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Original Research

The Effect of Family Support in Nutrition Education on Dietary Adherence and Blood Glucose Levels of Type 2 Diabetes Mellitus Inpatients at Panti Rapih Hospital Yogyakarta

Pengaruh Dukungan Keluarga dalam Edukasi Gizi terhadap Kepatuhan Diet dan Kadar Glukosa Darah Pasien Diabetes Melitus Tipe 2 di Rumah Sakit Panti Rapih Yogyakarta

Yacinta Adies Setyaning Jati[1], Diyan Yunanto Setyaji[1*], Hiasinta Anatasia Purnawijayanti[1]
[1]Nutrition Department, Sekolah Tinggi Ilmu Kesehatan Panti Rapih Yogyakarta, Yogyakarta, Indonesia

*Email corresponding author: diyansetyaji@stikespantirapih.ac.id

Abstract: *Diabetes mellitus is included in the group of metabolic diseases with characteristics of hyperglycemia that occurs due to abnormalities in insulin secretion and function or both. According to the Association of Diabetes Care and Education Specialists, there are 7 pillars of diabetes mellitus management that can be done, one of which is providing nutritional education. The purpose of this study was to determine an effect of family support in nutritional education on dietary compliance and blood glucose levels of type 2 diabetes mellitus at Panti Rapih Hospital, Yogyakarta. This study used a quantitative research design with a quasy experiment design with an accidental sampling method with a sample size of 34 diabetes mellitus inpatients divided into control and experimental groups. The variables of this study will be analyzed using SPSS, with the T-Paired Test and T-Independent Sample Test. Based on the statistical results, the effect of education on dietary compliance in the control and experimental groups showed a p value of 0.000 <0.05. While the statistical results of the effect of education on blood glucose levels in the control group showed a p value of 0.002 <0.05, in the experimental group the results of the p value were 0.001 <0.05. However, based on the results of the statistical test on the difference in compliance scores, a p value of 0.000 <0.05 was obtained. While the results of the statistical test of blood glucose levels obtained a p value of 0.315> 0.05. It can be concluded that family support in providing nutritional education can influence the increase in compliance scores for following a diet but does not affect blood glucose levels in type 2 diabetes mellitus patients at Panti Rapih Hospital, Yogyakarta.*

Key word: Nutrition education, family support, dietary compliance, blood glucose levels, type 2 diabetes mellitus

1. INTRODUCTION

Type 2 diabetes mellitus (T2DM) is a metabolic disease with damage to insulin resistance in muscle and liver cells and pancreatic beta cell failure. T2DM is characterized by hyperglycemia caused by abnormalities in insulin secretion and action or both (1). T2DM is a non-communicable disease (NCD) that is of particular concern in the world of health (2). The World Health Organization (WHO) states that half of the burden of disease, 70%, is T2DM cases and 90-95% of T2DM cases are caused by an unhealthy lifestyle which can be overcome by taking preventive measures (3).

Indonesia is ranked fifth as the country with the highest rate of diabetes, according to the International Diabetes Federation (IDF) with the prevalence of T2DM in 2020 reaching 18 million cases (4). In Yogyakarta City, there were 83,568 cases of T2DM in 2021, with 50,530 cases (60.5%) only receiving standardized health services (5). This can also be seen from the high number of visits by T2DM patients at Panti Rapih Hospital Yogyakarta in 2019 with the number of visits reaching 2,943 within a period of two months (6).

The high number of T2DM cases occurs due to factors such as age, genetics, gender, physical activity, diet and blood glucose levels (7). These risk factors will have an impact on the severity of complications such as T2DM if not treated. The Association of Diabetes Care and Education Specialists (ADCES) has established 7 pillars of diabetes mellitus management to prevent severity and controlled conditions, the 7 pillars of ADCES include healthy coping, healthy eating, being active, taking medication, monitoring, reducing risk, and problem solving (8).

One type of intervention that can be done to improve a person's health is nutritional education (9). Family support for patients with T2DM can be done by paying attention to the food that the patient consumes according to the recommended DM diet. This support can later help patients to comply with the diet they are undergoing and pay attention to the principles of the DM diet, so that T2DM patients can control their blood glucose levels (10). Giving DM diet to T2DM patients pays close attention to the "*3J's-principle*", which includes (*jadwal*) schedule, (*jenis*) type, and (*jumlah*) amount. This is done as a form of controlling blood glucose levels in T2DM patients at normal blood glucose level (11).

Compliance and knowledge greatly affect the control of blood glucose levels in T2DM patients, so families are expected to have sufficient knowledge of the patient's diet. Family support also affects dietary compliance in T2DM patients (12). As one form of nutritional intervention, providing diabetes mellitus diet nutrition education is considered important in improving knowledge and skills for T2DM management. Basically, family support greatly influences the diet program, family support is very necessary to achieve patient success because the main obstacle for patients in diet management is boredom (13).

2. METHODS

This research is a type of quantitative research with a quasy experiment research design, namely conducting an intervention with a two groups pretest posttest control group design research design. This study was conducted to determine the effect of treatment on the experimental group that received the intervention. The study was conducted by conducting the first observation (pretest) then given an intervention in the form of nutrition education with or without family support and then a post-test was conducted.

In this study, the independent variable is family support in nutrition education, while the dependent variable is dietary compliance and blood glucose levels. Independent variables can affect dependent variables, in this study family support in nutrition education can affect dietary compliance and also blood glucose levels of patients with type 2 diabetes mellitus.

The Effect of Family Support in Nutrition Education on Dietary Adherence and Blood Glucose Levels of Type 2 Diabetes Mellitus Inpatients at Panti Rapih Hospital Yogyakarta

The population in this study were all patients with diabetes mellitus who were hospitalized at Panti Rapih Hospital Yogyakarta in 2024. The sample in this study used the accidental sampling technique, namely accidental sampling by taking respondents who happened to be in a place that met the researcher's criteria (14). The sample in this study was 34 respondents who were divided into 2 groups, 17 respondents in the control group and 17 respondents in the experimental group. The study was conducted in July 2024 in the *Elizabeth* and *Lukas* wards of Panti Rapih Hospital Yogyakarta.

Data analysis was conducted by conducting a *T-paired test* to obtain the results of changes in the pre-test and post-test in the control group and the treatment group with Ha accepted if *p value* ≤ 0.05. Differences in the mean difference in dietary compliance in the control and treatment groups Differences in the mean difference in blood glucose levels in the control and treatment groups. In addition, data analysis was also carried out with the T-Independent test to obtain the results of differences in the mean difference in the control group and the treatment group. At the data processing stage using SPSS 23 with a 95% confidence level.

3. RESULTS

Table 1 describes the characteristics of respondents based on gender, age, and last education. It can be seen from the table that the characteristics of the respondents' gender are 10 respondents (58.8%) of respondents in the control group are male and 12 respondents (70.6%) in the experimental group are female. The age of respondents with the largest number in the control and experimental groups is 46-70 years old. The highest education of respondents in this study is high school, 10 respondents (58.8%) in the control group and 11 respondents (64.7%) in the experimental group.

Table 1 Characteristics of Respondents Based on Gender, Age, and Education of the Control Group and Experimental Group at Panti Rapih Hospital Yogyakarta in 2024

Characteristics	Control Group	Experimental Group
Sex		
Men	10	5
Women	7	12
Age		
18 – 45 years old	3	2
46 – 70 years old	14	15
Education Level		
Low (elementary-junior high school)	-	1
Intermediate (senior high school)	10	11
High (college)	7	5

Table 2 describes the characteristics of respondents based on the duration of illness, consumption of food from outside the hospital and access to information by respondents. Based on the duration of illness in this study, the duration of illness of respondents diagnosed with T2DM as many as 9 respondents (52.9%) in the control group had been diagnosed with T2DM for more than 10 years, the same as the experimental group as many as 11 respondents (64.7%) respondents had been diagnosed with T2DM for more than 10 years. Based on patient habits while being treated in the hospital, as many as 14 respondents in the control group and 13 respondents in the experimental group did not consume food other than that provided

by the hospital before being given nutritional education. There were changes in respondents after education was given as many as 15 respondents in the control group and 16 respondents in the experimental group did not consume food from outside the hospital. A total of 34 respondents from 2 groups, there were 13 respondents from the control group and 15 respondents in the experimental group who had never received nutritional education related to diabetes mellitus.

Table 2 Respondent Characteristics Based on Interfering Variables and Access to Information for the Control and Experimental Groups at Panti Rapih Hospital, Yogyakarta in 2024

Characteristics	Control Group	Experimental Group
Duration of illness		
≤ 10 years	8	6
> 10 years	9	11
The habit of consuming food from outside the hospital		
Pre-Test		
Yes	3	4
No	14	13
Post-Test		
Yes	2	1
No	15	16
Access to Information		
Have received nutritional education related to T2DM	4	2
Never received nutritional education related to T2DM	13	15

Table 3 illustrates the total diet compliance score based on the questionnaire given to the study respondents. Based on the results of the diet compliance score, it can be seen that in the control and experimental groups, 13 respondents in the control group and 15 respondents in the experimental group were in the non-compliant category. After providing nutrition education, there was a decrease in the number of non-compliant respondents to 1 respondent in the control group. Meanwhile, there were 16 compliant respondents in the control group and 17 respondents in the experimental group.

Table 3 Respondent Characteristics Based on Diet Compliance of Control and Experimental Groups at Panti Rapih Hospital Yogyakarta in 2024

Groups	Diet Compliance	
	not following dietary recommendations	adhere to diet recommendations
Control		
Pre-Test	13	4
Post-Test	1	16
Experimental		
Pre-Test	15	2
Post-Test	-	17

Table 4 Characteristics of Respondents Based on Random Blood Glucose Levels in the Control and Experimental Groups at Panti Rapih Hospital, Yogyakarta in 2024

Groups	Blood Glucose Levels Categories

The Effect of Family Support in Nutrition Education on Dietary Adherence and Blood Glucose Levels of Type 2 Diabetes Mellitus Inpatients at Panti Rapih Hospital Yogyakarta

	Normal	Pre-Diabetes	Diabetes
Control			
Pre-Test	3	9	5
Post-Test	4	12	1
Experimental			
Pre-Test	1	10	6
Post-Test	5	12	-

Table 4 describes the blood glucose levels of the study respondents. In the control group, 9 respondents were in the pre-diabetes category, 5 respondents were in the diabetes category, and 3 respondents were in the normal category. While in the experimental group, the largest number of respondents were in the pre-diabetes category with 10 respondents, then 6 respondents were in the diabetes category and 1 person was in the normal category. After being given nutrition education, there was a decrease in diabetes respondents in the control group and the experimental group to pre-diabetes to 12 respondents.

Table 5 Average Compliance Score and Blood Glucose Levels in Diabetes Mellitus Patients at Panti Rapih Hospital Yogyakarta before and after education

Variables		Mean ± SD	CI 95%	*p value*
Compliance Score				
Control	Pre-Test	39,24 ± 5,044	36,64 – 41,83	0,000*
	Post-Test	50,59 ± 5,557	47,73 – 53,45	
Experimental	Pre-Test	39,00 ± 4,472	36,70 – 41,30	0,000*
	Post-Test	62,18 ± 3,264	60,50 – 63,85	
Blood Glucose Levels				
Control	Pre-Test	192,35 ± 99,500	141,19 – 243,51	0.002*
	Post-Test	126,59 ± 61,909	94,76 – 158,42	
Experimental	Pre-Test	214,06 ± 122,656	151,00 – 277,12	0,001*
	Post-Test	117,24 ± 27,526	103,08 – 131,39	

** T-Paired test, alpha 5%*

Table 5 illustrates the differences in the average compliance score before and after education that there is a change. Based on the statistical results in the control and experimental groups showed a *p value* of 0.000 <0.05, so it can be concluded that from both groups there is an effect of education on changes in dietary compliance in T2DM patients. In addition, the difference in the average blood glucose level score before and after education that there is a change in blood glucose levels. Based on the statistical results in the control group showed a *p value* of 0.002 <0.05, in the experimental group the results obtained a *p value* of 0.001 <0.05 so it can be concluded that from both groups there is an effect of education on changes in blood glucose levels in T2DM patients.

Table 6 Comparison of the mean difference in changes in compliance scores and blood glucose levels after education at Panti Rapih Hospital, Yogyakarta

Variables	Δ Mean		*p value*
	Control	Experimental	
Compliance Score	11,35	23,18	0,000*

Blood Glucose Levels	65,76	96,82	0,315

T-Independent test, alpha 5%

Table 6 shows the changes in scores in the control group and the experimental group before and after education. Based on the results of the statistical test, a *p value* of 0.000 <0.05 was obtained, indicating a difference in the average dietary compliance between the control and experimental groups. In addition, it also shows a difference in the average blood glucose levels between the control and experimental groups. Based on the results of the statistical test, a *p value* of 0.315> 0.05 was obtained, indicating no difference in the average blood glucose levels of respondents between the control and experimental groups.

4. DISCUSSION

The results of the study showed a difference in scores between the control and experimental groups before and after education. The analysis was carried out by conducting a Paired T Test to see the effect of providing nutrition education on changes in compliance scores in the pre-test and post-test. Based on the test conducted, the p value results showed the effect of nutrition education on dietary compliance in the control group and the intervention group. It can be concluded that providing education is very important to improve patient dietary compliance. In addition, based on the results of the analysis with the Independent T Test which was carried out to see the difference in the mean difference (Δ) of dietary compliance scores at the pre-test and post-test in the control and experimental groups, it showed a difference. This can also be observed in the change in the mean difference in pre-test and post-test scores of the control group and the experimental group. This shows that in the experimental group the change in the dietary compliance score was higher compared to the control group. So that providing education with family support has a significant effect on T2DM patient dietary compliance compared to providing education without family support.

Based on the results of the research analysis that family support has an effect on T2DM patient dietary compliance, there is a study that says that there is an effect of nutritional education on inpatient dietary compliance. This is in line with research conducted by Savitri, that there is a significant relationship between family support and dietary compliance of T2DM patients (15). This study is also in line with research by Djamaluddin which shows that there is a significant influence between family support and the diet of T2DM patients because the family is the closest person who can support patients during treatment both in hospital and at home (16). The results of the study by Bangun, also stated that with family support, it is hoped that families can be involved in diet management, especially in supervising, paying attention to, and preparing diets for family members suffering from T2DM (17). The results of the study showed differences in blood glucose levels before and after providing nutrition education. Blood glucose levels after providing education in the control group and the experimental group tended to decrease. This shows changes in blood glucose levels in the control group and the experimental group. This shows that providing nutrition education has an effect on blood glucose levels in T2DM patients. The analysis was carried out using the Paired T Test to see changes in blood glucose levels before and after providing education. Based on the test conducted, it shows that there is an effect of nutritional education on T2DM diet compliance. In addition, changes in the average difference (Δ) in blood glucose levels before and after education in the control and experimental groups were analyzed using the Independent T Test. Based on the results

of the statistical test, there was no difference in the average blood glucose levels of respondents between the control and experimental groups.

Based on the results of the analysis, there was no difference in the blood glucose levels of respondents between the control and experimental groups, according to the results of the analysis of the average difference in blood glucose levels of respondents. This happened because the control and experimental groups both experienced a decrease in blood glucose levels. Providing nutritional education related to dietary regulation can reduce blood glucose levels. Decreased blood glucose levels in T2DM patients also occur due to the influence of medication, insulin, and regular eating patterns during hospitalization (18). To reduce the recurrence of diabetes patients, prevention must be started as early as possible by teaching nutritional management through eating patterns with proper diet control, as well as teaching compliance and proper therapy management. According to Chaidir, T2DM is a disease that can only be controlled, so to prevent the severity and complications, T2DM sufferers are expected to be able to control and monitor blood glucose levels regularly (19).

5. CONCLUSION

It can be concluded that family support in providing nutritional education can influence the increase in compliance scores for following a diet but does not affect blood glucose levels in type 2 diabetes mellitus patients at Panti Rapih Hospital, Yogyakarta. It is expected that this research can be an input for hospitals related to providing education to patients with diabetes mellitus. This is related to the influence of family supports, it is expected to involve families in providing nutritional education in order to improve patient dietary compliance and indirectly help control blood glucose levels in patients with type 2 diabetes mellitus.

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REFERENCES

1. PERKENI. (2021). Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 di Indonesia 2021. PB PERKENI.
2. Kementerian Kesehatan Republik Indonesia. Profil Kesehatan Indonesia Tahun 2018. Kementerian Kesehatan Republik Indonesia; 2018.
3. World Health Organization (WHO). Global report on Diabetes. Geneva: World Health Organization; 2016. available on URL: http://apps.who.int/iris/bitstream/10665/204871/1/9789241565257_eng.pdf
4. Rusila, J., Widiyono, W., & Sutrisno, S. (2023). The Effect of Yoga Exercise on Blood Sugar Levels In Type II Diabetes Mellitus Patients in Karangasem Village, Surakarta. Jurnal Multidisiplin Dehasen (MUDE), 2(2), 295-306.
5. Dinas Kesehatan DIY. (2022). Buku profil kesehatan D.I.Yogyakarta tahun 2021
6. Ekasari, M. M., & Setiyorini, A. (2020). Pelaksanaan Edukasi Pengendalian Gula Darah Pasien Diabetes Melitus Tipe 2 di Rumah Sakit Panti Rapih Yogyakarta. I Care Jurnal Keperawatan STIKes Panti Rapih, 1(1), 51-60.
7. Delfina, S., Carolita, I., & Habsah, S. (2021). Analisis Determinan Faktor Risiko Kejadian Diabetes Mellitus Tipe 2 Pad Usia Produktif. Jurnal Kesehatan Tambusai, 2(4), 141-151.

8. American Diabetes Association Professional Practice Committee, & American Diabetes Association Professional Practice Committee: (2022). 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes—2022. Diabetes care, 45(Supplement_1), S17-S38.
9. Sukiasih, N. W., Tamam, B., & wayan Juniarsana, I. (2023). Perbedaan Pengetahuan Dan Kadar Glukosa Darah Puasa Sebelum Dan Sesudah Edukasi Gizi Pada Pasien Dm Tipe II Di Rsu Wisma Prashanti Tabanan. Jurnal Ilmu Gizi: Journal of Nutrition Science, 12(2), 88-96.
10. Hariyono, H., Fatoni, I., Malatuzzulfa, N. I., Roni, F., Kristyaningrum, D. Y., Prameswari, V. E., ... & Firdaus, R. A. O. (2022). Effect of Family Support on Diet Compliance in Type 2 Diabetes Mellitus Patients Based on Human Caring Theory. resmilitaris, 12(2), 312-320.
11. Abidin, Z., Hartono, D., & Aini, S. (2023). Hubungan Peran Keluarga Pasien Diabetes Mellitus Dengan Pelaksanaan Diet 3j Di Puskesmas Jatiroto Kabupaten Lumajang. *Professional Health Journal*, 4(2), 273-280.
12. Susanti, M. L., & Sulistyarini, T. (2013). Dukungan keluarga meningkatkan kepatuhan diet pasien diabetes mellitus di ruang rawat inap RS. Baptis Kediri. Jurnal Stikes, 6(1), 1-10.
13. Solekhah, S., & Sianturi, S. R. (2020). Dukungan Keluarga Meningkatkan Kepatuhan Diet Pasien Diabetes Melitus Tipe 2. Idea Nursing Journal, 11(1), 17-23
14. Notoatmodjo, (2012). Metode Penelitian Kesehatan. Jakarta: Rineka Cipta
15. Savitri, N. N., Umar, N., Sipatu, L., Supetran, I. W., & Ndama, M. (2022). Hubungan dukungan keluarga dengan kepatuhan diet pada pasien diabetes mellitus tipe II: literature review. Media Publikasi Promosi Kesehatan Indonesia (MPPKI), 5(12), 1540-1547.
16. Djamaluddin, N., Jusuf, H., & Manto, D. A. (2020). Family support and dietary compliance of diabetes melitus patients: A literature review. Jurnal Keperawatan, 12(4), 919-926.
17. Bangun, A. V., Jatnika, G., & Herlina, H. (2020). Hubungan antara dukungan keluarga dengan kepatuhan diet pada penderita diabetes mellitus tipe 2. Jurnal Ilmu Keperawatan Medikal Bedah, 3(1), 66.
18. Jaelani, M., Larasati, M. D., Muninggar, D. L. P., & Rosidi, A. (2024). Edukasi Diet Diabetes Puasa untuk Mengendalikan Gula Darah Saat Menjalankan Puasa Ramadhan. JURNAL RISET GIZI, 12(1), 41-46.
19. Chaidir, R., Wahyuni, A. S., & Furkhani, D. W. (2017). Hubungan self-care dengan kualitas hidup pasien diabetes melitus. Jurnal Endurance, 2(2), 132-144.