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ORIGINAL RESEARCH **E-ISSN:**

MONTHLY INCOME OF FAMILY, EDUCATIONAL LEVEL, KNOWLEDGE, AND EATING BEHAVIORS AMONG PEOPLE WITH TYPE 2 DIABETES MELLITUS IN SIDOARJO

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ABSTRACT

Background: Many factors can influence the choice of food and diet of people with type 2 diabetes mellitus, including personal dimensions (socioeconomic, educational level, and knowledge), behavioral pattern, and environmental characteristics (Savoca and Miller, 2001).

Purpose: This study aimed to describe and examine the relationship between monthly income of family, educational level, knowledge, and eating behaviors among people with type 2 diabetes mellitus in Sidoarjo.

Methods: The design of this study used a cross-sectional method to measure the relationship of several variables. The population in this study were all diabetics in the working area of the Sidoarjo Community Health Center. The sampling technique used is cluster random sampling. The total of samples in this study were 117 respondents with inclusion criteria, among others aged 20-60 years, can read, and want to participate in this study. Data collection using demographic data questionnaire (DDQ) for monthly income of family and educational level, eating behavior is measured by self-management dietary behaviors questionnaire (SMDBQ), and knowledge is measured by diabetes knowledge questionnaire (DKQ). The data of this study was analyzed using Pearson Correlation with significance $\alpha \leq .05$.

Results: Based on the results, it found that educational level, monthly income of family, and knowledge had positive relationship with eating behaviors ($r = .60$, $p < .001$; $r = .61$, $p < .001$; $r = .33$, $p < .001$, respectively). Educational level and monthly income of family had positive relationship with knowledge ($r = 21$, $p < .05$; $r = .31$, $p < .001$, respectively). And also, educational level had positive relationship with monthly income of family ($r = .63$, $p < .001$).

Discussion: With the results of this study, health workers are expected to create programs to improve eating behavior in people with type 2 diabetes mellitus that are adjusted to the condition of patients with type 2 diabetes mellitus.

Key words: Eating behaviors, monthly income of family, educational level, knowledge, type 2 diabetes mellitus.

INTRODUCTION

There are many factors can influence the choice of food and dietary pattern of people with type 2 diabetes mellitus. According to Savoca and Miller (2001), the factors that can influence the choice of food and dietary pattern of people with diabetes mellitus divided into 3 domains, including personal dimensions, behavioral pattern, and environmental characteristics. The factors included in the personal dimension are monthly income of family, educational level, and knowledge. Low family income is often a factor related to the cost of healthy food in the incidence of diabetes mellitus (Marcy, Britton, & Harrison, 2011).

Albarran et al. (2006) said that income, health care services, environmental insecurity and misleading "popular" knowledge are the main barriers to behavior change. People with low-income type 2 diabetes mellitus tend to have difficulty in making decisions on the food consumed and do not have the opportunity to separate the foods that should be consumed by people with type 2 diabetes mellitus with food consumed by the whole family. In addition, coupled with the lack of information obtained and the amount of information that has been trusted by people around people with type 2 diabetes mellitus and is supported by a low level of education so that people with type 2 diabetes mellitus will easily believe that information.

METHODS

Study Design

The design of this study was conducted with quantitative analytic using cross-sectional approach.

Setting

This research was conducted in the working area of the Sidoarjo Community Health Center.

Research Subject

The population in this study were all diabetics in the working area of the Sidoarjo Community Health Center. The sampling technique used is cluster random sampling. The total of samples in this study were 117 respondents with inclusion criteria, among others aged 20-60 years, can read, and want to participate in this study.

Instruments

Data collection using demographic data questionnaire (DDQ) for monthly income of family and educational level, eating behavior is measured by self-management dietary behaviors questionnaire (SMDBQ), and knowledge is measured by diabetes knowledge questionnaire (DKQ). The self-management dietary behaviors questionnaire (SMDBQ) developed by Primanda et al. (2011) consist of four dimensions with the total of statement are 33 items. The diabetes knowledge questionnaire (DKQ) consists 18 items in the potential response choices were 1) Yes, 2) No, and 3) Don't know. The Cronbach's Alpha test of self-management dietary behaviors questionnaire (SMDBQ) .83. The reliability values of diabetes knowledge questionnaire using Kuder-Richardson formula 20 (KR-20) = .61.

Data Analysis

The data of this study was analyzed using Pearson Correlation with significance $\alpha \leq .05$.

Ethical Consideration

Before collecting data, the researcher conducted ethical clearance from the Ethics Committee of Faculty of Nursing, Burapha University on December 8, 2014 number: 10-11-2557. And also obtained permission from National Unity and Politics of Sidoarjo Regency and Department of Health of Sidoarjo Regency. The authors confirmed that all respondents had obtained appropriate informed consent.

RESULTS

Characteristics of Respondents

Table 1. Distribution of Frequency of Respondents in Sidoarjo Community Health Center (n = 117).

Characteristics of Respondents	Frequency (f)	Percentage (%)
Monthly Income of Family		
M = 1,746,846.15; SD 521,828.88		
Min=750,000; Max=3,775,000		
≤ 1,000,000	12	10.30
1,000,001-2,000,000	74	63.20
≥ 2,000,001	31	26.50
Educational Level		
Primary school	1	0.90
Junior high school	21	17.90
High school	65	55.60
Diploma	7	6.00
Undergraduate	20	17.10
Graduate	3	2.60
Diabetes Knowledge Questionnaire (DKQ)		
M = 12.08; SD 2.29 High		
Self-Management Dietary Behaviors Questionnaire (SMDBQ)		
M = 75.44; SD = 10.58 Moderate		
	Mean	SD
Recognizing the amount of calorie needs	8.97	2.28
Selecting a healthy diet and amount	36.28	4.87
Arranging a meal plan	16.51	1.92
Managing dietary challenges	13.68	2.82

Based on table 1, it found that the majority of people with type 2 diabetes mellitus earned monthly income of family per month between 1,000,001-2,000,000 rupiahs (M = 1,746,846.15; SD 521,828.88), as much as 74 respondents (63,20%). More than half of people with type 2 diabetes mellitus (55.60%) completed high school. The knowledge of people with type 2 diabetes mellitus was considered as high level (M = 12.08; SD 2.29). The eating behaviors of people with type 2 diabetes mellitus was considered as moderate level (M = 75.44; SD = 10.58).

Examination of the Relationship between Monthly Income of Family, Educational Level, Knowledge, and Eating Behaviors among People with Type 2 Diabetes Mellitus in Sidoarjo

Table 2. Examination of the Relationship between Monthly Income of Family, Educational Level, Knowledge, and Eating Behaviors among People with Type 2 Diabetes Mellitus in Sidoarjo (n = 117).

	Educational level	Monthly income of family	Knowledge
Monthly income of family	.63***		
Knowledge	.21*	.31***	
Eating behaviors	.60***	.61***	.33***

Based on table 2, it found that educational level, monthly income of family, and knowledge had positive relationship with eating behaviors (r = .60, $p < .001$; r = .61, $p < .001$; r = .33, $p < .001$, respectively). Educational level and monthly income of family had positive relationship with knowledge (r = 21, $p < .05$; r = .31, $p < .001$, respectively). And also, educational level had positive relationship with monthly income of family (r = .63, $p < .001$).

DISCUSSION

Family income directly and indirectly impacts between eating behavior and health in people with type 2 diabetes mellitus (Vlismas, Stavrinos, & Panagiotakos, 2009). Low income levels and supported by a low SES environment will affect one's perception of health and produce health inequalities (Gallo, Smith, & Cox, 2006). The type of work and ability to pay for care

are often the distinguishing factors in receiving health care so that it will affect one's perception of health behavior (Shawahna et al., 2012). Income can also influence someone in making decisions in determining the food they consume. At higher income levels, some people have a tendency to choose unhealthy foods very large because there is a relationship between habits in the environment around them and also the ability to buy them (Muhammad, Karim, Othman, & Ghazali, 2013). However, there are still many of those who have high incomes, they still maintain their bodies to stay healthy.

Family income is often related to education level. This is due to the less income received by a family will provide limits for family members to get a higher education (William et al., 2010). In addition, there are a number of conditions in the community that argue that higher education is not too important and the most important thing is that someone who is old enough must be able to earn his own income. Even though with a low level of education, there is a tendency for someone to have difficulty in understanding the information obtained related to healthy living behavior. For people with diabetes mellitus, a situation where they have difficulty in understanding this information will influence decision making related to diet management that must be followed, for example, related to food choices and their eating patterns (Mocan & Altindag, 2013; Atak, Gurkan and Kose, 2008). However, such conditions can be overcome by a comprehensive approach undertaken by health workers to provide information related to management and provide an understanding of the importance of managing it (especially eating behavior) to keep the body condition of diabetics in a healthy condition (Mocan & Altindag, 2013).

The more information about his health is received, people with diabetes mellitus will have more alternative choices for the management of diabetes mellitus which is adjusted to their current condition, especially related to eating behavior. The information obtained must come from sources that can be accounted for, such as doctors, nurses, and other health workers. With the right knowledge, it is expected that people with diabetes mellitus can manage their own health and know when it is time to consult with a doctor or other health worker (Alavi et al., 2011). Provision of information related to eating behavior or diet to people with diabetes mellitus is needed to increase the knowledge of people with diabetes mellitus related to the diet that must be lived in order to prevent an increased incidence of type 2 diabetes mellitus with complications in the community (Fitzgerald, Damio, Pérez, & Escamilla, 2008).

CONCLUSION

Based on the results of the study found that there is a relationship between each variable in the study, both between educational levels, monthly income of family, knowledge, and eating behavior.

SUGGESTION

Health workers must pay attention to variables, such as educational level, monthly income of family and understanding of the information delivered, in evaluating the achievement of the proposed program. These factors are interrelated with one another, especially in terms of promoting healthy eating behavior for people with type 2 diabetes mellitus.

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