421 people, with the grouping of Diabetes Mellitus type-1 there were 77 people and Diabetes Mellitus type-2 there were 344 people. From January to September 2009, the number of Diabetes Mellitus patients was recorded at 330 people, with the grouping of type-1 Diabetes Mellitus there were 44 people and Type-2 Diabetes Mellitus there were 286 people. From these data, if the average number of Diabetes Mellitus patients treated in 2008 was 35 people/month,

The results of a preliminary study conducted on 5 people with Diabetes Mellitus showed that: 3 people initially did not realize that they had Diabetes Mellitus, their blood sugar was controlled because in the process of treatment the patient carried out proper treatment recommendations such as doing regular physical activity/exercise, taking medication regularly, but did not do the DM diet recommendations properly. Meanwhile, in 2 patients, their blood sugar levels were not controlled because the patients did not take medication recommendations properly, such as not exercising regularly, not taking medication according to the schedule or instructions from the doctor, and not following the recommended diet for DM patients. Controlling blood sugar in people with Diabetes Mellitus will be related to dietary factors or meal planning, because nutrition is related to Diabetes Mellitus. This is because Diabetes Mellitus is a chronic disorder of the metabolism of macro-nutrients, namely carbohydrates, proteins and fats with the characteristics of a high concentration of sugar in the blood even though the stomach is empty, as well as a very high risk of arteriosclerosis or thickening of the walls of the arteries with accumulation of fatty substances, and deterioration of nerve function.

Diabetes Mellitus patients need to get better attention from the sufferers themselves, their families, and the medical team, especially in their management, because there are quite a lot of prevalence and complications (Tjokroprawiro, 1993). If glucose levels are left uncontrolled, Diabetes Mellitus will cause complications that can be fatal including heart disease, kidney disease, blindness and amputation (Pranadji, 2002). In addition, Diabetes Mellitus can also cause stroke, because this disease is often accompanied by an increase in cholesterol and triglycerides which can result in death (Wirakusuma, 2001).

Diabetes Mellitus which aims to support behavior in increasing understanding of controlling blood sugar levels, one of which is an understanding of eating arrangements and/or physical activity in Diabetes Mellitus patients so that complications or complications that may arise due to Diabetes can be prevented.

2. RESEARCH METHOD

This study will link the dependent variable and the independent variable, namely factors related to controlled blood sugar levels in Diabetes Mellitus patients which include factors of knowledge, education, closeness and exposure to sources of information (for example having a family with a medical background or having a place living close to a health care facility such as a health center or health center), eating habits, physical activity or exercise, drug intake and complications with other diseases. While the dependent variable in this study is the controlled blood sugar levels of Diabetes Mellitus patients.

Research Hypothesis

There are several hypotheses in the study, namely: a. There is a relationship between knowledge and controlled blood sugar levels in Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009. b. There is a relationship between education and controlled blood sugar levels of Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009, c. There is a relationship between closeness and exposure to health information sources with controlled blood sugar levels of Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009 d. There is a relationship between the amount of physical activity and controlled blood sugar levels of Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009 e. There is a relationship between drug intake and controlled blood sugar levels in Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009 f. There is a relationship between food intake and controlled blood sugar levels of Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009. g. There is a relationship between complications of other diseases and controlled blood sugar levels of Diabetes Mellitus patients at Fatmawati General Hospital (RSUPF) in 2009.

3. RESULTS AND DISCUSSIONS

Design or research design is the whole of planning to answer research questions and anticipate some difficulties that may arise during the research process (Burn & Grove, 1991; Notoatmodjo, 2007). This study used a cross-sectional study design to look at the factors that influence controlled blood sugar levels in patients with Diabetes Mellitus. Cross sectional studies include all types of research where the variables are measured only once, at one time. There was no follow-up in this study (Setiadi, 2007).

The reason for using this study design is because of its advantages, including: a. The main advantage of the cross-sectional design is that it allows use of the general population, not just seeking treatment, until generalization is sufficient

b. This design is relatively easy, inexpensive, and results can be obtained quickly c. Can be used to examine multiple variables at the same time

d. Not threatened with loss to follow-up (drop out) e. Can be used as a basis for further research that is more conclusive.

Sample

The research sample is part of the entire object under study and is considered to represent the entire population (Notoatmodjo, 1993:75; Setiadi, 2007). Meanwhile, according to Aziz Alimul Hidayat (2008) the research sample is part of the population to be studied or part of the number of characteristics possessed by the population.

Sampling technique

Sampling in this study used probability sampling, which is a technique that provides equal opportunities for members of the population to be selected as samples, using consecutive sampling techniques, namely selecting samples by specifying subjects who meet the research criteria to be included in the research sample for a certain period of time, so that the required number of samples is met. The samples taken or used in this study were based on inclusion criteria, namely the general characteristics of research subjects from a target and reachable population to be studied.

Description of research locations and samples

This chapter describes the results of research on the factors that influence controlling blood sugar levels in Diabetes Mellitus patients at the Internal Medicine Polyclinic at Fatmawati General Hospital (RSUP) in November 2009. This research was conducted within 3 weeks. The sampling location in this study was carried out in the internal medicine polyclinic room, outpatient installation at the Fatmawati General Hospital (RSUP). The number of patients who control or undergo treatment at the internal medicine polyclinic, outpatient installation in November 2009 was 500 people. In this research,

Prior to conducting this research, the researcher first tested the validity and reliability of the questionnaire at the hospital where the characteristics of the respondents were the same as the characteristics of the respondents at the research site, namely the Regional General Hospital (RSUD) Tangerang. Test the validity and reliability of this questionnaire was carried out.

Univariate analysis

a. Control of blood sugar levels

Control of blood sugar levels is defined as a condition where the blood sugar level of a client or patient with Diabetes Mellitus can be controlled, which is seen or measured through the results of observing the HbA_{1c} value on the results of laboratory tests in the patient's medical record in the outpatient clinic. Then grouped into two categories namely controlled/controlled and uncontrolled/uncontrolled. Based on the results of data analysis, it was found that controlling blood sugar levels in patients with Diabetes Mellitus were: 54 patients (72.0%) whose blood sugar levels were controlled and 21 diabetics whose blood sugar levels were not controlled (28.0%) October 2009, the number of samples used was 10% of the number of samples used in the study, namely 10 people. The results of the validity and reliability tests show that there are several questions that are invalid and unreliable, namely on the variables of drug intake, food intake so that the context of the question is changed/modified.

Table 1. Frequency distribution of respondents based on controlled blood sugar levels in diabetes mellitus patients at the Internal Medicine Polyclinic at Hospital

Variable	Categorical	Amount	Percentage (%)
under control sugar	Controlled	54 o people	72.0

levelblood	Not controlled	21 people	28.0
Total		75 people	100%

Based on the results of data analysis, it was found that patient knowledge was grouped/categorized into 3 namely: patients with less knowledge (if the score obtained was <56%) totaling 0 people (0%), patients with sufficient knowledge (if the score obtained was between 56% - 75 %) amounted to 1 person (1.3%), and patients with good knowledge (if the score obtained was between 76% -100%) amounted to 74 people (98.7%).

Drug intake

Based on the results of data analysis, it was found that the majority of Diabetes Mellitus patients, in controlling their blood sugar levels, took drugs not according to the doctor's/medical team's instructions as many as 40 people (53.3%) while patients who took drugs according to the doctor's/medical team's instructions were 35 people (46.7%).

Table 2. Frequency distribution of respondents based on drug intake in patients with diabetes mellitus with controlled blood sugar levels at the Internal Medicine Polyclinic at Hospital

Variable	Category	Amount	Percentage (%)
Patient drug intake	According to the instructions	35 people	46,7
	Not according to instructions	40 people	53,3
Total		75 people	100%

Bavarian analysis

- a. The relationship between knowledge and controlled blood sugar levels in diabetes mellitus patients

The results of the analysis of the relationship between knowledge and controlled blood sugar levels in Diabetes Mellitus patients showed that, of the 75 Diabetes Mellitus patients, most of them had good knowledge. Fifty four (54) or 73.0% of the 74 Diabetes Mellitus patients who had good knowledge had their blood sugar levels under control and as many as 0 (0%) of 1 Diabetes Mellitus patients who had sufficient knowledge had their blood sugar levels controlled.

The results of the statistical test between knowledge and controlling blood sugar levels in Diabetes Mellitus patients obtained P value > 0.05, namely 0.622. It can be concluded statistically that there is not enough evidence to state that there is a relationship between knowledge and controlled blood sugar levels in Diabetes Mellitus patients.

For more details can be seen in table 5.8:

Table 3. The relationship between knowledge and controlled blood sugar levels in patients with diabetes mellitus at the Internal Medicine polyclinic at Hospital

It's Controlled Blood Sugar								OR(95%CI)	P Value
Patient Knowledge	Level				Total				
	Under Control		Notunder Control						
	N	%	N	%	N	%			
Pretty	54	-	1	100	1	100	2,571	0.622	
Good			20	27.0	74	100			
Amount	54	72.0	21	28.0	75	100			

4. CONCLUSION

From the results of statistical analysis, it was found that: the majority of respondents had good knowledge, namely 74 people (98.7%), the average highly educated (SMA & PT), namely 18 and 35 people respectively. From the results of this study also, it was found that 46 people (38.7%) respondents did not find it easy to get health information, 51 people (68%) did not eat according to recommendations, 45 respondents whose physical activity did not match recommendations (60.0%), respondents whose drug intake did not comply with instructions were 40 people (53.3%), and respondents who had other disease complications were 9 people (12.0%) of the 75 total number of respondents. Based on the results of this analysis, statistically it can be concluded that.

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