



## Factors Related to Dietary Arrangements of Diabetic Mellitus Patients

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### ORIGINAL ARTICLE

#### ABSTRACT

Dietary management of patients with diabetes mellitus needs special attention because it can have a direct impact on the instability of blood sugar levels. There are factors that affect the patient's ability to manage their diet. The purpose of this study was to determine sociopsychodemographic factors and the relationship with dietary management of patients with diabetes mellitus. This research is a descriptive correlative study with a cross-sectional approach. The sample used was purposive sampling. The research was conducted by giving questionnaires to respondents. The questionnaires used were a characteristic questionnaire, Self Reporting Questionare (SRQ) 20, and Food Frequency Questionare (FFQ). The data from the study were analyzed using logistic regression. The results obtained factors associated with dietary management of DM patients include occupational factors and economic status with a p-value of 0.021 and 0.042 respectively. Other factors including age, gender, education, culture, and anxiety are not associated with dietary management of DM patients (p-value 0.185; 0.855). Dietary arrangements of DM patients obtained most patients have done DM diet in accordance with the recommendations. Sociopsychodemographic factors associated with dietary management of DM patients are employment and economic status. Employment factors and economic status are modifiable factors so these factors become reinforcements for patients in managing the diet of DM patients.

**Keywords:** Diet, Diabetes Mellitus, Characteristic, Culture, Anxiety

#### ABSTRAK

Pengaturan diet pasien diabetes mellitus perlu menjadi perhatian khusus karena dapat berakibat langsung pada ketidakstabilan kadar gula darah. Terdapat faktor yang mempengaruhi kemampuan pasien dalam mengatur dietnya. Tujuan penelitian ini untuk mengetahui faktor sosiopsikodemografi dan hubungan dengan pengaturan diet pasien diabetes mellitus. Penelitian ini merupakan studi deskriptif korelatif dengan pendekatan cross-sectional. Sampel digunakan adalah dengan purposive sampling. Penelitian dilakukan dengan memberikan kuesioner kepada responden. Kuesioner yang digunakan adalah kuesioner karakteristik, *Self Reporting Questionare* (SRQ) 20, dan *Food Frekuensi Questionare* (FFQ). Data hasil penelitian dianalisis menggunakan regresi logistik. Hasil diperoleh faktor yang berhubungan dengan pengaturan diet pasien DM diantaranya adalah faktor pekerjaan dan status ekonomi dengan masing-masing p value 0,021 dan 0,042. Faktor lain meliputi usia, jenis kelamin, pendidikan, budaya, dan kecemasan tidak berhubungan dengan pengaturan diet pasien DM (p value 0,185;0,855). Pengaturan diet pasien DM diperoleh sebagian besar pasien telah melakukan diet DM sesuai dengan anjuran. Faktor sosiopsikodemografi yang berhubungan dengan pengaturan diet pasien DM adalah pekerjaan dan status ekonomi. Faktor pekerjaan dan status ekonomi merupakan faktor yang dapat dimodifikasi sehingga faktor tersebut menjadi penguat bagi pasien dalam melakukan pengaturan diet pasien DM.

**Kata Kunci:** Diet, Diabetes Mellitus, Karakteristik, Budaya, Kecemasan

## INTRODUCTION

The American Diabetes Association (ADA) in 2010 defined diabetes mellitus (DM) as a metabolic disease characterized by hyperglycemia due to abnormalities in insulin secretion, insulin action, or both (American Diabetes Association, 2010; Perkeni, 2011). Diabetes mellitus is characterized by an increase in glucose in the blood above normal (70 –140 mg/dL). Other symptoms that are often felt by diabetic patients include polyphagy (often feeling hungry), polydipsi (excessive thirst), polyuri (frequent urination) (Kemenkes RI, 2014). Diabetes mellitus is divided into two main categories, namely type 1 diabetes mellitus (*Insulin Dependent Diabetes Mellitus*) due to lack of insulin production and type 2 diabetes mellitus (*Non Insulin Dependent Diabetes Mellitus*) caused by insulin disorders that are less effective by the body (Kemenkes RI, 2014).

The management of diabetes mellitus includes eating arrangements (diet), physical exercise, lifestyle modifications, and medication consumption. Eating arrangements are carried out with the aim of regulating weight and glucose intake in patients with diabetes mellitus. Meal arrangements can be made by providing enough calories with an adequate composition. One of the implementation of dietary therapy is nutrition management or meal planning that must be carried out obediently by diabetic mellitus patients. Reduce fat consumption excessively, the required fat is  $\pm 20\%$  of the total calories, the fat should be taken from vegetable oils and a little from animal fats (Lanywati, 2011).

The type of food also needs to be considered because it determines the speed at which blood sugar levels rise. The preparation of food for diabetic mellitus patients includes carbohydrates, fats, proteins, fruits, and vegetables (Dewi, 2009). The results of previous studies showed that diet plays an important role for patients with diabetes mellitus. A person who cannot manage his diet with a setting that includes schedule, type, and amount can cause the patient to experience an increase in blood sugar levels (Suiraoaka, 2012). Another study states that blood sugar levels will increase drastically after consuming foods that contain a lot of carbohydrates and/or sugar (Nurrahmani, 2012).

Dietary arrangements in patients with diabetes mellitus need special attention because they can have a direct effect on the instability of blood sugar levels. Brunner & Suddart (2002) stated that demographic factors affect patients' compliance in making dietary arrangements in diabetic mellitus patients which include age, gender, ethnicity, economic status and education. A person's knowledge of his disease also greatly supports the patient's compliance with everything suggested by health workers for the cure of his disease. Rusimah (2011) also said that the proportion of DM diet non-adherence was more in respondents with low education than in respondents with higher education. Another opinion states that dietary regulation is influenced by perception. A good perception will motivate a person to do a good action more than someone who has a poor perception (Hasbi, 2012). One of the things that affects perception is a person's psychological state. Based on this background description, the researcher is interested in researching sociopsychodemographic factors and the relationship with the dietary regulation of diabetic mellitus patients.

## RESEARCH METHODS

This study used a correlative descriptive study with a cross-sectional approach. The research was conducted in one of the working areas of the health center in Pekalongan Regency in August-October 2022. The population were 102 respondents. The sample used purposive sampling with the inclusion criteria of respondents being DM patients who were recorded in one of the health center areas in Pekalongan Regency, had a history of DM since the last 5 years, had been treated in the hospital for DM, did not have or had never had a diabetic ulcer complication, had a single diagnosis of type 2 DM, was in good health at the time of the study, and able to read and write independently. Based on these criteria, a sample of 58 DM patients was obtained.

The research was conducted by providing questionnaires to respondents. The questionnaire was filled out by the respondents at one time and waited by the researcher until all components in the questionnaire were completely filled. The questionnaire used including a characteristic questionnaire consisting of age, gender, education, occupation, economic status, and culture. Another questionnaire used the *Self Reporting Questionnaire* (SRQ) 20 to measure

mental emotional symptoms or anxiety. The results of the validity test were obtained from the calculation  $(0.708 - 0.941) > \text{the table } (0.136)$ , while the results of the reliability test were obtained with a Cronbach Alpha value of  $0.981 > 0.688$ . Measurement of DM's dietary settings using *Food Frequency Questionnaire* (FFQ).

Data collection was carried out at one time by providing questionnaires to respondents. The time needed to fill out the questionnaire for each respondent is 30-45 minutes. Respondents who were given questionnaires were visited one by one in each house to ensure the confidentiality of data and the security of respondents in their participation in this study.

The data from the study were analyzed using univariate analysis in the form of central tendencies for age characteristics and frequency distribution for gender characteristics, education, occupation, economic status, culture, anxiety, and dietary regulation of DM. Factors related to DM dietary regulation were analyzed using logistic regression.

## RESULTS

**Table 1.** Age Characteristics

Variable	Mean	Median	Min-Max
Age	52,79	55	40-69

Table 1 shows that the respondents in this study were on average 52.79 years old with a minimum age of 40 years and a maximum age of 69 years.

**Table 2.** Overview of DM characteristics, culture of anxiety and dietary settings

Variable		n	%
Gender	Man	35	60,3
	Woman	23	39,7
	Total	58	100
Education	Not in school	3	5,2
	Elementary school	36	62,1
	Junior High School	17	29,3
	Senior High School	2	3,4
	Total	58	100
Work	Not Working	31	53,4
	Work	27	46,6
	Total	58	100
Economic Status	Low	6	10,3
	Intermediate	49	84,5
	Tall	3	5,3
	Total	58	100
Culture	Abstaining from eating	35	60,3
	No abstinence from eating	23	39,7
	Total	58	100
Anxiety	Anxious	20	34,5
	No anxiety	38	65,5
	Total	58	100
Diet Settings	Diet	37	63,8
	No Diet	21	36,2
	Total	58	100

Table 2 shows that 60.3% of the respondents were male, the most respondents were elementary school graduation of 62.1%, the working status was almost the same between those who worked and did not work, most of them were from the middle economic class, and 60.3% had the habit of abstinence from eating food. However, the level of anxiety that has

been measured is only 34.5 who have anxiety. Of the total respondents, 63.8% have done the DM diet.

**Table 3.** Factors related to the dietary regulation of DM patients

Independent Variables	Dependent Variables	p-value
Age		0,621
Gender		0,855
Education		0,185
Work	Dietary arrangements	0,021
Economic Status		0,042
Culture		0,855
Anxiety		0,476

Table 3 shows that Factors related to the dietary regulation of DM patients include occupational factors and economic status with p-values of 0.021 and 0.042, respectively. Other factors included age, gender, education, culture, and anxiety not related to the dietary arrangements of DM patients (p-value 0.185; 0,855).

## DISCUSSION

The increasing incidence of DM is also followed by a higher risk of experiencing DM complications. Prevention of DM complications can be done by controlling blood sugar levels by applying the five pillars of handling DM patients. One of the important pillars is the regulation of the DM diet.

Factors related to the dietary arrangements of DM patients are occupation and economic status. Employment and economic status are closely related to a person's income. Previous research explained that DM patients with low income followed by low adherence to the DM diet due to their inability to regulate the type of food to be consumed which is linked to the ability to prepare and buy food in accordance with the DM diet program (Rohani & Ardenny, 2018).

Age is not related to DM dietary arrangements. The age of the respondents is the category of late adulthood. This study is in line with previous research that states that age is not related to dietary adherence. As individuals get older, the perception of the importance of regulating the DM diet decreases, even though this is supported by the knowledge and experience they have (Yulia, 2015).

Most of the respondents in this study were male. Previous research has shown that male DM patients were more compliant with the DM diet than female patients (Hestiana, 2017). This is related to the role inherent in men as the head of the family who must earn a living is required to be in good health so that they can remain productive in their family. This inherent role is a motivation for male patients. However, this study showed that gender was not related to the DM diet setting. This is because the respondents are at an unproductive age so they do not have a role that requires them to maintain their productivity.

The education of the respondents was also obtained, most of them graduated from elementary school. However, from the previous study, it was explained which is also in line with this study that respondents' education is not related to DM diet adherence (Alhariri et al., 2017). Most of the respondents who were able to manage the DM diet were not affected by education because the respondents' education was elementary school. Education describes how a person's capacity to be ready to receive certain information and knowledge. The higher the education, it is hoped that a person will have an easier time receiving information about the DM diet setting.

The DM patients in this study mostly did not experience anxiety. Anxiety is not related to the dietary arrangements of DM patients. The results of the research are not in line with previous studies that stated that DM patients who can manage their diet are those who have self-confidence. Self-confidence is influenced by psychological problems, one of which is anxiety (Rahman, Yulia & Sukmarini, 2017).

Anxiety is a common condition in patients with chronic diseases. Prolonged anxiety can lead to fear and loss of trust and self-confidence resulting in a person's inability to make decisions and behave in accordance with a health program (Stonerock, et al., 2015). The

results of the study showed that the low anxiety rate in the respondents indicated that the respondents had adapted to the condition and considered their illness not as the main problem.

## CONCLUSION

Dietary arrangements for DM patients were obtained. Most patients had followed the DM diet according to the recommendations. The sociopsychodemographic factors related to the dietary arrangements of DM patients are occupation and economic status. Employment factors and economic status are factors that can be modified so that these factors are a reinforcement for patients in regulating the diet of DM patients.

Based on this study, efforts are needed to effectively manage the diet of DM patients through adequate economic management. Efforts are needed to train in economic management arrangements so that DM patients can control the behavior of DM diet management without any economic barriers being felt.

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