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Original Research

Correlation Between Risk Perception and Outcome Expectancies on Dietary Compliance in Diabetes Mellitus Patients

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Abstract

Introduction: Diabetic patients' non-compliance with diet can increase the risk of complications and decrease quality of life. Dietary compliance can be influenced by motivation, self-efficacy, knowledge, intentions, and family support. This study aims to analyze the relationship between perceived risk and expected outcomes with dietary compliance in patients with type 2 diabetes mellitus.

Methods: 150 respondents were obtained from five Primary Health Care in Surabaya through the cluster sampling method. The instruments used were a risk perception, a healthy diet-outcome expectation scale, and dietary compliance questionnaire. Data were analyzed using Spearman's Rho statistics ($\alpha \leq 0.05$).

Results: Most of the patients had moderate risk perception (67.3%) and high outcome expectation (48%). There was a significant relationship between perceived risk ($p = 0.000$) and expected outcome ($p = 0.000$) with dietary compliance in type 2 DM patients.

Conclusion: Diabetic patients' perceptions of their disease and the expected results have a positive effect on patient adherence to diet. Patients need accurate information about their disease so that they can create good perceptions and expectations.

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INTRODUCTION

The high incidence of Diabetes Mellitus (DM) in Indonesia makes various aspects of DM management often and at risk of experiencing problems [1]. Diet adherence problems usually occur due to motivational factors, self-efficacy, knowledge, intentions, family support, and socio-economic [2]. Diet non-compliance can worsen the patient's condition, cause complications and, reduce quality of life. The obstacle in the successful management of the DM diet is lack of motivation [3]. Based on the Health Action Process Approach (HAPA), motivation is composed of risk perception, outcome expectancies, and task self-efficacy. Patient acceptance of the disease including dietary recommendations will affect patient compliance with diet [4].

The International Diabetes Federation [5] states that, the prevalence of DM in the world reaches 7.5 billion people and is predicted to increase to 9.5 billion in 2045. n 2017, the number of DM sufferers in Indonesia reached 10.3 million and predicted to increase to 16.7 million by 2045. Based on a doctor's diagnosis, in 2019 the prevalence of DM in East Java was 2.5% [6]. In 2019, there were 2,149 DM patients (from July to September 2019 in five Primary Health Care).

Patients' DM need to control blood sugar levels to be within normal and preventing short-term and long-term complications. Appropriate dietary advice for people with DM is usually in the form of a rigid, strict and monotonous diet [7]. Diabetic patients must adhere to the diet both in terms of amount, type and time. This makes the patient feel bored and has an impact on patient non-compliance. To improve dietary compliance, patients must have good motivation [8]. This is in accordance with the concept of HAPA (*Health Action Process Approach*) that a person's behavior in taking action is related to motivation to form intentions into action. Motivation comes from the view of risk perception, outcome expectancies, and the task of self-efficacy, to form intentions and how sufferers take preventative measures by increasing adherence in undergoing dietary therapy [9]. The aims of this study was to identify correlation between risk perception and outcome expectancies with diet adherence in people with Type 2 diabetes.

METHODS

This study used a cross-sectional approach. The study was conducted in five health centers in Surabaya, East Java. There are 150 respondents who meet the inclusion criteria. Inclusion criteria were patients diagnosed with DM for more than 1 year, aged 30-60 years, had informed consent, could communicate verbally well, and did not include cognitive impairment. This study used respondents aged 30-60 years based on data from DM patients, most of whom were at that age. Patients with cognitive disorders such as dementia, amnesia and delirium were not included in this study. Patients who experienced changes in health and communication were excluded to maintain homogeneity. Risk perception and outcomes expectation as the independent variable and dietary compliance is the dependent variables.

The dependent variable in this study is risk perception and outcome expectancies, while the independent variable is dietary compliance. The dependent variable in this study is risk perception and outcome expectancies, while the independent variable is dietary compliance. The risk perception instrument refers to the research by Permatasari and the *Outcome Expectancy Scale-Healthy Dietary* (OES-HD) questionnaire for outcomes expectation. The instrument used for dietary compliance is based on research conducted by Haryono and modified by Permatasari [10].

Collecting data using a questionnaire which includes respondent characteristics, risk perception, outcomes expectation and dietary compliance. Data were collected after the researcher obtained consent from the participants. The study gave respondents time to fill out the questionnaire approximately 15-25 minutes. If the respondent has difficulty in filling out the questionnaire, the researcher will provide assistance. Data collection was carried out after obtaining ethical approval from the Health Research Ethics Commission (KEPK) of the Faculty of Nursing at Airlangga University by number 1828-KEPK. The data that has been collected will be processed by editing, coding the answers on the questionnaire sheet, tabulating it into a table and then analyzing it using SPSS version 25.0 for Windows. Data were analyzed using Spearman's Rho with a value of α: 0.05.

RESULTS

The results of statistical tests for the relationship between perceived risk and dietary compliance showed p value < 0.5 (0.00) and correlation coefficient (r) = 0.548, which means there is a significant relationship with moderate correlation.

Table 1

Characteristics of Respondents

Characteristics of Respondents	Frequency	%
Sex		
Male	15	10,0
Female	135	90,0
Age		
30-40 years	43	28,7
41-50 years	50	33,3
51-60 years	57	38,0
Education		
No	19	12,7
Elementary school	77	51,3
Middle education	28	18,7
Under/post graduate	26	17,3
Job		
No	70	46,7
Retired	12	8,0
Government employees	33	22,0
Private sector employee	25	16,7
Self-employed	10	6,7
Duration of Disease		
<5 years	105	70,0
6-10 years	31	20,7
>10 years	14	9,3
Total	**150**	**100**

Table 2

Frequency Distribution of Risk Perception and Outcome Expectancies Among Diabetes Patients

Variabel	Categories	F	%
Risk Perception	Hight	49	32,7
	Middle	101	67,3
	Low	0	0
Outome Expectancies	Hight	72	48,0
	Middle	69	46,0
	Low	9	6,0
Dietary compliance	Good	73	48,7
	Enough	28	18,7
	Bad	49	32,7
	Total	**150**	**100**

Table 3

Correlation Between Risk Perception and Outcome Expectancies with Dietary Compliance Among Diabetes Patients

Risk Perception	Dietary Compliance						Total	
	Bad		Enough		Good			
	f	%	f	%	f	%	Σ	%
Middle	48	32,0	21	14,0	32	21,3	101	67,3
Hight	1	0,7	7	4,7	41	27,3	49	32,7
Total	**49**	**32,7**	**28**	**18,7**	**73**	**48,7**	**150**	**100**
p-value (p) = 0,000 ; correlation coefficient (r) = 0,548								
Outcome Expectation								
Low	7	4,7	1	0,7	1	0,7	9	6,0
Middle	36	24,0	13	8,7	20	13,3	69	46,0
Hight	6	4,0	14	9,3	52	34,7	72	48,0
Total	**49**	**32,7**	**28**	**18,7**	**73**	**48,7**	**150**	**100**
p-value (p) = 0,000 ; correlation coefficient (r) = 0,706								

DISCUSSION

Ferrer's, R.A. & Klein research (2017) state that risk perception is a key component of many theories of health behavior change. A person will take action to control the disease and prevent complications from the disease if he sees that the disease has serious consequences for him. also believe that by following recommended health measures (eg, following a diet), they will be able to reduce their risk or avoid complications that will arise [11], [12]. Perceived risk is related to diet, exercise and medication adherence in diabetes. The risk perception possessed by DM patients will provide an overview of diabetes, complications and treatment behavior that must be carried out [13].

The factors that trigger a person to have a high risk perception are the experience of others, and self-confidence that he is at risk. Based on gender, men who have a high risk perception are fewer than women. The results of this study are in line with the opinion of Sarid et al (2017), in his research it was found that male respondents had lower risk perception and self-efficacy than women. In his research men more often use problem focused coping than women who tend to use coping strategies focused emotion coping. The results of the study stated that differences in coping strategies in individuals affect the way of viewing and individual thought about a problem that causes differences in the level of risk perception and self-efficacy in men and women. Women are more obedient to lifestyle and behavior of diabetes mellitus management [14].

Someone who believes that they are at risk of experiencing conditions that worsen their health, they will more often do something to prevent this and vice versa. Risk perception in this study leads to the perception of the risks that occur if you do not

adhere to the diet that should be lived. To be able to bring up good risk perception needs an understanding of the impact that may occur from non-compliance with the diet, so that people with type 2 diabetes can always be motivated to adhere to the diet. High risk perception will lead to the emergence of good health behavior while low risk perception makes a person not motivated to act as they should.

The results obtained p value <α, indicating there is a relationship between outcome expectancies with diet compliance with type 2 DM patients with a strong correlation level. This study is in line with research from Chui (2012), namely Outcome Expectations is seen as an important variable in the motivation stage, because it is a balance between the pros and cons of the results of certain behaviors in a person. Someone who feels will get the results according to their wishes and benefits of the activities carried out, will carry out these activities continuously.

In terms of demographic data, only gender and educational background are related to the outcome level of respondents' expectancies. In this study low expectancies outcomes were found in women and none were found in male respondents. The relationship between educational history and expectancies outcomes is evidenced by the discovery of low expectancies outcomes in respondents with basic education background and respondents who did not graduate school, and none of the respondents with high school education levels had low expectancies outcomes. The results of this study are in line with the opinion of Lestari (2018), which states that individuals who have a good level of knowledge and understanding will produce positive outcome expectations.

Expectancies outcome is a subjective belief about the likelihood of individual behavior with subsequent results. Perception in expectation outcomes can be both positive and negative, depending on the extent to which respondents view the diet they live. Positive perceptions play an important role in a person's behavior in making a health decision for themselves or their environment. The greater benefits or benefits derived from an action cause the greater the chances of the individual carrying out the action. However, if the benefits or benefits of an action are felt to be small, then the possibility of action taken will be even smaller. Type 2 DM sufferers who have good understanding will produce positive expectancies outcomes. These positive results will increase the motivation of people with type 2 DM to adhere to the diet [15].

CONCLUSION

Risk perception and outcome expectation are factors that are significantly related to dietary compliance in DM patients. Patients need to increase their perception of the risk of developing the disease and have positive expectations for the given disease. education and training can be used as a way to improve risk perception and outcome expectations.

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