

The Relationship between Self-Awareness and Dietary Compliance in Patients with Type 2 Diabetes Mellitus

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ABSTRACT

Background: The aim of this study was to investigate the correlation between self-awareness and dietary compliance in patients with type 2 diabetes mellitus. **Methods:** This study was correlational with a cross-sectional approach. The population was 253 respondents, all type 2 DM patients in the Jelakombo Jombang Health Center working area. The total sample had 147 respondents. The sampling technique used is simple random sampling. The independent variable is self-awareness, and the dependent variable is dietary compliance in type 2 DM patients. The data collection technique was a questionnaire, and then the data was processed. The process involved editing, coding, scoring, tabulating, and analyzing the data using the Spearman correlation test with an error rate of 0.05. **Results:** The data revealed that most of the respondents' self-awareness was good (69%) and that most of the respondents were obedient to their diet (65%). The results of the analysis using the Spearman correlation test show that the probability value of 0.006 is smaller than the alpha value of 0.05, so H1 is accepted. **Conclusion:** The conclusion in this study is that there is a correlation between self-awareness and dietary compliance in type 2 diabetes mellitus patients. It is expected that type 2 diabetes mellitus patients will become more self-aware in terms of meeting their dietary needs.

Keyword: Self-Awareness; Dietary; Compliance; Type 2 Diabetes Mellitus

INTRODUCTION

Diabetes mellitus (DM) is one of the degenerative diseases whose prevalence is increasing. People's lifestyles change as their income increases. The increasing prevalence of DM patients can be caused by poor self-management by DM patients. Diabetes Mellitus is a chronic metabolic disease, which means insufficient quantities of insulin can be produced or the body is unable to use insulin effectively, resulting in excess glucose in the blood. Diabetes mellitus is caused by unhealthy habits such as overeating, a lack of exercise, and stress. Patients with diabetes mellitus find it difficult to regulate their own dietary behavior (American Diabetes Association, 2020). Dietary compliance is a major issue in type 2 diabetes patients today. Over-eating, lack of exercise, and stress are some of the unhealthy habits that cause Diabetes Mellitus. The principle of dietary regulation is based on the nutritional status of diabetic patients and modifying the diet by paying attention to lifestyle and eating habits. Disobedience to diet rules is one of the barriers to achieving treatment purposes (Soegondo, & Subekti, 2015).

According to data from the International Diabetes Federation (IDF), the number of diabetic patients continues to rise year after year. By 2030, 552 million people in the world will be affected by diabetes. In Indonesia, according to WHO predictions, the number will increase from 8.4 million to around 21.3 million from 2000 to 2030. Meanwhile, the International Diabetes Federation (IDF) predicts an increase from 7.0 million in 2009 to 12.0 million in 2030 (Indonesia, 2015). As a result, Indonesia is now the world's fourth-ranked country, while India, China, and the United States hold the top three global rankings with respect to the number of diabetic patients. According to data from the Jombang District Health Office in 2020, the number of DM sufferers in the Jombang district was 34,261 people, and

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20.7% have not received services that are in accordance with standards (Dinas Kesehatan Kabupaten Jombang, 2020).

Diabetes mellitus is caused by a lack of a hormone called insulin and a lack of insulin production by the pancreas. Consuming sugary foods and sweetened drinks can cause high blood sugar. Uncontrolled diabetes mellitus will cause complications such as heart disease, kidney disease, eye disorders, stroke, atherosclerosis, and even the amputation of parts of the body. If the patient has the self-awareness to comply with his diet, diabetes mellitus will be controlled. The success of a treatment is influenced by the quality of service, the attitudes and skills of officers, the attitudes and lifestyles of patients and their families, and patient compliance with the treatment program. Laili, Dewi, & Wahyuni, (2019) state that the patient's glycemic index could be controlled when the patient obeyed the dietary recommendations, including the type and amount of food consumed. Patient disobedience is one of the obstacles to achieving treatment goals and will also result in patients requiring examinations or treatments that are not actually needed. This requires serious attention and handling from health workers to reduce the incidence of DM by obediently implementing a diet programme (Laili, Dewi, & Wahyuni, 2019).

Efforts to control DM in the community have been carried out through primary and secondary prevention to reduce the risk of complications, death, and also reduce treatment costs. Primary prevention is an action to prevent DM in at-risk individuals through lifestyle modifications, including appropriate diet, physical activity, and weight loss, with ongoing education programs. Secondary prevention is the prevention of acute and long-term complications. The program includes examinations, blood pressure treatment, diabetic foot care, routine eye examinations, an examination of protein in the urine, as well as programs to reduce or stop smoking habits (Depkes RI, 2022). DM treatment can be successful if done regularly. Compliance with regular maintenance requires self-discipline. Patients must take an active role in efforts to improve health, through the management of DM, where patients will work closely with nurses to determine appropriate and necessary interventions (Al-Khawaldeh, Al-Hassan, & Froelicher, 2012). DM patients who can play an active role in their care are those who have good self-awareness. Self-awareness of various aspects of diabetes management can help DM patients avoid complications and prevent disease in those who are at high risk (Yanti, 2009). Therefore, the aim of this study was to investigate the correlation between self-awareness and dietary compliance in type 2 diabetes mellitus patients.

METHODOLOGY

This is correlational analytic research with a cross-sectional approach. The research was conducted in one of the villages in the Jombang district, East Java Province, Indonesia. The population consisted of 232 respondents with type 2 diabetes. The sample in this study included some type 2 DM patients. The Slovin formula was then applied to calculate the number of samples from random sampling. The result was 147 respondents based on random sampling. The simple random sampling (Nursalam, 2020) used in this study.

Data collection uses questionnaires. The questionnaire about self-awareness consists of 20 statements developed by the researcher. It covers recognising emotions, strong self-recognition, and self-confidence, taken from Goleman's (2010) theory. It provides four options: (4) always, (3) often, (2) rarely, and (1) never. The compliance variable consisted of 15 statements, starting with the right schedule, the right type, and the right number of parameters. Respondents answered by choosing one of four options: (4) always, (3) often, (2) rarely, and (1) never. The questionnaire has been tested for validity and reliability before use.

The collected data was analysed using univariate and bivariate analysis. In univariate data analysis, both the results of data processing from the self-awareness variable and diet compliance are presented in percentage form. Bivariate analysis was tested by using the Spearman correlation test to determine whether the two variables had a correlation or not and using ordinal data scales.

Ethical Consideration

This study obtained ethical approval from the Research Ethics Committee of STIKES Insan Cendekia Medika with reference number 023/KEPK/ICME/III/2021. Respondents were informed about the research's purpose and the estimated time to participate in this research, as well as the guarantee of confidentiality of their identity and personal

data. They also have the right to choose whether to participate in this research.

RESULTS

1. Respondents' Characteristics by age

Table 1: Respondents' age frequency

Age	Frequency	Percentage (%)
45-59 years old	53	36
60-74 years old	84	57
75-90 years old	10	7
Total	147	100.0

Table 1 shows 57% of respondents were aged 60-74 years with a frequency of 84 people.

2. Characteristics of respondents by gender

Table 2: Frequency Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	89	61
Female	58	39
Total	147	100.0

Table 2 shows that 61% respondents were male, total of 89 people.

3. Respondents' education level

Table 3: Frequency Distribution of Respondents by Education Level

Education	Frequency	Percentage (%)
Elementary School	31	21
Junior High School	78	53
Senior High School	24	16
College	14	10
Total	147	100.0

Table 3 shows 53% of respondents had a junior high school education level.

4. Characteristics of respondents by occupation

Table 4: Frequency Distribution of Respondents by Occupation

Occupation	Frequency	Percentage (%)
Private	15	10
Self-employed	17	12
Farmer	24	16
Civil Servant	15	10
Unemployed	76	52
Total	147	100.0

Table 4 shows that 76 people (52%) respondents did not work (unemployed).

5. Respondents based on self-awareness

Table 5: Frequency Distribution of Respondents Based on Self-Awareness

Self-awareness	Frequency	Percentage (%)
Good	101	69
Poor	46	31
Total	147	100.0

Table 5 shows that 101 people (69%) of the respondents have good self-awareness.

6. Characteristics of respondents' dietary compliance

Table 6: Frequency Distribution of Respondents Based on Dietary Compliance

Obedience	Frequency	Percentage (%)
Obey	96	65
Disobey	51	35
Total	147	100.0

Table 6 shows that 96 people (65%) of the respondents adhered to their diet.

7. The correlation between self-awareness and dietary compliance in type 2 DM patients

Table 7: Cross Tabulation of Self-Awareness with Dietary Compliance in Type 2 DM Patients

Dietary Compliance Self-awareness	Obey		Disobey		Total	
	f	%	f	%	f	%
Good	68	46	33	23	101	69
Poor	28	19	18	12	46	31
Total	96	65	51	35	147	100
Pearson Correlation Test <i>p</i> value = 0.006						

Based on table 7, it is evident that most patients with type 2 Diabetes Mellitus have good self-awareness with adherence to a compliant diet of 68 patients (46%).

The Pearson Correlation Test gave a probability value of 0.010, which is less than the alpha value of 0.05. This means that H1 is accepted or H0 is rejected, which means that there is a link between self-awareness and dietary compliance in Type 2 Diabetes Mellitus patients in Candimulyo Village, Jombang District.

DISCUSSION

According to the results of the study, most of the respondents had good self-awareness. Good self-awareness could be influenced by the age of the respondent. Most respondents' ages ranged from 60-74 years. According to the WHO, individuals aged 60–74 are considered elderly. Age is one of the variables that affect the development of personality elements. Personality elements grow and develop simultaneously, including the very influential initial element, namely self-awareness (Malikah, 2013). According to researchers, age contributes to self-awareness because it increases understanding and response to health changes experienced by a person.

Level of education effected Self-awareness. The majority of respondents have completed junior high school. According to researchers, junior high school education is included in basic education, so it will affect someone's ability to obtain information. Education affects a person's understanding of information because it relates to their background

knowledge. Individuals with a basic education level do not have more insight into self-awareness in terms of dietary compliance in type 2 DM.

Education's basic concept is process. It means there is a process of growth, development, or change to become more mature as oneself, as a group, or as a community (Notoatmodjo, 2014). Cognitive abilities that shape a person's way of thinking include the ability to understand the factors associated with disease to maintain their health (Rahayu, Hudha, & Umah, 2015).

Another factor that affects self-awareness is gender. In this study, most of the respondents were male. Then, based on the results of the questionnaire, which covers three parameters: recognizing emotions, accurate self-recognition, and self-confidence, the largest percentage is accurate self-recognition. Men tend to solve problems by using logic, so their self-awareness is good. This is also due to the role of men as breadwinners and heads of families, thus motivating themselves to be healthier (Haque, 2013). Self-awareness, according to Goleman, is the ability to understand what we are feeling at any given time and use it as guidance for our own decision-making; it is the realization of the logical standard of self-ability and high self-confidence. People with high self-awareness know themselves well. They are able to control themselves, for example, by controlling emotions and other impulses. By knowing themselves, people also know other people and can read the intentions and desires of others. Self-awareness is the state of paying constant attention to one's inner state. In this self-reflection awareness, the mind observes and explores experiences, including emotions. According to John Mayer, "self-awareness" makes a person aware of both his moods and thoughts. Self-awareness can be a non-reactive observer, not judging inner states.

Some studies are in accordance with the result of this study, as follows: In the study conducted by Laili, Dewi, and Wahyuni in 2019, education with the principal approach of Diabetes Self-Management Education (DSME), improved dietary compliance behaviour in patients with type 2 diabetes mellitus. with the DSME principal approach (Laili, Dewi, & Wahyuni, 2019).

The study conducted by Munir and Nur Wahyuni in 2021 shows good family support (92.7%). According to the study's findings, diabetes mellitus patients benefit from family support and self-care. The family is expected to continue to provide support both in patient self-care and psychologically (Munir, 2021).

Other studies conducted by Dwi Kurniawati, Yunita Galih, and Susilo (2020) showed there is a significant correlation between self-awareness and self-care management among hypertension sufferers in Jimbaran Village, Bandung. Managing a healthier lifestyle to increase self-awareness is expected to reduce their blood pressure.

Based on the result, the respondents were obedient with their diet. Factors related to compliance include age. The majority of respondents were between the ages of 60 and 74. The WHO defines the elderly as people aged 60 to 74. Compliance usually increases with age. This is in accordance with Yakarylmaz & Ztürk (2017), who said that age is related to the level of compliance, although sometimes age is not the cause of non-compliance, but the older the patient, the lower the memory, hearing, and vision, so that older patients become disobedient. This contradicts the findings of Aini, Kustriyani, and Arifianto (2019), who discovered no significant relationship between age and diet adherence in people with diabetes.

The level of education also affected the obedience level. In this study, most of the respondents' education level is junior high school. This is in line with research conducted by Ernawati, Harini, and Gumilas, (2020). The results showed that respondents with lower education were more numerous than respondents with higher education. An inappropriate diet begins with a lack of knowledge about the right diet maintenance to avoid the emergence of complications of diabetes mellitus type 2 (Ernawati, Harini, & Gumilas, 2020). Knowledge is related to education as qualified life can be achieved better behavioural changes (Prabowo & Hastuti, 2015). It is easier for a person with higher-level education to absorb information and apply it in daily life, especially applied towards DM diet. The more educated a person the broader is the knowledge level because education is the main basis for successful treatment (Heryati, 2014).

Compliance is also influenced by gender. The results of this study showed high level of compliance mostly among

male. Gender differences in diet management are not a problem. As respondents were both female and male, it is very important to manage their diet to pre-vent complications. According to the Agency for Health Research and Development (2013), the prevalence is higher among women than men; this is because several risk factors cause the high incidence of DM in women. Research conducted by Wong et al. (2005) shows that there is a correlation between gender and dietary compliance in patients with type 2 diabetes. Tania's (2016) research includes a similar study, which shows that male gender participation was higher (51% vs. 49% for women). However, a statistical test showed that there was no significant correlation between gender and dietary compliance in type 2 DM patients according to the theory of the health belief model (Tania, 2016). An-other similar study, according to Nugroho and Handono (2017), found that 77% of men were more obedient than 50.8% of women, although the results showed that there was no significant correlation between gender and dietary obedience among DM patients. It is be-cause, according to the Health Belief Model theory or health belief model (Nugroho & Handono, 2017), gender is not a directly related factor to adherence behavior.

Haryono, Suryati, and Maryam's (2018) research supported this research, which revealed a significant effect of health education on increasing knowledge about diet, along with cur-rent blood sugar levels, and dietary compliance. Simbolon, Triyanti, and Sartika's (2019) study found that length of suffering and gender were the dominant factors associated with type 2 diabetes mellitus diet compliance.

According to the results of this study, most type 2 diabetes patients had good self-awareness and adhered to a compliant diet. The analysis using the Pearson Correlation Test obtained a probability value of 0.010, which is smaller than an alpha value of 0.05. It indi-cates that H1 is accepted or H0 is rejected; additionally, there is a link between self-awareness and dietary compliance in Type 2 Diabetes Mellitus patients in Candimulyo Vil-lage, Jombang Regency.

Respondents have a high level of self-awareness, which influences their level of compli-ance in their diet settings. Good self-awareness results in good self-management as well, so that patients are more aware of their disease, are better able to control their condition by adjusting their diet, and the management of diabetes mellitus is better mode of treatment (Wahyuni & Ramayani, 2020).

Self-management begins with self-awareness; self-awareness is the process of understand-ing one's own thoughts, feelings, motivations, and behaviour towards something (Butcher *et al.*, 2018). According to the Indonesian Endocrinology Association, there are five pillars of DM management: education, nutritional diet, physical activity, medication, and blood sugar monitoring. Complications in patients can be prevented by controlling blood glucose levels and diet settings (Bakara & Kurniyati, 2022).

According to other study findings, there is an increase in the compliance of type 2 diabetes patients in implementing the DM diet, taking medication, and exercising after self-management intervention. Self-management is a form of nursing intervention that aims to establish self-awareness so that people with DM are obedient in carrying out regular care (Lin *et al.*, 2008).

Implication and Limitations

Empirical evidence about self-awareness and dietary compliance in type 2 diabetes mellitus patient reserves in this study. The results of this study imply self-awareness is significant in controlling diet of diabetes mellitus patients. Self-awareness is important to prevent and treat cases of uncontrolled type 2 diabetes mellitus. Furthermore, socializing the importance of self-awareness in diet management for type 2 diabetes mellitus patients is necessary. Researchers realize that this research has limitations. Dietary settings in the study were specific to type 2 diabetes mellitus patients.

CONCLUSION

According to the results of the study, self-awareness in type 2 DM patients is mostly good. Most of the patients with type 2 DM show dietary compliance and are mostly obedient. There is a correlation between self-awareness and dietary compliance in type 2 DM patients in Can-dimulyo Village, Jombang. It is expected that self-awareness can increase the respondent's understanding of the importance of knowledge, attitude, and managing the right diet for type 2 diabetes mellitus patients.

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Conflict of Interest

The authors have no conflict of interest.

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