Self Management Dietary Behavior among Diabetes Mellitus Type 2 in Malang, Indonesia

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Abstract: Background: To reduce complications in people with diabetes mellitus is self management dietary behavior. It was included in one of the Ministry of Health's programs, CERDIK. CERDIK has meaning, periodic health check, get rid of cigarette smoke, diligent physical activity, healthy and balanced diet, adequate rest, and manage stress. Purpose: The aim of this study was to identify self management dietary behavior among diabetes mellitus type 2 in indonesia. Methods: This study used a cross sectional approach. The sampling technique used is nonprobability sampling type of purposive sampling. The number of samples were 69 people with diabetes mellitus in the working area of Ciptomulyo Health Public Center. Results: Self management dietary behavior of patients with diabetes mellitus ranges from 54-101 with an score of 72.17±8.50. Self management dietary behavior scores classified as good (> 73) and bad (<72). Approximately, 50.7% of respondents have good dietary behavior, and as many as 49.3% have poor dietary behavior. Conclution: Dietary behavior among tuberculosis patient still need to be improved to avoid complication.

1 INTRODUCTION

Diabetes mellitus prevalence has been rising more rapidly in middle and low income countries. The number of people with diabetes mellitus has risen from 108 million in 1980 to 422 million in 2014 (World Health Organization, 2018). About 1.3 million people die from diabetes and 4 percent die before the age of 70. In the year 2030 it is estimated that DM ranks 7th cause of world death. As for Indonesia, it is estimated that in 2030 there will be 21.3 million people with diabetes(Ministry of Health, 2013; IDF, 2017).

Given the magnitude of the problem of diabetes mellitus, the Ministry of Health of the Republic of Indonesia prioritizes Diabetes Mellitus control among other metabolic disorders besides comorbidities such as hypertension, coronary heart disease and stroke. The Ministry of Health is currently focusing on controlling Diabetes Mellitus risk factors through promotive and preventive efforts without prejudice to curative and rehabilitative efforts. One of the curative and rehabilitative efforts is diet compliance. Where this is included in one of the Ministry of Health's programs, CERDIK. CERDIK has a meaning, periodic health checks, get rid of cigarette smoke, diligent physical activity, healthy and balanced diet, adequate rest, manage stress (Ministry of Health, 2013).

Diet is an integral part of comprehensive diabetes care, including dietary knowledge, attitudes and practice as well (Jackie Boucher *et al.*, 2014; Sami *et al.*, 2017). Dietary habits could prevent the onset of diabetes and delay its complication (Asif, 2014; Basu *et al.*, 2018). Diet adherence behavior is one of the keys to success in the management of type 2 diabetes. That is because eating planning is one of the main pillars in the management of type 2 diabetes mellitus(Perkeni, 2015; Poretsky, 2017). Adherence of type 2 Diabetes Mellitus patients to the principles of nutrition and meal planning is the key to success in the management of type 2 Diabetes Mellitus but it is one of the obstacles in diabetes services (Sukardji, 2009; Dunning, 2014).

2 METHODS

This study used a cross sectional approach. The sampling technique used is nonprobability sampling type of purposive sampling. The inclusion criteria the patient was declared suffering from type 2 diabetes by a doctor and was willing to be a respondent. The number of samples were 69 people with diabetes mellitus in the working area of Ciptomulyo Health Public Center. This study used *The Dietary Behaviors Questionnaire (DBQ)* which was modified from (Primanda, Kritpracha and Thaniwattananon, 2011) that was developed and used for the Indonesian population. The DBQ consist of of four parts taht were included selecting a healthy diet, arranging meal times, recognizing the amount of food calories and managing dietary behavior challenges. The questionnaire consists of 29 items. Each item has a score of 1-4 according to the subjects' responses based on the Likert scale: 1 = never, 2 = sometimes, 3 = often, 4 = routinely, with the possible score ranging from 29 to 116. The higher the DBQ score related to the better the dietary behaviors indicated.

3 RESULTS AND DISCUSSION

Based on table 1 respondents distribution is known that the majority of female respondents amounted to 81.2% with the most age categories 56-65 years, namely the elderly elderly by 56.5%. Education taken by the majority of elementary school (SD) respondents was 42%, while the last education of respondents was college as many as 1 person (1.4%).

Based on table 2. Dietary behavior of patients with diabetes mellitus ranged from 54-101 with an average score of 72.17 and a standard deviation value of 8,509. Dietary behavior scores are classified as good (> 73) and bad (<72). Around 50.7% of respondents have good compliance, and as many as 49.3% have poor compliance.

Analysis of the results of the study showed that more than half the number of respondents (50.7%) showed good adherence to the diet. However, this percentage differed only slightly compared to the number of respondents with poor diet compliance (49.7%). This data is different from the results of a study by (Ayele *et al.*, 2018), where research conducted on patients with diabetes mellitus at the Hospital in Ethiopia showed that most respondents showed poor diet adherence (74.3%). Likewise, research by (Parajuli *et al.*, 2014) showed that of 385 patients, the majority (87.5%) did not comply with the diet given, while the rest (12.5%) showed poor adherence

Tabel 1: Distribution of respondents based on gender, age, education.

Characteristic	n (69)	% (100)	Min	Max	Mean
Gender :					
Female	56	81,2	-		
Male	13	18,8			
Age :			34	80	59,64
Education :					
Elementary school	29	42			
Junior high school	21	30,4		-	
Senior high school	18	26,1			
University	1	1,4			

Table 2: Distribution of Self Management Dietary Behavior (n= 69).

Self Management Dietary Behavior	Frequency	Procentage (100%)
Good	35	50,7
Poor	34	49,3
Mean ± S.D 72,17 ± 8,509		

Perkeni in his 2015 concession explained that one of the pillars of the treatment of type 2 diabetes mellitus is medical nutritional therapy (Perkeni, 2015). The goal of nutritional therapy or diet is to achieve and maintain optimal metabolism and prevent chronic complications of diabetes.

Adherence to a given diet will have an impact on blood glucose values within normal limits so as to prevent or reduce the risk of diabetes complications. The fat and lipoprotein profile is maintained thereby reducing the risk of macrovascular disease. Blood pressure is maintained thereby reducing the risk of vascular disease (American Diabetes Association, 2004). The results showed that the percentage of respondents' diet adherence was better compared to previous studies. However, there are still almost half the number of respondents who still show good dietary compliance. This certainly will risk an increase in complications of diabetes mellitus.

4 CONCLUSIONS

Approximately, 50.7% of respondents have good dietary behavior, and as many as 49.3% have poor dietary behavior. Further research should examine factors that could improve dietary behavior in Malang, Indonesia.

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