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Self Care Profile of Diabetic Patient during Covid 19 Pandemic in Manggarai Regency, East Nusa Tenggara

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Abstract

Diabetes mellitus (DM) is one of the comorbid diseases commonly found on COVID-19 infected individuals and causing the most death. In the pandemic era, DM patients are needful to execute the care management by themselves due to the social restriction as a part of transmission control. This study aimed to assess the self-care behavior of DM patients during the COVID-19 pandemic era in Manggarai Regency who still carry out various traditional ceremonies even during the pandemic. This study was a quantitative descriptive study. The data get by the SDSCA (The Summary of Self-Care Activities) questionnaire developed by the General Service Administration (GSA) Regulatory Information Service Center (RISC). This study attended from January to March 2021, with 88 respondents had participated after being recruited using purposive sampling and inclusion criteria. Among the 88 respondents, the respondents were most compliant with eating restrictions on sugar-contained food such as cake, chocolate, biscuit, and ice cream diet. Respondents did not restrict themself to consume carbohydrate contained foods. Self-care behavior is most important to DM patients in the pandemic era due to the social restrictions creating the hesitancy among the patients to come to the health care facilities. Moreover, when DM patients are more prone to develop severe symptoms of covid-19. Health professionals have to improve the health education to the patients by emphasizing the importance of exercise, diabetic foot care, and routine blood sugar monitoring so that the patients are not only focused on dietary management and medicine.

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INTRODUCTION

Diabetes Mellitus (DM) is one of significant health issues in every country (Fujiwara, 2011). The amount both of type 1 and type 2 diabetes mellitus patient is gradually increasing, reaching approximately 220 million people globally (Ali et al, 2012 in (Holt, 2014). If this trend continues, in 2030 it is estimately increasing into 366 million people living with diabetes mellitus (Wild, et al, 2004 in (Holt, 2014)). According to the data from Centers for Disease Control and Prevention (CDC), prevalence of type 2 DM in US is around 24 million people, with the estimation of 57 million adults are at risk to suffer from type 2 DM (Peterson & Virden, 2013). In 2013, the prevalence of diabetes mellitus patient is 382 million people (IDF, 2013), with the rate of type 2 DM take the 95% and remaining 5% is type 1 DM (CDC, 2012). A population study conducted by WHO in 2013 showed that Indonesia placed in the 7th of countries with most DM patients with the number of patients around 8,5 million people and it is estimated to rise into 21,257 million people by 2030 (IDF, 2013). More than 180 million people lives with DM around the world, this number is predicted to increase twice by 2030 if the DM case management is uncontroled and it would cost directly and indirectly as much as 174 million US dollar annually (Sheridan, 2012).

Diabetes mellitus is defined as progressive chroic disease, a major health issues, not only due to its' major prevalence but also its' serious complication to both macrovascular and microvascular (Fujiwara, 2011).

In December 2019, a newly found virus causing acute respiratory disease emerges. Known as SARS-Cov-2 or *Coronavirus*. This virus firstly found in Wuhan, China and spread rapidly across the 150 countries causing more than 10.000 deaths(Fadini, G.P, Morieri, M.L, et al, 2020).

It is already known that DM is the most common comorbid disease to corona virus infected people and causing the mortality to people infected with the virus. Person with DM and covid-19 is causing increase number of morbidity and mortality compares to covid-19 infected person without DM (Obukhov, A.G, Stevens, B.R, Prasat, Ram, et al, 2020). A study from Zhou, Fei, et al in 2020 on 191 Covid-19 positive patient, obtained that 137 people recovered, 54 deaths. 91 people with comorbidities namely hypertension 58 people (30%), diabetes 36 people (19%) and the remaining 15 people (8%) with coronary heart disease.

Covid 19 in Indonesia is transmitted rapidly. The data from National Task Force for Covid-19 in 22 June 2021 stated that the number of positive confirmed covid-19 in Indonesia reaches 2 million cases. The highest number of cases are in DKI Jakarta province as much as 482.264 (23.9%) cases, and the lowest is East Maluku province as much as 4.749 (0.2%) cases. Manggarai regency is one of the regencies in East Nusa Tenggara Province. The data from NTT covid-19 task force stated that on July 26, 2021 total confirmed cases is as much as 18.370 cases and in Manggarai, as much as 391 confirmed cases in 26 June 2021. Until March 23, 2021, there are 16 covid-19 infected deaths in Manggarai (Florespedia,com, 2021), several of them are with DM as comorbidities, heart disease and hypertension. Apart from comorbid diseases, the increase in cases in Manggarai who still carry out various traditional ceremonies even during a pandemic, the people of Manggarai also consume many types of foods that trigger diabetes mellitus such as rice, pork, palm wine, and smoking. People with DM admit to feel anxious to go to the public health center or hospital during covid-19 pandemic due to the increasing transmission to the unsymptomatic person and DM being the comorbidity disease that increase complication when infected. Thus, the DM patients tend to stay at home during this particular time. DM aqcuires comprehensive caree not only from nurses but also from the patient themselves. "Self Care" Theory by Dorothea Orem states that self-agency is an individual's ability to maintain health status including DM patients. Plenty of social gathering and traditional rite during pandemic create the extra consideration of care to DM patients on their health status. By identify the self-care profile of DM Patients, the further health management could be developed. This study aimed to assess the self-care behavior of DM patients during the COVID-19 pandemic era in Manggarai Regency who still carry out various traditional ceremonies even during a pandemic.

METHODS

This study was a descriptive quantitative study. The analysis used descriptive method to describe the numbers resulted in this study. The population

in this study was type 2 DM patients in Kota Public Health Center, Manggarai Regency. The sample in this study was 88 respondents. The inclusion criteria was respondent who were willing to participate in the study. Exclusion criteria was the DM patients who were unable to do independent daily activity. The Instruments used in this study was the SDSCA (Summary of Diabetes Self-Care Activities). The Summary of Diabetes Self-Care Activities (SDSCA) questionnaire was the most widely used tool for assessing diabetes self-care activities. The SDSCA has been tested in Bahasa Indonesia based on researcher Sugiharto, dkk on 2019, and declared valid and reliable to be used by healthcare providers to assess the self-care activities of patients with T2DM in Indonesia in outpatient departments in hospitals or community settings, and it can be used as a research instrument. SDSCA questionnaire contained 17 questions covers diet, exercise, foot care, medication and blood sugar level monitoring. The scoring of each items using numeric scale with the period of assessment was on one last week documented as 0-7 day. The favourable question the scoring of number of days are such as 0=0, 1=1, 2=2, 3=3, 4=4, 5=5, 6=6 dan 7=7 (this scoring applies to the question number 1, 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, and 17) while for unfavourable question, the scoring for number of days are such as 0=7, 1=6, 2=5, 3=4, 4=3, 5=2, 6=1 dan 7=0 (this scoring applies to question number 3 and 11).

Ethical Clearance

This study has been an ethical publication by the Ethical Commission of Indonesian Catholic University of St. Paul Ruteng under Deputy 1 Educational, Research, and Social Services with the Ethic Clearance No.30/SK-IIIa/WAREK I-02/k/07/21.

RESULT

1. Characteristics of People With Diabetes Mellitus in Manggaray Regency

Table 1 Demographic Data (n=88)

Variable	Classifications	n	%
Age	Early adult (36-45 years old)	13	13.6
	Late adult (46-55 years old)	23	29.5
	Elder (56-65 years old)	24	27.3
	Oldest elder (>65 years old)	28	29.5
Gender	Male	42	47.7
	Female	46	52.3
Education level	Elementary school	18	20.5
	Junior high school	42	47.7
	Senior high school	8	9.1
	Higher education	20	22.7
Occupation	Civil servant	16	18.2
	Private employee	6	6.8
	Enterpreneur	6	6.8
	Housewife	4	4.5
	Farmer	26	29.5
	Retired worker	4	4.5
	Unemployed	26	29.5
The length of DM diagnosis	< 5 years	56	63.6
	5 – 10 years	20	22.7
	>10 years	12	13.6
Complications	Yes	28	31.8
	No	60	68.2

Variable	Classifications	n	%
Complication category	No complication	66	75.0
	Stroke	4	4.5
	Heart disease	6	6.8
	Hypertension	8	9.1
	Cataract	2	2.3
	Renal failure	2	2.3

Source : Primary Data

Based on Table 1, demographic data of respondents, the majority of respondents are >65 years old as much as 14 respondents (29.5%), female as much as 23 respondents (52.3%), education level junior high school as much as 21 respondents (47.7%), majority are not currently employed as much as 13 respondents (29.5%), the length of DM diagnosis <5 years is as much as 28 respondents (63.6%), without complications is as much as 30 respondents (68.2%).

2. Distribution based on respondent's answer to each question items

Table 2 Frequency Distribution Based on Respondent's Answer to Each Question Items

No.	Question	Days																N (%)
		0		1		2		3		4		5		6		7		
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
1	DIET The average days in the last one month, how many days in the last one week do you plan diet?	10	11.4	0	0	2	2.3	10	11.4	4	4.5	8	9.1	2	2.3	52	59.1	88 (100)
2	How many days of last 7 days do you consume fruits and vegetables?	0	0	4	4.5	6	6.8	2	2.3	8	9.1	8	9.1	8	9.1	52	59.1	88 (100)
3	How many days in the last 7 days do you consume high fat contain foods (beef, goat meat, pork, fast food) or milk contained product (cheese, creame, yoghurt, margarine)?	8	9.1	16	18.2	30	34.1	16	18.2	10	11.4	2	2.3	4	4.5	2	2.3	88 (100)
4	How many days of the last 7 days do you manage the consumption of carbohydrate contained food	8	9.1	0	0	6	6.8	14	15.9	2	2.3	4	4.5	2	2.3	52	59.1	88 (100)

No.	Question	Days																N (%)
		0		1		2		3		4		5		6		7		
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
	(rice, bread, noodle, corn, cassava)?																	
5	How many days in the last 7 days you follow the recommended healthy diet?	0	0	0	0	8	9.1	10	11.4	10	11.4	6	6.8	2	2.3	52	59.1	88 (100)
6	How many days in the last 7 days do you consume sugar contained snacks (cake, biscuit, chocolate, ice cream)?	12	13.6	12	13.6	32	36.4	12	13.6	6	6.8	2	2.3	6	6.8	6	6.8	88 (100)
7	EXERCISE How many days in the last 7 days do you do exercise (doing laundry, broom-ing, mopping, dry clothes) at least 30 minutes?	22	25.0	2	2.3	6	6.8	10	11.4	2	2.3	2	2.3	4	4.5	40	45.5	88 (100)
8	How many days in the last 7 days do you join specific exercise session (swimming, walking, cycling) beside house chores?	36	40.9	6	6.8	12	13.6	16	18.2	2	2.3	0	0	0	0	16	18.2	88 (100)
9	FOOT CARE How many days in the last 7 days do you check your feet?	16	18.2	6	6.8	16	18.2	4	4.5	8	9.1	10	11.4	0	0	28	31.8	88 (100)
10	How many days in the last 7 days do you check the in-ner of your shoes??	34	38.6	8	9.1	8	9.1	8	9.1	6	6.8	4	4.5	0	0	20	22.7	88 (100)
11	How many days in the last 7 days do you dry the foot finger gaps after washing it?	24	27.3	4	4.5	8	9.1	2	2.3	6	6.8	6	6.8	2	2.3	36	40.9	88 (100)

No.	Question	Days																N (%)
		0		1		2		3		4		5		6		7		
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
12	How many days in the last 7 days do you use footwear when go outside the house?	0	0	2	2.3	0	0	0	0	2	2.3	4	4.5	0	0	80	90.9	88 (100)
13	How many days in the last 7 days do you do use lotion or apply moisturizer in your feet?	20	22.7	2	2.3	6	6.8	8	9.1	6	6.8	6	6.8	0	0	40	45.5	88 (100)
14	MEDICATION How many days in the last 7 days do you take the recommended DM medicine?	2	2.3	2	2.3	10	11.4	6	6.8	2	2.3	4	4.5	0	0	62	70.5	88 (100)
15	Do you use insulin? If yes, in the last 7 days do you use insullin as recommended for you?	56	63.6	2	2.3	2	2.3	2	2.3	2	2.3	2	2.3	0	0	22	25.0	88 (100)
16	BLOOD SUGAR LEVEL MONITORING How many days in the last 7 days do you check your blood sugar level as recommended by your health health workers?	10	11.4	36	40.9	12	13.6	12	13.6	0	0	2	2.3	2	4.5	12	13.6	88 (100)
17	a. If you use insulin, How many days in the last 7 days do you check your blood sugar level ?b. If you do not use insulin, How many times in the last 3 months do you check your blood sugar level routinely?	26	25.9	20	22.7	8	9.1	14	15.9	2	2.3	0	0	6	6.8	12	13.6	88 (100)

Based on Table 2 the average days of diet, the majority of respondents consume sugar contains snack such as cake, chocolate, biscuit, ice cream in 2-3 days. On the question about foot care, the average respondent's answer the lack of foot care, proved by the majority of respondents spent only 2 days of 7 days to conduct feet self-examination, check the inner of shoes, dry the finger gaps and using feet moisturizer. On the question about medication, the average days of respondents answer 2 days to consume medication as recommended bythe physicians. On the question regarding blood sugar level monitoring, respondents infrequently monitor their blood sugar level. The average days of monitoring is 1-2 days of 7 days.

DISCUSSIONS

1. Diet Behavior

Based on the study result, respondents express the effort to maintain the proper diet. Diet-related questions are numbered 1 to 6. Questions 1 and 2 show that 52 (59.1%) respondents planned their diet patterns and consumed fruits and vegetables in the last seven days. In question number 3, most respondents, namely 30 (34.1%), consume high-fat foods (beef, mutton, pork, fast food) or dairy products (cheese, cream, yogurt, butter) an average of 3 days out of 7 days. Question number 4, and five as many as 52 (59.1%) respondents in the last seven days regulate foods intake containing carbohydrates and have followed a healthy diet. Question number 6, the most respondent is 32 (36.4%) respondents consumed foods containing sugar on average only two days out of the last seven days. According to the researcher, this is due to the reason that elderly do not enjoy eating snacks and because of their illness they hesitate to consume sugar contained foods. Foods is the vital factor to modify or even increase the blood sugar level. During pandemic, the health worker-patients consultation regarding diet is difficult to be conducted. Telenursing can become the proper solution to the problem. Telenursing is developed to provide the remote nursing care and consultation to the patient due to the pandemic condition that requires mobilization restriction but patient's care have to be maintained (R,Muniyappa & S,Gubbi, 2020).

2. Exercise Behavior

In the exercise items, most of the respondents lack exercises such as walking or cycle, because on data from table 2 in question number 8 where 36 (40.9) respondents averaged two days out of the last seven days they did exercise sessions. Question number 9, as many as 40 (45.5%) respondents did the physical activity (washing, sweeping, mopping, drying) for at least 30 minutes on average the last seven days. It is assumed that it is due to the common habit of people in NTT, particularly Manggarai, taht have less interest in exercise such as walking. Even if there are people who enjoys walking, the number is very little. The alvailable exercise center only provides gym facilities unsuitable for elder as the majority of DM patients. A cohort study by Hosomi, Yukako et al in 2021 that studies the effect of Covid-19 pandemic to the life style and blood sugar control in type 1 DM patients showed the 50% decrease of exercise during the pandemic. International Diabetes Federation recommends the home exercise that can be done by DM patients such as walk up and down stairs 8 times on the minimum 6 stairs, jump rope and light weight lifting with fitness accessores such as rubber band, wirst weight, ankle weight and bag or bucket filled with weights, water filled bottle, or even little backpack filled with varied weight objects. The patient's self-care ability be affected by internal and external factors from the individual himself known as basic conditioning factors, which include: age, gender, level of development, health status, sociocultural orientation, health care system, family system, lifestyle, factors environmental factors such as physical or biological factors, and the availability and adequacy of resources (Alligood, 2014). Environment and cultural factors greatly influence people's behavior. The people of Manggarai do not want to exercise outside their homes because they are embarrassed to be seen by neighbors or road users. Nurses and patients should be able to know and understand these self-care agency related factors. Most of the people think that exercise have to be practiced outside the house such as running or walking, however, currently there are plenty of exercise done at home. Italian National Association of Athletes with Diabetes recommends the home exercise equals to one hour of speed walking and burn around 150-200 kcal. This exercise include treadmill, cycling with static cycle, weight training such as push-up, sit-up, squat, deep stationer lunges, and doing joint exercise with yoga or pilates (Strollo, Felice et al, 2016).

3. Diabetic Foot Care Behavior

Based on table 2, the question about foot care is numbers 9,10,11,12 and 13. Question number 10 is known as 34 (38.6%) respondents do not often check the inside of the shoe averaged one day out of the last seven days. Question number 11, it is known that as many as 24 (27.3) respondents do not dry between the fingers, and question number 13, it is known that 20 (22.7%) respondents do not use moisturizer/lotion on the feet. While question number 9 related to checking the condition of the feet and question number 12 related to using footwear when leaving the house, the respondent's compliance data acquire on average the last seven days. The foot care is the most important preventive measure to foot ulcer and amputation as the long term effect of DM (Urbancic, Vilma, 2021). Guidance to DM patients and diabetic feet during pandemic is to maintain the blood sugar level monitoring routinely, is necessary, obtain a glucometer to do self monitoring at home, have a sufficient hydration, dietary management to prevent hypoglycaemia, always keep the contact number of health care provider and maintain healthy lifestyle by healthy diet and regular exercise at home (Kesavan, Rajesh et al, 2020). Feet examination is aimed for early detection of nerve damage or small injury that might develop into foot ulcer in the long term (Mukona, D.M & Zvinavashe, M, 2020). The theory of "Self Care" from Dorothea Orem is a theory used by nurses to assess independently of patients in maintaining the stability of their health conditions. Foot care behavior in respondents who are still low be affected by his knowledge. Patients tend to think that it is more important to affect blood sugar control, while foot care is not fundamental.

4. Medication Behavior

Questions 14 and 15 relate to medication behavior. Based on Table 2, question number 14, the data obtained were 62 (70.5%) of respondents dutifully taking the medication recommended by doctors on average the last seven days. Question number 16, the data obtained were 56 (63.6%) of respondents do not use insulin recommended by doctors. Researcher assumed this is due to the respondent's habit to assess their health based on personal reasoning. They usually conduct the monitoring if there are symptoms, not conducted regularly and scheduled. This is potentially dangerous to the patient, not only when the blood sugar level rises but also when it decreases. The increasing and decreasing blood sugar level have the equal bad risk. DM patients with Covid-19 infection require the attentive care management. The condition of insulin balance is also by adherence to the diet. Self-care patients are crucial in using drug therapy and blood sugar control. Self-care is an activity and initiative from an individual and carried out by the individual himself in fulfilling and maintaining life, health, and well-being (Alligood, 2014).

5. Blood Sugar Monitoring Behavior

Questions related to the respondent's behavior in controlling blood sugar levels are numbers 16 and 17 (a and b). in question number 16, data obtained as many as 36 (40.9) respondents checked their blood sugar regularly according to the recommendation for an average of 1 day in the last seven days. In question number 17, 26 (25.9%) respondents who used insulin only checked their blood sugar levels on average for one day out of the last seven days. According to the researcher, the behavior of patients who rarely control their blood sugar levels is due to the COVID-19 pandemic condition that does not allow respondents to go to the public health center/clinic or hospital for check-ups. If the patient has his blood sugar control device, they can control blood sugar in the house at any time needed. The self-control of blood sugar is a crucial key of self-management based on U.S. National Standards for Diabetes Self-Management and Education Practice Guidelines (Ward, E.F.J., Stetson, B.A & Mokshagundam, S.P,L, 2015).

CONCLUSSION

The majority of patients included in this study respondents were most compliant with eating restrictions on sugar-contained food such as cake, chocolate, biscuit, and ice cream diet. Respondents did not restrict themself to consume carbohydrate contained foods. Self-care behaviour is important to DM patient in the pandemic era, due to the social restriction the patient tend to hesitate to come into health care services. Moreover, the DM patients are in a higher risk of accelerating worsened condition if exposed to Covid-19 infection. Besides, the health care worker role is the significant factor to help patient to manage their illness.

SUGGESTION

The need for further research on the correlation of long suffering of diabetes mellitus and self care behavior. More comprehensive support from health workers in the form of assistance to the community, especially in health education that focuses on exercise, foot care and regular blood sugar monitoring. Increase elderly visitation to Posyandu or Prolanis Programme

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