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ORIGINAL RESEARCH

ISSN: 2477-4073

## SELF-EFFICACY, PSYCHOLOGICAL STRESS, FAMILY SUPPORT, AND EATING BEHAVIOR ON TYPE 2 DIABETES MELLITUS

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### ABSTRACT

**Background:** Diabetes mellitus (DM) is one of the leading causes of death and it is caused by genetics, nutrition, and unhealthy behaviors. Therefore, changes in lifestyle associated with eating behaviors in diabetes mellitus patients greatly impact on their quality of life. There are many factors related with changes in lifestyle of diabetes mellitus patients, especially eating behaviors.

**Purpose:** This study aims to examine the relationships between self-efficacy, psychological stress, family support, and eating behaviors among type 2 diabetes mellitus (T2DM) patients in Sidoarjo, Indonesia.

**Method:** A total of 117 T2DM patients from the Sidoarjo Community Health Center were included in the analysis. Using SPSS IBM 21.0 program, Pearson product moment correlation was performed to analyze data.

**Results:** The findings showed that self-efficacy and family support had a positive relationship with eating behaviors ( $r = .692, p < .001$ ;  $r = .683, p < .001$ , respectively). Psychological stress had a negative relationship with eating behaviors ( $r = -.327, p < .001$ ).

**Conclusion:** Self-efficacy, family support, and psychological stress had relationships with eating behaviors. Nurses should pay attention to these factors that make T2DM patients having a long-term commitment in healthy eating behaviors.

**Keywords:** type 2 diabetes mellitus, related factors, food selection, meal plan

### INTRODUCTION

Diabetes mellitus (DM) is one of the leading causes of death and it is caused by genetics, diet/ nutrition (consume fast food, foods high in fat, cholesterol and low in fiber), and unhealthy behaviors

(drinking alcohol and lack of activity or sport). Diabetes mellitus, if not handled properly, will result in the onset of complications in various organs such as the eyes, heart, kidneys, leg veins, nerves, and others. Diabetes mellitus is difficult to

be controlled in good condition, but it will be more difficult if the state of diabetes mellitus exacerbated by emotional disturbances, instability home, or lack of desire to try because of the lack of motivation.<sup>1</sup> Many people with diabetes mellitus are admitted to hospital because they have an active diabetes complication, but there are still many cases of undiagnosed diabetes incidence in community.<sup>2, 3</sup>

Nutrition intervention in diabetes is one of the parts that are integral with the other treatments.<sup>4</sup> Therefore, changes in lifestyle associated with eating behaviors in diabetes mellitus patients greatly impact on their quality of life. There are many factors that related to food selection and eating patterns of diabetes mellitus patients. The factors that related with selecting foods and eating patterns are divided into 3 domains, including personal dimension, behavioral patterns and environmental characteristics.<sup>5</sup> Personal dimension is the desire of individuals to consume favorite foods when suffering emotional stress, along with nutrition-related knowledge, and lifelong history of eating beyond the point of self-satisfaction. Planning arrangements for a diabetic diet would be more effective if it involves a certain pattern of behavior, such as organizing meals in advance, alternative identification favorite foods, and learning to appropriate foods for diabetes mellitus. The aim of the study was to examine the relationships between self-efficacy, psychological stress, family support, and eating behaviors among type 2 diabetes mellitus patients.

## **MATERIAL AND METHODS**

This study was a correlational study. Before conducting the study, researcher obtained a legal permit from the Sidoarjo Health Department. The researcher asked diabetes mellitus patients'

willingness to participate, when the patients were willing to become participants, then researcher continued for collecting the data by home visit because of time limitation for collecting data in the Sidoarjo Community Health Center. Before starting data collection, the researcher explained about the human protection, purpose, and method used in this study. After declaring consent as a respondent, the researcher explained briefly about the direction to fill the questionnaire and allowed respondents to fill it out according to their own circumstances. Each respondent was given 20-30 minutes to answer each questionnaire. Data were collected during January to February 2015.

In this study, the researchers used Self-Management Diabetes Dietary Behaviors Questionnaire (SMDBQ) developed by Primanda et al for eating behaviors, modification of Diabetes Management Self-Efficacy Scale-United Kingdom (DMSES-UK) developed by Sturt et al. for self-efficacy, Diabetes Distress Scale (DDS) developed by Polonsky et al. for psychological stress, and Diabetics Social Support Questionnaire-Family (DSSQ-Family) developed by La Greca and Bearman cited in Puntsho Om for family support.<sup>6, 7, 8, 9</sup>

## **Selection and Description of Participants**

The population in this study referred to adult people who were diagnosed with T2DM from the doctor, they live in the Sidoarjo sub-district. Sidoarjo sub-district has three Community Health Centers with a total of T2DM patients were 5,788 people.<sup>10</sup> Three Community Health Center in Sidoarjo sub-district has the same characteristics of participants and by using cluster random sampling, the Sidoarjo Community Health Center was elected as the research location

with the total of T2DM patients were 3,356 people. Participants' recruitment process was performed by selecting persons with diabetes mellitus who visited the Sidoarjo Community Health Center for following up as the potential participants.

The inclusion criteria in this study were aged between 20-60 years old because diabetes mellitus in Indonesia mostly in adult group and accounted for 4.2 % of death in the age group 15-44 years in urban areas, it will give an impact on economic growth.<sup>11</sup> The participants are able to read, write, and comprehend Indonesia language. The number of participants whom the data obtained from approximately 7 up to 8 participants per day. The researcher continuously doing this until the number of participants reach 117.

## Statistical Method

In the analysis of data, the researchers used Pearson's product moment correlation to check the relationship between self-efficacy, psychological stress, family support, and eating behaviors. Statistical significance level was assumed when  $p < .05$ .

## RESULTS

This study aimed to examine the relationships between self-efficacy, psychological stress, family support, and eating behaviors among type 2 diabetes mellitus patients in Indonesia. The results of this study were presented as the followings.

**Table 1** The relationships between self-efficacy, psychological stress, family support, and eating behaviors

	Self-efficacy	Psychological stress	Family support
Overall eating behaviors	.692***	-.327***	.683***
– Arranging a meal plan	.604***	-.247**	.551***
– Selecting a healthy diet and amount	.634***	-.302**	.638***
– Recognizing the amount of calorie needs	.472***	-.332***	.570***
– Managing dietary challenges	.691***	-.281**	.628***

\*\*\*  $p < .001$ , \*\*  $p < .01$

The results showed that self-efficacy and family support had positive relationship with overall eating behaviors ( $r = .692$ ,  $p < .001$ ;  $r = .683$ ,  $p < .001$ , respectively). Psychological stress had negative relationships with overall eating behaviors ( $r = -.327$ ,  $p < .001$ ). For relationships between dimensions of eating behaviors and self-efficacy, the strongest relationship ( $r = .691$ ,  $p < .001$ ) was managing dietary challenges and followed

by selecting a healthy diet and amount ( $r = .634$ ,  $p < .001$ ). For relationships between dimensions of eating behaviors and psychological stress, the strongest relationship ( $r = -.332$ ,  $p < .001$ ) was recognizing the amount of calorie needs and the lowest relationship ( $r = -.247$ ,  $p < .01$ ) was arranging a meal plan. For relationships between dimensions of eating behaviors and family support, the strongest relationship ( $r = .638$ ,  $p < .001$ ) was selecting a healthy diet and amount and

followed by managing dietary challenges. ( $r = .628, p < .001$ ).

## DISCUSSION

Self-efficacy and family support had strong positive relationship with overall eating behaviors. It was asserted that, increasing self-efficacy and family support would increase awareness of T2DM patients to commit toward healthy eating behaviors. Self-efficacy had strongest relationship with managing dietary challenges dimension of eating behaviors and followed by selecting a healthy diet and amount dimension. It means if T2DM patients had good self-efficacy on eating behaviors, it will increase their behaviors for managing dietary challenges and selecting a healthy diet and amount. They can manage and organize their conditions to adherence for healthy eating behaviors. This finding was consistent with several previous studies. Self-efficacy related to self-care management of diabetes mellitus, such as dietary self-care management, and it will impact to Hb1Ac.<sup>12</sup> Self-efficacy had strong relationship with adherence to a treatment regimen.<sup>13, 14</sup>

Family support had positive relationship with overall eating behaviors. Family support also had strongest relationship with selecting a healthy diet and amount dimension and followed by managing dietary challenges dimension of eating behaviors. Family support was related with family role and functioning. In some culture, family role may lead conflicts in decision making for the treatment management of disease, such as healthy eating behaviors, medication, etc.<sup>15</sup> In another research, Trief et al.<sup>16</sup> found that positive family functioning related with diabetes mellitus patients' behaviors, such as eating behavior, physical activity, and medication adherence. The same thing also expressed by Pereira, Berg-Cross,

Almeida, & Machado,<sup>17</sup> family support improved compliance management of patients with diabetes to control glycemic status and quality of life.

Psychological stress had negative relationship with eating behaviors. The results found that psychological stress will decrease their ability for arranging a meal plan, selecting a healthy diet and amount, recognizing the amount of calorie needs, and managing dietary challenges. This finding was consistent with several previous studies. Lustman et al.<sup>18</sup> found that psychological stress or depression had negative relationship with DM patient's adherence to diet, physical activity, and medication regimens which contribute to glycemic control. In other research, psychological stress is related with increasing rates of diabetes complications and mortality in T2DM patients.<sup>19, 20</sup>

## CONCLUSION

Self-efficacy, family support, and psychological stress were related with eating behaviors on type 2 diabetes mellitus patients. Health workers should concern on self-efficacy, family support, and psychological stress to maintain the commitment of type 2 diabetes mellitus patients in terms of eating behaviors.

### Declaration of Conflicting Interest

None declared.

### Funding

None.

### Authorship Contribution

K.W.R.P contributed in designing, reviewing, collecting data, analyzing, and drafting the manuscript. C.T and S.J contributed in designing, reviewing, analyzing, and drafting the manuscript. All authors agreed with the final proof of the article.

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**Cite this article as:** Putra KWR, Toonsiri C, Junprasert S. Self-efficacy, psychological stress, family support, and eating behavior on type 2 diabetes mellitus. *Belitung Nursing Journal* 2016;2(1):3-7. <http://dx.doi.org/10.33546/bnj.5>