The Compliance Evaluation of Type-2 Diabetes Mellitus Patients Treating Therapy Diet Review from Theory of Planned Behavior

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Abstract

Diabetes mellitus (DM) is a chronic condition that occurs when there is an increase in blood glucose levels because the body cannot produce insulin or use insulin effectively. This study aims to evaluate more in-depth information about compliance with Type-2 DM undergoing diet therapy from the perspective of the Theory of Planned Behavior. The informants in this study consisted of 17 informants consisting of 1 Doctor, 1 Nurse, and 15 Type 2 DM patients. This type of research was qualitative using in-depth interviews related to dietary compliance with Type 2 DM patients, then analyzed by triangulation. The results showed that diet-adherent behavior was significantly influenced by attitudes, subjective norms, individual behavior control, and intentions. The amount of intention and obedient attitude and behavior possessed by Type 2 DM patients will make it easier for Type 2 DM patients to carry out diet therapy. The level of adherence to diet therapy in this study with a high category of 10 patients with a percentage of 66.7%, patients with a level of adherence to diet therapy with a moderate category of 4 patients with a percentage of 26.7%, and patients with a level of adherence to diet therapy with a low category as many as 1 patient with a percentage of 6.7%. The amount of intention and obedient attitude and behavior possessed by Type 2 DM patients will make it easier for Type 2 DM patients to carry out diet therapy.

I. Introduction

Diabetes mellitus is a condition where there is a chronic increase in blood sugar levels as a result of disturbances in carbohydrate, fat, and protein metabolism due to a lack of the hormone insulin. Chronic hyperglycemia in diabetes can cause long-term damage and dysfunction of several organs of the body, especially in the eyes, kidneys, nerves, heart, and blood vessels, which will cause various complications, including atherosclerosis, neuropathy, kidney failure, and retinopathy. Revelation, 2020).

Diabetes often causes complications that require educational support related to long-term care and treatment of DM clients. Diabetes management can provide maximum results when accompanied by client compliance with the therapy recommended by health workers. The success of disease management is determined by the obedient behavior of DM patients to the management of the disease. With good compliance, treatment can be carried out optimally and the quality of health can be felt by patients (Ni Nyoman, 2018).

DM is a concern because it belongs to a group of metabolic diseases with characteristics of hyperglycemia due to abnormalities in insulin secretion, insulin action, or both, one of which occurs due to dietary non-compliance (Z., S., & EZ, 2018). Some of the symptoms that are often found in diabetics are polyuria, polydipsia, polyphagia, weight loss, and blurred vision. Type 2 diabetes is characterized by insulin resistance accompanied by a decrease in insulin secretion whose severity varies from relative to dominant deficiency (American Diabetes Association, 2017).

Diabetes caused 1.5 million deaths in 2012. Blood sugars higher than the maximum result in an additional 2.2 million deaths, increasing the risk of cardiovascular and other diseases. Forty-three percent (43%) of these 3.7 million deaths occurred before the age of 70. The percentage of deaths due to diabetes occurring before the age of 70 is higher in low- and middle-income countries than in high-income countries (WHO, 2016). The results of a report from the International Diabetes Federation (IDF, 2014) stated that there were around 382 million people with DM and it is estimated that this will increase to 592 million people by 2035. Of these 382 million sufferers, 175 million have not been diagnosed, so they are at risk of experiencing complications without realizing it or not. without prevention. According to the WHO report in 2013, the average patient adherence to long-term therapy and diet for chronic diseases such as DM in developed countries was only 50% while in developing countries the number was even lower (Depkes RI, 2016). The incidence of DM in Indonesia, according to data from Riskesdas (2013), increased from 1.1% in 2007 to 2.1% in 2013 with a total population of 250 million people.

Therefore, the success of treatment therapy for patients with diabetes mellitus does not only include accuracy of dosage, and accuracy of drug selection, but also adherence to diet therapy. Medication adherence is very important in long-term therapy for several chronic diseases such as diabetes mellitus. Non-adherence to treatment in patients with diabetes mellitus will hurt the patient's quality of life and exacerbate the illness (Wahyu, 2020).

Dietary compliance in patients with type 2 diabetes can help reduce the incidence of hyperglycemic crisis attacks (PERKENI, 2015). The success of adhering to the diet depends on the behavior and intentions of patients with type 2 diabetes. Obedient behavior is divided into 2 groups, namely closed obedient behavior, in this condition, the reaction from the stimulus is not yet clearly visible, this behavior is still limited to the form of knowledge, attitudes, perceptions, and feelings, while obedient behavior is open in this condition the reaction to the stimulus in the form of practice. visible (Notoatmodjo, 2014). One of the factors causing dietary non-compliance is socio-cultural factors, including culture in each community itself, social support, and a sense of kinship in society (Osei-Kwasi et al., 2016).

Theory of Planned BehaviorAccording to Ajzen (2015) states that a person may or may not perform a behavior depending on the person's intentions. Intentions are things that can explain motivational factors and have a strong impact on behavior. The intention to perform a behavior is supported by a person's belief in the behavior. Confidence is obtained by providing knowledge, skills, and experience to carry out the behavior. The strong intention of a DM patient will increase the client's compliance in carrying out the management of the disease (Ni Nyoman, 2018)

Management of type 2 DM will not reach the optimal level without the awareness of the patient himself, it can even cause therapy failure, and can also cause very detrimental complications and in the end, can be fatal, (Lim, Kow, Mahdzir, & Abu Bakar, 2016) & (Roth & Republic, 2016).

Other research on dietary adherence based on the perspective of the theory of health belief model focuses more on health behavior determined by personal beliefs or perceptions about the disease and available strategies to reduce the occurrence of disease (LIM et al.,

2016). Based on the study of various theories in previous studies with the study of the phenomenon of dietary compliance with type 2 DM patients, it is necessary to describe dietary compliance with the theory of planned behavior approach.

II. Review of Literature

2.1. Definition of DM

DM is a chronic condition that occurs when there is an increase in blood glucose levels because the body cannot produce insulin or use insulin effectively. Insulin is an important hormone produced in the pancreas gland of the body, which transports glucose from the bloodstream into the body's cells where glucose is converted into energy. Lack of insulin or the inability of cells to respond to insulin causes high blood glucose levels, or hyperglycemia, which is a hallmark of diabetes.

Hyperglycemia, if left unchecked for a long period of time, can cause damage to various organs of the body, leading to the development of disabling and life-threatening health complications such as cardiovascular disease, neuropathy, nephropathy and eye disease, leading to retinopathy and blindness (IDF, 2017).

Diabetes Mellitus Type 2 is a metabolic disorder disease characterized by an increase in blood sugar due to decreased insulin secretion by pancreatic beta cells or impaired insulin function (insulin resistance), type 2 diabetes mellitus is not caused by a lack of insulin secretion, but because insulin target cells fail. or unable to respond to insulin normally, this condition is commonly referred to as insulin resistance (Fatimah, 2015).

2.2 Risk Factors for Type-2 DM

The increase in the number of DM patients, mostly type 2 DM, is related to several factors, namely risk factors that cannot be changed, risk factors that can be changed and other factors. The risk factors for DM that cannot be changed include a family history of DM (first degree relative), age 45 years, ethnicity, history of giving birth to a baby with a birth weight of >4000 grams or a history of gestational diabetes and a history of low birth weight. <2.5 kg).1.9 Modifiable risk factors include obesity based on BMI 25kg/m2 or abdominal circumference 80 cm in women and 90 cm in men, lack of physical activity, hypertension, dyslipidemia and poor diet. healthy (ADA, 2018).

Some of the important modifiable risk factors include, excess adiposity (obesity), poor diet and nutrition, lack of physical activity, prediabetes or impaired glucose tolerance (IGT), smoking and hypertension according to the IDF (2017). The recommended blood glucose test is an enzymatic glucose test with venous plasma blood material. Monitoring the results of treatment can be done by using a capillary blood glucose examination with a glucometer. Limits on fasting blood glucose levels as a benchmark for diagnosing diabetes mellitus as shown in the following table (PERKENI, 2015)

2.3 Signs and Symptoms of Type-2 DM

The signs and symptoms of type 2 DM according to the IDF (2017) are:
(1) Excessive thirst and dry mouth
   Polydipsia is excessive thirst that arises because glucose levels are carried away by the urine so that the body responds to increase fluid intake.
(2) Frequent and abundant urination
   Polyuria arises as a symptom of DM because sugar levels in the body are relatively high so that the body is unable to break it down and tries to excrete it through urine. (PERKENI, 2015).
(3) Lack of energy, extreme fatigue

1. Fatigue occurs due to a decrease in the process of glycogenesis so that glucose cannot be stored as glycogen in the liver and the process of fat breakdown (lipolysis) which causes the breakdown of triglycerides (TG) into glycerol and free fatty acids so that fat reserves decrease.

(4) Tingling or numbness in the hands and feet

Numbness is the result of hyperglycemia that induces changes in endothelial vascular resistance and reduces neural blood flow. People with neuropathy have limitations in physical activity so that there is an increase in blood sugar.

(5) Recurrent fungal infections of the skin

Skin sugar levels are 55% of blood sugar levels in ordinary people. In DM patients, the ratio increases to 69-71% of already elevated blood glucose. This facilitates the onset of dermatitis, bacterial infections (especially furuncles), and fungal infections, especially candidosis.

(6) Slow wound healing

High blood glucose levels in the blood cause DM patients to experience longer wound healing than normal humans.

(7) Blurred vision

Increased blood glucose levels (hyperglycemia) can cause an increase in osmotic pressure in the eye and changes in the lens so that vision is not clear or blurred.

2.4 Etiology of Type-2 DM

This etiology of type 2 diabetes accounts for 90 to 95% of cases with diabetes, the term previously referred to as noninsulin dependent diabetes or adult-onset diabetes. Initially includes insulin-resistant and usually insulin-resistant individuals with relative insulin deficiency. A person who suffers from this type often does not need insulin therapy throughout his life to survive but can be done with oral hypoglycemic treatment, diet and exercise settings (Elsa Trinovita, 2020).

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2.5 Pathogenesis of Type-2 DM DM

Insulin resistance in muscle and liver cells, as well as pancreatic beta cell failure have been recognized as the pathophysiology of central damage of type 2 diabetes. Recent studies have shown that beta cell failure occurs earlier and is more severe than previously thought. Other organs involved in type 2 diabetes are adipose tissue (increased lipolysis), gastrointestinal (incretin deficiency), pancreatic alpha cells (hyperglucagonemia), kidneys (increased glucose absorption), and brain (insulin resistance), which contribute to impaired tolerance. glucose. At present, three new pathogenesis pathways from the ominous octet that mediate the occurrence of hyperglycemia in type 2 DM have been found. Eleven important organs in this disorder of glucose tolerance (egregious eleven) need to be understood because this pathophysiological basis provides the concept:

1. Treatment should be aimed at correcting the pathological disorder, not just to lower HbA1c alone
2. The combination treatment required should be based on the performance of the drug according to the pathophysiology of type 2 diabetes.

3. Treatment should be started as early as possible to prevent or slow the progression of beta cell failure that has occurred in people with impaired glucose tolerance (Schwartz, 2016).

2.6 Conceptual Framework

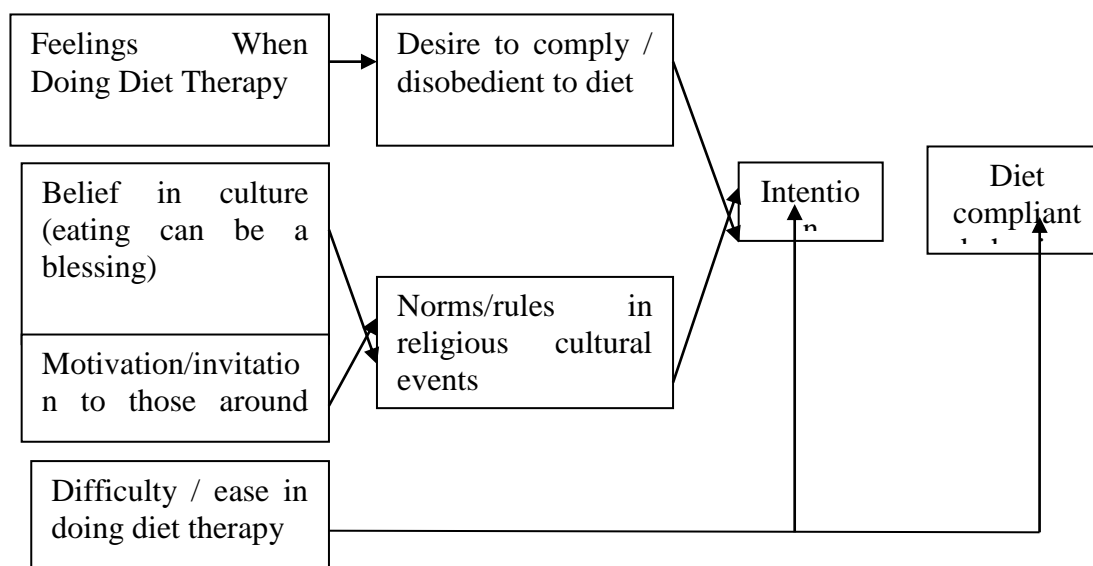The conceptual framework in this research can be seen in Figure 1 below:

Figure 2. Conceptual Framework
Source: (Elfa, 2019)

III. Research Method

This type of research is qualitative research, where research data is obtained through interviews with relevant sources and relevant documents. In qualitative research, the researcher is the main research instrument, in contrast to quantitative research which focuses on statistical analysis to answer the problem formulation.

Qualitative research methods are research based on philosophy, postpositivism, used to examine the condition of natural objects where the researcher is the key instrument, data collection techniques are carried out by triangulation, data analysis is inductive/qualitative and qualitative research results emphasize meaning rather than generalizationSugiyono (2017).

On the basis of this definition, the researcher chose a qualitative method in this study because in qualitative research the emphasis is on the depth of information needed. With qualitative research, researchers are involved in many direct interactions with data sources so that they can see the facts on the ground regarding the evaluation of compliance with type-2 diabetes mellitus patients undergoing diet therapy in terms of the theory of planned behavior at the Royal Prima Hospital, Medan.

This research was conducted at the Royal Prima Hospital Medan, which is located on Jl. Ayahanda No.68A, Sei Putih Tengah, Kec. Medan Petisah, Medan City, North Sumatra 20118. This research was conducted since the author conducted a preliminary survey in January 2022 until March 2022 data collection followed by a results seminar.

The sample is part of the population studied in a study and the results will be considered as an illustrationthe actual situation in the whole population (Sugiyono, 2017).

In this study, a sample of 15 patients was determined using inclusion and exclusion criteria.

Inclusion Criteria Include:

1. PatientRoyal Prima Hospital Medan
2. Patients suffering from Type-2 DM (Based on information obtained from the Royal Prima Hospital in Medan)
3. Type-2 DM patients who continue to consume OHA but undergo dietary therapy such as changing white rice to brown rice, consuming special milk for DM, exercising regularly, and staying away from sugar.
4. Type 2 DM patients are not pregnant women

Exclusion criteria include:

1. Patients with complications
2. Patients with communication difficulties
3. Type 2 DM patients who are not on diet therapy

The research variables included the adherence of Type 2 DM patients in undergoing dietary therapy 1

Table 1. Operational Definition of Research Variables

No	Research variable	Operational definition	How to Measure	Measuring instrument	Measurement Results	Scale
1	Compliance with Type 2 DM patients in undergoing dietary therapy	Namely the efforts of patients/informants of Type 2 DM towards compliance in undergoing diet therapy	Interview	1. Obey 2. Disobedient	1. High Total score: 8 2. Medium Total score: 6-7 3. Low Total score <6	ordinal

IV. Results and Discussion

4.1 Results

a. Overview of Research Sites

Royal Prima Hospital Medan is one of the largest private hospitals and will become a referral center for the community, especially the city of Medan and the people of North Sumatra in general. A proud moment, on May 17, 2011, the Deputy Minister of National Education of the Republic of Indonesia, Prof. Dr. Fasli Jalal, PhD. laying the groundwork for the construction of the Royal Prima Hospital. On February 14, 2013, the Head of the North Sumatra Provincial Health Office issued a Temporary Operational Permit to the Royal Prima Hospital Medan No. 440.442/1641/II/YEAR 2014. On February 16, 2014 RS. Royal Prima Medan was inaugurated by the Deputy Governor of North Sumatra Province, Ir. H. Tengku Erry Nuradi, M. Si with a Permanent Operational Permit from the North Sumatra Provincial Health Office signed by the Head of the North Sumatra Provincial Health Office, dr. Siti Hatati Surjantini, M. Kes.

b. Vision and Mission of Royal Prima Hospital Medan

1. Vision

The vision of the Royal Prima Hospital in Medan is to become a Leading Hospital in the fields of health services, education and research and health development by prioritizing the interests of public health.

2. Mission

The mission of the Royal Prima Hospital Medan is:

1. Organizing quality and professional plenary health services based on evidence and scientific research
2. Continuously improve the competence of human resources in accordance with the development of science and technology in medicine, dentistry and other health
3. Improving the quality and quantity of health, education and research facilities/infrastructure in accordance with technological developments and community needs
4. Carry out a comprehensive and integrated research and evidence-based education function in the health sector
5. Creating a work environment that synergizes and upholds human and religious values and improves the welfare of the parties concerned
6. Establish partnerships with various parties in an effort to strengthen the role of hospitals in health services and education
7. Carry out service to the interests of public health

c. Overview of Research Participants (Informants)

Informantin this study as many as 17 informants consisting of 1 doctor, 1 nurse and 15 patients with Type 2 DM.

Table 2. General Data of Informants

No Informant	Informant Status	Age	Gender	Medical history
1	Doctor	54	Man	
2	Nurse	30	Man	
3	Patient 1	51	Man	DM Type 2
4	Patient 2	60	Man	DM Type 2
5	Patient 3	56	Man	DM Type 2
6	Patient 4	49	Woman	DM Type 2
7	Patient 5	55	Man	DM Type 2
8	Patient 6	48	Man	DM Type 2
9	Patient 7	57	Woman	DM Type 2
10	Patient 8	60	Man	DM Type 2
11	Patient 9	53	Woman	DM Type 2
12	Patient 10	59	Man	DM Type 2
13	Patient 11	61	Man	DM Type 2
14	Patient 12	47	Man	DM Type 2
15	Patient 13	53	Man	DM Type 2
16	Patient 14	58	Woman	DM Type 2
17	Patient 15	51	Man	DM Type 2

Table 2 describes 11 male patients and 4 female patients. The age group of Type 2 DM patients is 47 – 61 years. The health history of the informants in this study was Type 2 DM.

4.2 Discussion
a. Results of Interviews with Doctors Regarding Type 2 DM Diet Therapy

Based on the results of interviews conducted by researchers with doctors, it was explained that doctors considered Type 2 Diabetes Mellitus patients who were hospitalized on average 1700 calories of energy. Doctors in determining the nutritional needs of patients are not individually but based on estimates. However, the doctor gives the room nutritionist the freedom to change the patient's diet according to the patient's circumstances and needs. The room nutritionist determines the nutritional needs of the patient by looking at the factors that influence the caloric needs of the Diabetes Mellitus patient, including: gender, age, weight, height, physical activity or occupation, and the presence of complications. The doctor said that the main obstacle in managing the Diabetes Mellitus diet is patient saturation in following the diet. The main key to the diet in Type 2 DM is the 3J, namely the number of calories, the type of food, and the food schedule. This is something that must be considered in the management of the diet for patients with Type 2 DM, namely for the eating schedule, the DM patient's preference for certain foods, lifestyle, eating hours that he usually follows and his ethnic and cultural background must be considered.

Then the advice given by doctors to Type 2 DM patients who are currently on a diet therapy program to have an optimistic, consistent and diligent attitude and behavior in doing diet therapy, as well as consistently avoiding foods that are prohibited for consumption, and also routinely. exercising.

b. Results of Interviews with Nurses Regarding Type 2 Diabetes Diet Therapy

The results of interviews with nurses regarding things that are often ignored by DM patients in hospitals include patients who still often do not reduce their consumption of sweet foods even though they have used sugar substitutes, rarely eat vegetables, do not exercise and do not control their weight. The majority of Type 2 DM patients in the hospital have experienced complications or have other diseases such as hypertension and gout. The presence of complications or other diseases makes patients often do not comply with the dietary recommendations given. Nurses in hospitals often find patients who do not follow the dietary rules of food that have been given by health workers. The patient said that he often eats dinner, eats large portions and sometimes eats foods that are taboo for diabetes mellitus patients.

The following is the level of adherence to diet therapy in patients with Type 2 Diabetes Mellitus.

Table 3. Adherence to Diet Therapy for Type 2 DM Patients

Compliance Rate	N	Percentage (%)
Tall	10	66.7
Currently	4	26.7
Low	1	6.7
Total	15	100

Source: Primary data processed 2022

Table 3 explains the level of adherence to diet therapy in patients with Type 2 DM at RSU Royal Prima Medan, from 15 informants or patients with Type 2 DM at RSU Royal Prima Medan, patients with diet therapy adherence levels in the high category were 10 patients with a percentage of 66.7%. , patients with diet therapy adherence in the moderate

category were 4 patients with a percentage of 26.7%, and for patients with a low level of adherence to diet therapy there were 1 patient with a percentage of 6.7%

The results of the study showThe level of adherence to diet therapy in this study with a high category of 10 patients with a percentage of 66.7%, patients with a level of adherence to diet therapy with a moderate category of 4 patients with a percentage of 26.7%, and for patients with a level of adherence to diet therapy with a low category as many as 1 patient with a percentage of 6.7%.

Diet is a therapy that is needed by type 2 DM sufferers because it provides the main benefit of improving insulin regulation in the body, so that in addition to being able to lose weight and make the body healthier, it is also able to prevent the severity of DM. Cognitive abilities will affect the way participants think. Participants have a tendency to find the right solution to the problems at hand, as well as when participants suffer from type 2 DM which requires them to adhere to a diet (Elfa, 2019).

People with Diabetes Mellitus experience many life changes. This sudden change in life makes people with Diabetes Mellitus show some negative psychological reactions or symptoms including irritability, feeling useless, increased anxiety, stress, and depression so that it becomes a complex problem in management.

Stress can be a symptom that appears as a cause of DM or as a result of someone suffering from DM. Stress can be managed properly if you have a high awareness. Therefore, a diet that demands individual awareness can be one way to make people with diabetes get used to managing blood sugar levels, and make it easier for someone to get back under control of stress.

The results of this study indicate that the average patient or informant said they were on diet therapy because they felt weak when blood sugar was rising and were afraid of DM complications. Based on the results of interviews with other patients stated that some patients felt positive things after doing diet therapy which included feeling healthier, and more interested in continuing to do diet therapy.

These results are in line with research conducted by Elfa (2019) where based on findings from interviews with DM patients, participants conveyed several positive feelings they felt about the diet they were following, including feeling a healthy body due to self-suggestion, being able to get used to being disciplined, being interested in dietary recommendations, satisfied with the current situation, feel happy and feel the body becomes healthier and lighter. Health is a very important element of the quality of life in national development (Najikhah, 2021).

Type 2 DM patients who are undergoing dietary therapy must maintain the quality of food to be consumed. The recommended amount and quality of food in the diet of diabetic patients based on recommendations from the Diabetes Nutrition Study Group (DNSG) includes protein intake of 10% to 20% of energy intake (E %) or about 0.8 to 1.3 g/kg body weight in persons under 65 years of age, and 15% to 20% E% in persons over 65 years appear to be safe under stable weight conditions (Pfei et al., 2020).

In addition, to continue to be consistent in the diet therapy program for patients, it must be accompanied by local environmental support and also the family where the role of the family greatly influences the success of diet therapy being carried out by the patient or informant as well as the results of this study where the average patient or informant said that the family, they are very supportive of the diet therapy program that is being undertaken. But all of that will also go well if there is intention and sincerity from the patient or informant who will undergo it, which with serious intentions will make it easier for the patient or informant to be successful in doing diet therapy.

V. Conclusion

1. The attitude of patients with Type 2 DM towards diet therapy has a positive attitude where the informants in this study have confidence in the benefits that will be obtained when undergoing diet therapy, where diet therapy can prevent disease, prevent complaints from reappearing, make the body ideal and live healthier, informants have the assumption that diet therapy can have an impact on health. Then the informants' feelings in responding to diet therapy have various ways such as routine exercise, drinking special milk for DM, routine control, staying away from sugar, being open, worshiping God, drinking mangosteen juice, replacing rice with brown rice and will not do disobedient behavior with diets. The positive attitudes and behaviors of the informants will increase the possibility to adhere to the diet.

2. Subjective norms of Type 2 DM patients on dietary therapy undertaken by the informants of this study were able to influence Type 2 DM patients in adhering to dietary therapy. Subjective belief in Type 2 DM patients, namely patients have the belief that not all foods will affect blood sugar levels.

3. Individual behavioral control on diet therapy includes the convenience of informants when undergoing Type 2 DM diet therapy. These conveniences include positive thoughts, being satisfied with various foods, being sincere and surrendering to God, ignoring temptation, being disciplined, relaxed, diligent in fasting, having commitment, not listening to other people's words and refusing invitations to disobey diet therapy.

4. Individual intentions in doing diet therapy in this study include the tendency of informants to go on a diet by carrying out several habits such as cooking their own food, the informant's desire to be healthy is high, carrying out the recommendations of doctors and nurses, always maintaining a diet, and always avoiding prohibitions or taboos.

5. Individual dietary therapy adherence behavior in this study was diet-adherent behavior in which participants did the 3J diet (right type, right amount and right hour) and then felt a positive impact after dieting.

6. The level of adherence to diet therapy in this study with a high category of 10 patients with a percentage of 66.7%, patients with a level of adherence to diet therapy with a moderate category of 4 patients with a percentage of 26.7%, and for patients with a level of adherence to diet therapy with a low category as many as 1 patient with a percentage of 6.7%

References

ADA (2017) 2017 ADA Newest Guide Focusing on a Holistic Approach", Kalbemed, 44(9), pp. 638–639.

American Diabetes Association, 2018. Standards of Medical Care in Diabetes2018 M. Matthew C. Riddle, ed., Available at: https://diabetesed.net/wpcontent/uploads/2017/12/2018-ADA-Standards-of-Care.pdf.

Fencing, N. & Ratnadi, N. 2017. "Theory Of Planed Behavior to Predict Investment Intentions" E-Journal of Economics and Business Udayana University 6.12 (2017): 4043-4068.

Ajzen, I., (2015), "Attitudes, Personality and Behavior, 2nd Edition", McGraw Hill Professional Publishing, Berkshire, GBR

Flowers, PT (2019). Unit Cost Analysis in Inpatient Health Services at the Tora Belo Regional General Hospital in Sigi Regency, Central Sulawesi Province. Tadulako University Postgraduate Management Masters Study Program.

Decroli, E. (2019). Diabetes Mellitus Type 2. Padang: Publishing Center Section of Internal Medicine, Faculty of Medicine, Andalas University

Ministry of Health, RI., 2016. Diabetes Mellitus is the No. 6 Cause of Death in the World: The Ministry of Health Offers Clever Solutions Through Posbind

Elfa, LI (2019). Compliance with Type-2 Diabetes Mellitus Patients Undergoing Diet Therapy in View from The Theory of Planned Behavior. Faculty of Nursing Universitas Airlangga

Elsa trinovita, f. D. (2020). Teaching materials for pharmacotherapy of endocrine pathomechanical and metabolic disorders. Pasuruan, East Java: cv. publisher qiara media.

Fatimah, RN 2015. Diabetes Mellitus Type 2. Jakarta: J MAJORITY. Vol. 4, No. 5:93-99

IDF. International Diabetes Federation Diabetes Atlas 8th ed2017

International Diabetes Federation [IDF]. (2014). IDF Diabetes ATLAS 4th Edition. ISBN-13: 978-2-930229-71-3. THERE IS

Iskandar, A. and Saragih, R., 2018. The Influence of Attitudes towards Behavior, Subjective Norms, and Perceptions of Control over Behavior on Whistleblowing Intentions and Behavior of Civil Servants. Journal of State Financial Governance & Accountability.

LIM, TL (2016) Table of contents", Proceedings International Conference on Innovation and Management, (2125), pp. 61–77. doi: 10.1002/ejoc.201200111

Najikhah, N., et.al. (2021). Determinants of Complete Basic Immunization in Children Aged 12-23 Months in Indonesia. Budapest International Research in Exact Sciences (BirEx) Journal Vol 3 (4): 304-318.

Ni Nyoman, WL 2018. Theory of Planned Behavior as Efforts to Increase Complience in Diabetes Mellitus Clients. JOURNAL OF MKMI, Vol. 14 No. 2, June 2018

Notoatmodjo, S. (2014). Health Promotion and Behavioral Science. Jakarta : Rineka Cipta

Osei-Kwasi, HA (2016) Systematic mapping review of the factors influencing dietary behavior in ethnic minority groups living in Europe: A DEDIPAC study", International Journal of Behavioral Nutrition and Physical Activity. International Journal of Behavioral Nutrition and Physical Activity, 13(1). doi:10.1186/s12966-016-0412-8.

PERKENI. Management and Prevention of Type 2 Diabetes Mellitus in Indonesia.2015

Pramudya, Aldita Rosa. 2018. The Effect of Public Service Quality, Tax Administration Reform, Tax Knowledge and Taxpayer Awareness on Motor Vehicle Taxpayer Compliance. Accounting Study Program, Faculty of Economics and Business, University of Muhammadiyah Yogyakarta.

Minister of Health Regulation, 2016. Regulation of the Minister of Health of the Republic of Indonesia Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals. Jakarta: Ministry of Health of the Republic of Indonesia.

Pfei, AFH, Pedersen, E., Schwab, U., Ris, U., & Aas, A. (2020). nutrients The E ff ects of Different Quantities and Qualities of Protein Intake in People with Diabetes Mellitus. 1–12.

Roth, RJ and Republik, MP (2016) HHS Public Access Screenwriter, (2013), pp. 1–5.

Schwartz SS, Epstein S, Corkey BE, Grant SF, Gavin JR, 3rd, Aguilar RB. The time is right for a new classification system for diabetes: rationale and implications of the -cell-centric classification schema. Diabetes Care. 2016;39(2):179–186

Sugiyono. 2017. Qualitative and R&B Research Methods. Bandung: Alphabeta.

WHO.Global Report on Diabetes.2016.

Z., B., S., S. and EZ, T. (2018) Adherence to diabetic self-care practices and its associated factors among patients with type 2 diabetes in addis Ababa, Ethiopia", Patient Preference and Adherence, 12, pp. 963–970. doi:10.2147/PPA.S156043.