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# The Influence of Knowledge, Self-Motivation, and Family Support on Accuracy Number, Type, and Schedule of Meals in Outpatient Type II DM Patients

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**ABSTRACT**

***Background:*** *According to Riskesdas data in 2018, the prevalence of Diabetes Mellitus in the population aged ≥15 years on the national average increased by 2% from 2013 (Kemenkes RI 2018). Eating arrangements are essential in the management of type II DM. Eating arrangements in type II DM patients follow the 3J principle: the right amount, type, and meal schedule. Several factors influence dietary compliance, including the patient's knowledge related to the disease, namely DM, self-motivation from within the patient, and support from the patient's family. Based on the background, the researcher is interested in conducting research -on the influence of knowledge, self-motivation, and family support on the accuracy of the amount, type, and schedule of meals in outpatient type II DM patients at Pagesangan Health Center‖.*

***Research Methods:*** *The study was quantitative. The research subjects were 22 people. Questionnaires were used to measure knowledge, self-motivation, and family support. In addition, the 24-hour Recall Form is used to measure the accuracy of the amount, type, and meal schedule. The analysis used was a Chi-Square analysis test to determine the effect of the variables studied.*

***Research Result:*** *There is no effect of knowledge, self-motivation, and family support on the accuracy of the amount of food, type of food, and meal schedule in type II DM patients at Pagesangan Health Center.*

***Conclusion:*** *There is no effect of knowledge, self-motivation, and family support on the accuracy of the amount of food, type of food, and meal schedule in type II DM patients at Pagesangan Health Center.*

## BACKGROUND

Diabetes mellitus is a group of metabolic diseases synonymous with hyperglycemia in patients, and it can occur due to abnormalities in insulin secretion, insulin action, or both. There are several types of DM, one of which is type II DM, which is a type of Diabetes that occurs more frequently and widely when compared to other types of Diabetes. The factors that cause type II DM are not fully clear, but genetic factors and environmental influences contribute significantly to causing a person to develop type II DM. In addition, lifestyle and eating/dietary arrangements also affect the incidence of type II DM, such as a high-fat, high-sodium, and low-fiber diet and lack of physical activity or exercise (PERSAGI and ADI 2020). According to Riskesdas data in 2018, the prevalence of Diabetes Mellitus in the population aged ≥15 years, the national average is 2.0%, an increase of 2% from 2013 (Kemenkes RI 2019).

According to (PERKENI 2021), DM management has four pillars: education, medical nutrition therapy or eating arrangements, physical exercise, and pharmacological therapy or drugs. To improve the quality of life in type II DM patients, it is necessary to pay attention to management, which emphasizes changes in lifestyle through providing education, diet, and physical activity. Based on the results of observations made by researchers at the Pagesangan Health Center in August 2022, the DM management provided by the health center for DM patients is the existence of a Prolanis association, which is carried out regularly once a week with a series of activities such as morning exercise for DM patients, providing DM-related education, routine Fasting Blood Glucose Level checks once a month for each DM patient and the provision of drugs and insulin, while for proper eating arrangements according to diet in type II DM patients have not been applied.

Dietary management is one of the pillars of DM management and is an integral part of type II DM management. Eating arrangements in type II DM patients follow the established principles of eating arrangements, often called the 3J principles, namely the right amount of energy and nutrients, the correct type of food or food ingredients, and the proper meal schedule. According to (Gusdiani, Sukarni, and Mita 2020), eating arrangements in type II DM patients can affect blood glucose levels. Based on the results of research (Dhiyanti, Tanuwijaya, and Arfiani 2020) conducted at one of the general hospitals belonging to a private university in Malang, there were discrepancies in the content of energy, protein, fat, and carbohydrates in the ABC menu plan that had been prepared for patients with type II DM with the ABC menu plan.

Dietary standard: 1700 kcal. Food portioning must follow the predetermined portion standards, and portioning discrepancies will affect the amount of energy and nutrients consumed by DM patients. Based on the research results (Astuti 2018), there is a discrepancy between the portion standards determined by the size of the portions of vegetables and vegetables on the regular food menu served at Bahteramas Hospital.

Eating arrangements in type II DM patients are no different from those in healthy people, with a balanced diet according to individual energy and nutrient needs. Type II DM patients can still eat with the menu served in the family with the same type of food, but the most important thing is to pay attention to the amount of food consumed at each meal. Research results (Pramayudi 2020) for diet compliance based on the amount of food consumed by research respondents showed that there were still respondents who were not the right amount or were not compliant with the diet given, namely 53.7% of respondents.

Based on the results of research (Nursihhah and Wijaya Septian 2021), there is a relationship between dietary compliance or eating arrangements and controlling blood glucose levels; type II DM patients who do not adhere to a diet have a greater risk of uncontrolled blood sugar compared to DM patients who adhere to a diet. From the results of an initial survey conducted by researchers on three type II DM patients at the Pagesangan Health Center who experienced an increase in fasting blood glucose levels (GDP) in August 2022, the recall results obtained in the three type II DM patients were the amount of energy and nutrients of carbohydrates, protein and fat less than daily needs. Based on the results of an initial survey conducted by researchers, it is known that type II DM patients at Pagesangan Health Center have not implemented the right amount of food diet settings. Based on the results of research (Dwibarto1 et al. 2022), several factors influence dietary compliance, including patient knowledge related to the disease suffered, namely DM, self-motivation from within the patient, and support from the patient's family.

Based on the above background, the researcher is interested in researching the influence of knowledge, self-motivation, and family support on the accuracy of the amount, type, and schedule of meals in outpatient type II DM patients at Pagesangan Health Center.

## RESEARCH METHODS

The study is quantitative and has a cross-sectional design. With this design, each research subject will be given a questionnaire to determine the level of knowledge, self-motivation, and family support and its relation to the accuracy of the amount, type, and meal schedule of type II DM patients. Two variables are used in this study: independent and dependent variables. The independent variables in this study are knowledge, self-motivation, and family support. Dependent variables in this study were the accuracy of type II DM patients' amount, type, and meal schedule. The data obtained were analyzed using the Chi-Square test to determine the relationship between knowledge, self-motivation, and family support to the accuracy of the amount of food, type of food, and meal schedule. To see the results of the statistical test analysis, it can be

seen if the p-value <0.05 means that statistically there is a relationship between the two variables tested; otherwise, if the p-value>0.05 means that statistically there is no relationship between the two variables tested.

**RESULTS AND DISCUSSION**

The subjects in the study were outpatient type II DM patients registered as Prolanis members in the Pagesangan Health Center working area, with as many as 22 people. The characteristics of the subjects were seen from Age, Gender, Length of DM Suffering, and Dietary Standards in each research subject. The following are the subject characteristics after data grouping:

**Table 1 Frequency distribution of subject characteristics**

| Subject Characteristics | | n | % |
|---|---|---|---|
| Age | 36-45 Years | 6 | 27.3 |
| | 46-55 Years | 7 | 31.8 |
| | 56-65 Years | 6 | 27.3 |
| | >65 Years | 5 | 22.7 |
| | Total | 22 | 100.0 |
| Gender | Male | 1 | 4.5 |
| | Female | 21 | 95.5 |
| | Total | 22 | 100.0 |
| Duration of DM | <5 Years | 12 | 54.5 |
| | 5-9Years | 7 | 31.8 |
| | ≥10 Years | 3 | 13.6 |
| | Total | 22 | 100.0 |
| Dietary Standards | 1100 kcal | 3 | 13.6 |
| | 1300 kcal | 2 | 9.1 |
| | 1500 kcal | 8 | 36.4 |
| | 1700 kcal | 6 | 27.3 |
| | 1900 kcal | 2 | 9.1 |
| | 2100 kcal | 1 | 4.5 |
| | Total | 22 | 100.0 |

Based on Table 1 above, from the age of 22 research subjects, most were 46-55 years old as many as seven people 31.8%). Judging from the gender of 22 research subjects, most were women, as many as 21 people (95.5%). Judging from the time suffering from DM, 22 research subjects mostly <5 years, as many as 12 people (54.5%). Judging from the standard DM diet, 22 research subjects mostly used the standard 1500-calcium diet, and as many as eight people (36.4%).

**Table 2 Effect of Knowledge, Self-Motivation and Family Support on the Accuracy of the Amount of Food**

| Category (Knowledge, Self-Motivation and Family Support) | | Food Quantity Accuracy | | | | Total | | p-value |
|---|---|---|---|---|---|---|---|---|
| | | Exactly | | Inappropriate | | | | |
| | | n | % | n | % | n | % | |
| Knowledge | Good | 1 | 4.5 | 11 | 50,0 | 12 | 54.5 | 0.350 |
| | Less | 0 | 0.0 | 10 | 45.5 | 10 | 45.5 | |
| | Total | 1 | 4.5 | 21 | 95.5 | 22 | 100.0 | |
| Self Motivation | Good | 1 | 4,5 | 13 | 59.1 | 14 | 63.6 | 0.439 |
| | Less | 0 | 0.0 | 8 | 36.4 | 8 | 36.4 | |
| | Total | 1 | 4.5 | 21 | 95.5 | 22 | 100.0 | |
| Family Support | Good | 0 | 0.0 | 13 | 59.1 | 13 | 59.1 | 0.400 |
| | Medium | 1 | 4.5 | 7 | 31.8 | 8 | 36.4 | |
| | Less | 0 | 0.0 | 1 | 4.5 | 1 | 4.5 | |
| | Total | 1 | 4.5 | 21 | 95.5 | 22 | 100.0 | |

Based on Table 2, as seen from knowledge, the statistical test results in a p-value of 0.350 (>0.05) indicate no influence of the level of knowledge on the accuracy of the amount of food in type II DM patients. Judging from self-motivation, the statistical test results p-value of 0.439 (>0.05) indicates no effect of self-motivation on the accuracy of the amount of food in type II DM patients. Judging from family support, the statistical test results in a p-value of 0.400 (>0.05) indicate no effect of family support on the accuracy of food in type II DM patients.

**Table 3 Effect of Knowledge, Self-Motivation, and Family Support on Food Type Accuracy**

| Category (Knowledge, Self-Motivation and Family Support) | | Appropriateness of Food Type | | | | Total | | p-value |
|---|---|---|---|---|---|---|---|---|
| | | Exactly | | Inappropriate | | | | |
| | | n | % | n | % | n | % | |
| Knowledge | Good | 6 | 27.3 | 6 | 27.3 | 12 | 54.5 | 0.145 |
| | Less | 2 | 9.1 | 8 | 36.4 | 10 | 45.5 | |
| | Total | 8 | 36.4 | 14 | 63.6 | 22 | 100.0 | |
| Self Motivation | Good | 6 | 27.3 | 8 | 36.4 | 14 | 63.6 | 0.402 |
| | Less | 2 | 9.1 | 6 | 27.3 | 8 | 36.4 | |
| | Total | 8 | 36.4 | 14 | 63.6 | 22 | 100.0 | |
| Family Support | Good | 5 | 22.7 | 8 | 36.4 | 13 | 59.1 | 0.741 |
| | Medium | 3 | 13.6 | 5 | 22.7 | 8 | 36.4 | |
| | Less | 0 | 0.0 | 1 | 4.5 | 1 | 4.5 | |
| | Total | 8 | 36.4 | 14 | 63.6 | 22 | 100.0 | |

Based on Table 3, as seen from the knowledge, the statistical test results p-value of 0.145 (>0.05) indicates no influence of the level of knowledge on the accuracy of the type of food in type II DM patients. Judging from self-motivation, the statistical test results p-value of 0.402 (>0.05) indicates no effect of self-motivation on the accuracy of food types in patients with type II diabetes. Judging from family support, the statistical test results p-value 0.741 (>0.05) show that family support does not influence the accuracy of food types in patients with type II diabetes.

**Table 4 Effect of Knowledge, Self-Motivation and Family Support on the Accuracy of Food Schedule**

| Category (Knowledge, Self-Motivation and Family Support) | | Appropriateness of Meal Schedule | | | | Total | | p-value |
|---|---|---|---|---|---|---|---|---|
| | | Exactly | | Inappropriate | | | | |
| | | n | % | n | % | n | % | |
| Knowledge | Good | 1 | 4.5 | 11 | 50.0 | 12 | 54.5 | 0.350 |
| | Less | 0 | 0.0 | 10 | 45.5 | 10 | 45.5 | |
| | Total | 1 | 4.5 | 21 | 95.5 | 22 | 100.0 | |
| Self Motivation | Good | 1 | 4.5 | 13 | 59.1 | 14 | 63.6 | 0.439 |
| | Less | 0 | 0.0 | 8 | 36.4 | 8 | 36.4 | |
| | Total | 1 | 4.5 | 21 | 95.5 | 22 | 100.0 | |
| Family Support | Good | 1 | 4.5 | 12 | 54.5 | 13 | 59.1 | 0.696 |
| | Medium | 0 | 0.0 | 8 | 36.4 | 8 | 36.4 | |
| | Less | 0 | 0.0 | 1 | 4.5 | 1 | 4.5 | |
| | Total | 1 | 4.5 | 21 | 95.5 | 22 | 100.0 | |

Based on Table 4, as seen from the knowledge, the statistical test results p-value of 0.350 (>0.05) indicates no influence of knowledge on the accuracy of meal schedules in type II DM patients. Judging from self-motivation, the statistical test results p-value of 0.439 (>0.05) indicates no effect of self-motivation on the accuracy of meal schedules in patients with type II DM. Judging from family support, the statistical test results p-value of 0.696 (>0.05) indicates no effect of family support on the accuracy of eating schedules in type II DM patients.

Based on the results of this study, it is known that knowledge does not affect the accuracy of the amount, type, and schedule of meals in type II DM patients at Pagesangan Health Center. In this study, most patients had good knowledge but were not precise in applying the amount of food. Food, type of food, and meal schedule. This shows that other factors can influence adherence to the proper diet regarding the amount, type, and schedule of meals in type II DM patients.

From the observations made by researchers, patient dependence on drugs for DM patients is one of the factors that affect compliance in carrying out the proper diet, type, and meal schedule. This is found in some DM patients who assume that as long as the patient is obedient and does not forget to take medicine, there will be no increase in blood sugar in the patient. In addition, another factor that can affect compliance in carrying out the proper diet for the number, type, and schedule of meals in type II DM patients is the patient's work; patients who do not work pay more attention to their meal schedules because they do not have other activities. Meanwhile, working patients do not have enough time to schedule their meals. This is in line with research (Rohani 2018) entitled Analysis of Factors Associated with Dietary Compliance of Diabetes Mellitus Patients getting a significant relationship between occupation and compliance with DM dietary rules where DM patients who do not work have a 3.923 times chance of complying with the diet program compared to DM patients who work.

Based on the study's results, self-motivation does not affect the accuracy of the amount, type, and schedule of meals for type II DM patients at Pagesangan Health Center. Motivation is a drive from within a person that causes that person to carry out certain activities to achieve a goal. According to Retno Dwi Susanti (2018), in a person, there is a need or desire for an object outside the person.

Motivation plays a very large role in determining DM patients' behavior, including diet adherence. Most DM patients have good or high motivation in DM management. The existence of self-motivation in type II DM patients greatly influences attitudes related to DM management.

The better the patient's motivation to undergo a DM diet, the more positive his attitude regarding his compliance with the recommended diet will be. Conversely, if self-motivation is lacking, it will affect the attitude in making the right decisions regarding compliance with the recommended diet. However, self-motivation alone will not be enough for someone to act; someone with good self-motivation will not necessarily comply with the diet due to external obstacles, such as the inability to independently carry out the proper diet due to a lack of family support.

Based on the study's results, researchers argue that having a strong desire or self-motivation from the patient does not necessarily mean the patient will be compliant in carrying out the diet. This is because patients are more likely to look for other alternatives to controlling their disease, such as patients routinely participating in gymnastic activities held by the health center and patients routinely consuming medicines prescribed by health workers. Patients assume that this is sufficient to control the patient's blood sugar as long as the patient does not get symptoms or signs of DM. This is in line with research (Retno Dwi Susanti 2018) that shows no relationship between self-motivation and compliance with diet in type II DM patients.

Based on the results of the study, it is known that family support does not affect the accuracy of the number, type, and schedule of meals for type II DM patients at Pagesangan Health Center. Based on the observations of researchers during the study, the support provided by families to patients with type II DM is by adjusting the family cooking menu according to the DM patient's dietary recommendations, participating in patient counseling or counseling activities, and accompanying patients to the Puskesmas for routine check-up activities every month. This is not in line with research (Siregar 2021) that there is a relationship between family support and diet compliance for type II DM patients.

From the results of this study, it is known that there is no relationship between the knowledge, self-motivation, and family support of DM patients; this is because most patients have good knowledge, self-motivation, and family support but inversely proportional to the accuracy of the amount, type and schedule of eating patients mainly in the inappropriate category. From the results of interviews with subjects during home counseling sessions at the time of the study, it was found that when researchers made home visits and provided counseling related to nutrition, type II DM patients were always accompanied by their children. The patient said that the patient's child's knowledge related to DM helped the patient in undergoing his daily diet,

such as reminding meal times, cooking food for the family by adjusting the types of food allowed for patients, and routinely bringing patients to the health center to take part in Prolanis gymnastics activities and routine checks every month. This is not in line with research (Anggi and Rahayu 2020) that there is a relationship between family support and dietary compliance in type II DM patients.

In addition to the factors mentioned above, one of the factors that can affect the compliance of DM patients in undergoing a diet with the right amount, type, and meal schedule in type II DM patients is in line with research (Erma Kasumiyanti and Bonita Rahayu 2019) that there is a significant relationship between health worker support and dietary compliance in type II DM patients in carrying out the proper diet according to the right diet amount, type and meal schedule.

## CONCLUSIONS

Knowledge, self-motivation, and family support do not affect the accuracy of the amount of food, type of food, and meal schedule in type II DM patients at Pagesangan Health Center.

## SUGGESTION

Future researchers need to study in more depth factors related to patient compliance in undergoing a proper diet for the number, type, and schedule of patient meals, as well as the effect of family support and counseling with the patient's family on dietary compliance with the right amount, type, and schedule of meals in Type II DM patients.

## REFERENCES

Anggi, Selvy Anggi, and Sri Rahayu. 2020. -Dietary Compliance in Type II Diabetes Mellitus Patients.‖ Scientific Journal of Nursing Stikes Hang Tuah Surbaya 15 (1): 124-38.

Astuti, Ida Ayu Eka. 2018. -Description of Conformity of Hospital Meal Portion Standards with Portion Size Served at the Nutrition Installation of Bahteramas Hospital, Kendari City. ‖ 7: 1-25.

Dhiyanti, Afifah Yasyfa, Laksmi Karunia Tanuwijaya, and Eva Putri Arfiani. 2020. -Analysis of the Conformity of Energy Content and Macronutrients of Menu Plans with Dietary Standards for Diabetes Mellitus Patients.‖ Amerta Nutrition 4 (1): 1.

Dwibarto1 , Rendita et al. 2022. -Factors Affecting Compliance with Diabetes Mellitus Patients in Carrying out Diabetes Mellitus Diet and Exercise Therapy.‖ Scientific Journal of Public Health: Public Health Community Communication Media 14(3): 105-9. https://jikm.upnvj.ac.id/index.php/home/article/view/77.

Erma Kasumiyanti, and Bonuita Rahayu. 2019. -The Relationship between Self-Motivation and Health Professional Support with Dietary Adherence of Patients with Type 2 DM in the Work Area of UPTD Puskesmas Bangkinang Kota.‖ JournalNers 3 (23): 39-48.

Gusdiani, Indah, Sukarni, and Mita. 2020. -The Effect of Using the Reminder Application on Dietary Adherence and Blood Sugar Levels of Type II Diabetes Mellitus Patients.‖ Journal of Proners 6 (1): 1-10.

Indonesian Ministry of Health. 2018. -Basic Health Research Results 2018,‖ Ministry of Health 53(9): 1689-99. --- . 2019. -National Report on Basic Health Research 2018.‖ In Ministry of Health, , 1.

https://www.kemkes.go.id/article/view/19093000001/penyakit-jantung-penyebab-kematian-terbanyak-2nd-in-Indonesia.html.

Nursihhah, Meliana, and Dwi Wijaya septian. 2021. -The Relationship between Dietary Compliance and Blood Sugar Level Control in Type 2 Diabetes Mellitus Patients.‖ Journal of MedikaHutama Vol 02, No (Dm): 9.

PERKENI. 2021. -Guidelines for the Management and Prevention of Adult Type 2 Diabetes Mellitus in Indonesia.‖ Global Initiative for Asthma: 46.

PERSAGI, and ADI. 2020. Guide to Diet and Nutritional Therapy.

Pramayudi, Nanang. 2020. -Description of Dietary Adherence of Type 2 Diabetes Mellitus Patients at the Poto Tano Health Center, West Sumbawa Regency in 2020.‖

Retno Dwi Susanti. 2018. The Relationship between Motivation and Healtf Locus of Control with Dietary Adherence in Patients with Diabetes Mellitus.

Rohani, Ardenny. 2018. -Analysis of Factors Associated with Dietary Adherence of Patients with Diabetes Mellitus.‖ Journal of Health Protection 7(2): 61-67.

Siregar, Khoirunnisah. 2021. -The Relationship between Family Support and Motivation to Follow the Diabetes Mellitus Diet in the Community of Bonan Dolok Village, Siabu District‖: 1-91.