

EFFECTIVENESS OF NUTRITIONAL COUNSELING USING BOOKLET AND LEAFLET ON DIET COMPLIANCE AND KNOWLEDGE LEVEL OF TYPE 2 DIABETES MELLITUS PATIENTS AT MEURAXA HOSPITAL, BANDA ACEH CITY

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Abstract

Diabetes Mellitus (DM) is a chronic disease in the form of a metabolic disorder characterized by an increase in blood glucose levels above normal. Currently Aceh is in 8th place with the highest incidence of DM in Indonesia with the city with the highest incidence of DM being the city of Banda Aceh at 2.3%. Nutrition counseling for DM sufferers is providing education and understanding regarding knowledge and skills in controlling DM. Education is included in the 4 pillars of DM control so that it can increase patient knowledge regarding dietary compliance and prevent complications. The aim of this research was to determine the effectiveness of nutritional counseling using booklets and leaflets on dietary compliance and the level of knowledge of type 2 DM patients at Meuraxa Regional Hospital, Banda Aceh City. This research is a Quasi Experimental Design research using Pre-Post Test on booklet and leaflet groups. The sample used was 60 type 2 DM patients in classes II and III at Meuraxa Regional Hospital, Banda Aceh City, with 30 booklet groups and 30 leaflet groups. Statistical tests use Paired Sample T - Test and Independent Sample T - Test. This research shows that the results of nutritional counseling on dietary compliance posttest booklet are more effective than posttest leaflet, with a value of sig. (2-tailed) shows a P Value of 0.048. ($p < 0.05$). Nutrition counseling on the posttest booklet knowledge level is more effective than the leaflet posttest, with a sig. (2-tailed) shows a P Value of 0.045. ($p < 0.05$). So it can be concluded that providing nutritional counseling using booklets is more effective than leaflets on diet compliance and the level of knowledge of Type 2 DM patients at Meuraxa Regional Hospital, Banda Aceh City. Thus, nutritional counseling using booklet media is a recommendation for dietary compliance and the level of knowledge of type DM patients at Meuraxa Regional Hospital, Banda Aceh City.

Keywords: *Diabetes Mellitus, Nutrition Counseling, Diet Compliance, Level of Knowledge.*

INTRODUCTION

Diabetes Mellitus (DM) is a non-communicable disease (NCD) in the form of a metabolic disorder characterized by an increase in blood glucose levels above normal. This increase in blood sugar levels in the body is caused because the body cannot produce insulin or cannot use insulin effectively (Larasati Tauran, 2022). The Diabetes Mellitus most commonly experienced by people is type 2 DM because this type of DM is closely related to diet and lifestyle. Based on data from the International Diabetes Federation (IDF, 2022), it is stated that there are 537 million people suffering from DM in the world. This number is predicted to increase to 643 million people in 2030 and 784 million people in 2045. Indonesia ranks seventh as the country with the most DM sufferers in the world after China, India, the United States, Brazil and Mexico, namely 10.7 million. soul (Ministry of Health of the Republic of Indonesia, 2020). According to DataBasic Health Research (RISKESDAS) 2018 In general, the prevalence rate of DM in Indonesia continues to increase quite significantly compared to the results of RISKESDAS in 2013. The prevalence in adults reached 6.9%, compared to 2018 the figure continues to increase to 8.5%, so that DM is included in the 10 biggest diseases in Indonesia. Indonesia. One of the provinces where many people suffer from DM is

Aceh Province which is ranked 8th after Gorontalo with a higher proportion of type 2 DM than type 1 DM. The prevalence of DM in Aceh in 2013 was 1.8%. This figure increased in 2018 with a prevalence reaching 2.5%, and Banda Aceh is the city with the highest DM incidence rate in Aceh, namely 2.3%. (Zhafarina et al., 2022).

The high incidence of DM in Indonesia makes various aspects of DM management frequent and at risk of experiencing problems. Uncontrolled DM can cause chronic complications, so to prevent complications there are 4 main pillars of controlling DM, namely medical nutrition/diet therapy, education, activity and pharmacological therapy. Maximum control of DM can be achieved with regularity in the 4 main pillars, so that it can form habits in DM patients (Ismawanti et al., 2021). The most important thing for DM patients is controlling blood sugar levels. Controlling blood sugar levels in patients can be seen from the patient's compliance with the diet provided. Patient diet compliance is very necessary to achieve success in DM therapy and plays a very important role in stabilizing blood glucose levels in DM patients (Larasati Tauran, 2022). Diet is the main therapy applied to DM sufferers, so DM sufferers should have a positive attitude towards the recommended diet so that they can control blood sugar levels and not cause complications (PERKENI, 2021). The aim of the DM diet is to help patients improve eating habits to achieve better metabolic control by maintaining blood glucose levels close to normal by balancing food intake with insulin, achieving and maintaining normal serum lipid levels, providing enough energy to maintain or achieve body weight, normal condition, avoiding or treating acute complications in patients using insulin, and improving overall health status through optimal nutrition (Almatsier, 2013).

DM sufferers in adhering to the recommended diet are greatly influenced by the knowledge they have, therefore education is included in the 4 main pillars of controlling DM. Education is a dynamic behavior change process which is the most important component as the first step in controlling DM. DM sufferers must have extensive knowledge regarding dietary management that must be implemented, so that education can increase patient knowledge of what must be implemented and prevent DM complications. (Sinta, 2022). Nutrition counseling is one of a series of continuous nutrition service processes starting from diet planning, nutritional counseling planning to evaluating the patient's diet plan. Nutrition counseling for DM sufferers is providing education and understanding regarding knowledge and skills in controlling DM. The aim of nutritional counseling is to make changes in knowledge, attitudes and eating behavior, as well as eating patterns according to the patient's needs, so that it can be seen how far they adhere to the prescribed diet. (Camelia Kusuma et al., 2016).

Media is a tool used when conducting nutritional counseling to convey teachings. One of the media used during nutritional counseling is Leaflets and Booklets which are examples of printed media that can convey information. These two media are useful in the nutritional counseling process to explain the messages that will be conveyed so that they can increase patient knowledge and change patient behavior in complying with dietary recommendations. (Hermawan Hendra, 2017). A media approach during the education process can help patients to master information more effectively, one example is using booklets. Booklets can be studied at any time because they are in the form of a book and can disseminate information in the form of writing and images, so they look more interesting and are very suitable for use as educational media for type 2 DM patients (Merlin, et.al. 2017). Meanwhile, leaflets are a nutritional counseling media in the form of practical flip sheets, but the material presented in the leaflets is limited due to their smaller size. Leaflets are also a visual medium that utilizes the five senses of sight, namely the eyes which can transmit knowledge to the brain more than the other five senses (Herman et al., 2020). Researchers conducted a preliminary study on March 6 2023 at Meuraxa Regional Hospital, Banda Aceh City regarding dietary compliance and level of knowledge. Based on interviews with 15 respondents, 11 respondents said they did not follow the dietary rules given by the hospital nutritionist due to low knowledge of diet compliance in Type 2 Diabetes Mellitus patients. From the preliminary study it was found that nutritional counseling was carried out once per inpatient period for patients. Type 2 Diabetes Mellitus uses leaflets, but there are still Type 2 Diabetes Mellitus patients who have not

followed the DM diet as recommended by the Hospital Nutritionist. From this description, researchers are interested in conducting research with the title "Effectiveness of Nutritional Counseling Using Booklets and Leaflets on Diet Compliance and Level of Knowledge of Type 2 DM Patients at Meuraxa Regional Hospital, Banda Aceh City."

LITERATURE REVIEW

1. Type 2 Diabetes Mellitus

Type 2 diabetes or NIDDM (Non-Insulin Dependent Diabetes Mellitus) is not insulin dependent. Type 2 diabetes is caused by metabolic disorders and a decrease in the function of the insulin hormone in controlling it blood glucose levels and this can be caused by genetic factors and also triggered by an unhealthy lifestyle. Apart from that, there are also certain risk factors related to the process of developing type 2 diabetes mellitus (PERKENI, 2021).

2. Management of Diabetes Mellitus

Management of Diabetes mellitus is known as 4 pillars. The 4 pillars include: education, medical nutritional therapy, physical and pharmacological training (Indonesian Endocrinology Society (PERKENI), 2021). Diabetes mellitus management aims to improve the quality of life for Diabetes Mellitus sufferers, minimize the occurrence of complications, and reduce morbidity and mortality rates in Diabetes Mellitus sufferers (Suciana, Daryani, Marwanti, & Arifianto, 2019).

3. Nutrition Counseling

Nutrition counseling is a two-way communication process to facilitate the process of approaching patients and families to get solutions to the nutritional problems they are experiencing. Through providing nutritional counseling, patients and families are expected to be able to implement procedures that suit the patient's nutritional problems and improve their diet to achieve nutritional balance in the body. (Margawati & Iriantika, 2017).

The aim of Nutrition Counseling is efforts to make changes, which include increasing knowledge, attitudes and eating behavior. And the diet is in accordance with the patient's needs, so that it can be seen how the patient's level of compliance is in implementing the recommended diet (Farudin, 2011).

4. Nutrition Counseling Media

Nutritional Counseling Media is a tool used to carry out nutritional counseling which aims to increase knowledge so that it can change attitudes and behavior. One of the media that is often used during nutritional counseling with this aim is booklets and leaflets (Kartika, 2022). What is meant by Media Booklet and Media Leaflet is as follows:

a. Media Booklet

The term booklet comes from book and leaflet, so it can be interpreted that booklet media is a combination of book and leaflet in a smaller format. A booklet is a small book and cannot be more than 30 back-to-back pages, where the booklet contains text or pictures or both. (Septiana Emma, et al, 2019) in (Kartika, 2022).

Booklet media has several advantages which include: it can be used as a tool in the independent learning process, the content can be studied and understood easily, it is easy to make, the content in the booklet is more detailed and complex, it can be reproduced and can be adapted to the problems experienced by the target group.

b. Leaflet Media

A leaflet is a sheet of paper that is folded into several parts, where the leaflet contains printed writing and certain pictures regarding a specific topic for a specific target with a specific purpose. Leaflets have several advantages, which include: they can be adapted and learned independently practically, they can provide information, they are easy to make, reproduce and improve and can be adapted to the problems

experienced by the target group, however, leaflet media has weaknesses related to the content that can be presented in leaflets. limited due to its smaller size (Kartini, 2021).

5. Dietary Compliance

Compliance is generally defined as individual behavior (such as adhering to a recommended diet, taking medication, or making lifestyle changes) in accordance with recommendations provided by health services (Kozier, 2011). Diabetes Mellitus diet compliance is behavior demonstrated by patients in accordance with the dietary requirements provided by health professionals, including limiting fatty foods, limiting soft drinks, limiting sweeteners and limiting carbohydrates, as well as consuming fiber foods, fruits and vegetables.(Dwi & Rahayu, 2020).Diet compliance in Diabetes Mellitus sufferers is an effort to control excessively high blood sugar levels through food management. Food management is carried out by following the principles of the Diabetes Mellitus diet, namely by carrying out the 3J's including: arranging the type of food, regulating the amount of food and arranging the eating schedule. Food management using the 3J principle is highly recommended for people with type 2 Diabetes Mellitus, where the 3J diet is food that is balanced and in accordance with the calories and nutrients needed by DM sufferers.(Dewi et al., 2018).

6. Knowledge level

According to (Notoatmodjo, 2010) Knowledge is the result of humans sensing objects through their senses which include: eyes, calculation, ears and others. In general, a person's knowledge is obtained to a greater extent through the sense of hearing. Knowledge about diet is the result of someone knowing about various things related to eating to maintain or overcome health problems.

METHOD

This type of research is quantitative research using the Quasi Experimental Design method with the design used is Nonequivalent Control Group Design. The research was conducted at Meuraxa Regional Hospital, Banda Aceh City from March 6 to October 16 2023. The population studied was 215 class II and III inpatients diagnosed with type 2 diabetes mellitus. The sample was selected using a Purposive Sampling technique of 60 respondents. Inclusion criteria for this study were willing to be research respondents, inpatients with a diagnosis of type 2 diabetes mellitus, adult patients aged ≥ 18 years, able to read and communicate well and regular or soft food. The independent variable in this study was nutritional counseling using booklets and leaflets, while the dependent variable was diet compliance and level of knowledge in type 2 DM patients at Meuraxa Regional Hospital, Banda Aceh City.

RESULTS AND DISCUSSION

Contents Results and Discussion

1. Respondent Characteristics

In the research, the frequency distribution of respondent characteristics was identified which is presented in Table 1.

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics	Frequency	Percentage (%)
Age		
36 – 45 Years	16	26.7
46 – 55 Years	17	28.3
56 – 65 Years	23	38.3
≥ 65 Years	4	6.7
Gender		
Man	15	25.0
Woman	45	75.0

Last education				
Didn't graduate from elementary school	8	13.3		
elementary school	20	33.3		
elementary school	13	21.7		
JUNIOR HIGH SCHOOL	7	11.7		
SENIOR HIGH SCHOOL	12	20.0		
PT				
Work				
Housewife	33	55.0		
State Civil Apparatus	6	10.0		
Private	20	16.7		
Self-employed	6	10.0		
Retired	5	8.3		
Body Mass Index (BMI)				
Skinny (15 – 18.4)	3	5.0		
Normal (18.5 – 22.9)	17	28.3		
BB Over (23 – 24.9)	15	25.0		
Obesity I (25 – 29.9)	23	38.3		
Obesity II (≥ 30)	2	3.3		

Based on table 1, it can be seen that the characteristics of respondents based on age, most of the respondents were aged 56 - 65 years, namely 23 people (38.3%). Characteristics of respondents based on gender, most of them were female, namely 45 people (75.0%). Characteristics of respondents based on education. Most of the respondents had an elementary school (SD) education, namely 20 people (33.3%). Characteristics of respondents based on occupation, most of the respondents work as Housewives (IRT), namely 33 people (55.0%) and characteristics of respondents based on Body Mass Index (BMI), most of the respondents fall into the Obesity I category (25-29.9) namely 23 people (38.3%).

2. Univariate Test Results

a) Frequency Distribution of Diet Compliance Before and After being given Nutritional Counseling in the Booklet and Leaflet Groups

1. Booklet Group

In the research, the frequency distribution of diet compliance was identified before and after being given nutritional counseling in the Booklet group, which is presented in Table 2.

Table 2. Distribution of Diet Compliance Before and After being given Nutritional Counseling in the Booklet Group

Obedience	Amount of Food		Type Food		Timetable Eat		DM Diet	
	n	%	n	%	N	%	N	%
Before Treatment								
Not obey	23	76.7	24	80.0	14	46.7	29	96.7
Obedient	7	23.3	6	20.0	16	53.3	1	3.3
Total	30	100.0	30	100.0	30	100.0	30	100.0
After Treatment								
Not obey	15	50.0	7	23.3	9	30.0	22	73.3
Obedient	15	50.0	23	76.7	21	70.0	8	26.7
Total	30	100.0	30	100.0	30	100.0	30	100.0

Based on Table 2, the results of data collection on dietary compliance in the booklet group using a diet compliance questionnaire and a 1 x 24 hour food recall form showed that there was an increase before being given nutritional counseling using booklet media compared to after being given nutritional counseling using booklets. Where before being given nutritional counseling using booklet media, the percentage who complied in the quantity aspect was 23.3% and after being given nutritional counseling using booklets increased to 50.0%, in the type aspect before being given nutritional counseling using booklet media, the percentage who complied was 20.0%. % and after being given nutritional counseling using a booklet, it was 76.6%, and in the schedule aspect, before being given nutritional counseling using a booklet, the percentage of compliance was 53.3% and after nutritional counseling using a booklet, it was 70.0%.

2. Leaflet Group

In this research, the frequency distribution of diet compliance was identified before and after being given nutritional counseling in the Leaflet group, which is presented in Table 3.

Table 3. Distribution of Diet Compliance Before and After being given Nutritional Counseling in the Leaflet Group

Obedience	Amount of Food		Type of Food		Timetable Eat		DM Diet	
	n	%	n	%	N	%	N	%
Before Treatment								
Not obey	15	50.0	20	66.7	20	66.7	29	96.7
Obedient	15	50.0	10	33.3	10	33.3	1	3.3
Total	30	100.0	30	100.0	30	100.0	30	100.0
After Treatment								
Not obey	12	40.0	18	60.0	16	53.3	26	86.7
Obedient	18	60.0	12	40.0	14	46.7	4	13.3
Total	30	100.0	30	100.0	30	100.0	30	100.0

Based on table 3, the results of data collection on dietary compliance in the leaflet group using a diet compliance questionnaire and a 1 x 24 hour food recall form showed that there was an increase before being given nutritional counseling using leaflet media compared to after being given nutritional counseling using leaflet media. Where before being given nutritional counseling using leaflets, the percentage who complied in the quantity aspect was 50.0% and after being given nutritional counseling using leaflets increased to 60.0%, in the type aspect before being given nutritional counseling using leaflets, the percentage who complied was 33.3%. and after being given nutritional counseling using leaflets, it was 40.0%, and in the schedule aspect, before being given nutritional counseling using leaflets, the percentage of compliance was 33.3% and after nutritional counseling using leaflets, it was 40.0%.

b) Frequency Distribution of Knowledge Levels Before and After Giving Nutrition Counseling to the Booklet and Leaflet Groups

In the research, the frequency distribution of knowledge levels was identified before and after being given nutritional counseling in the Booklet group and Leaflet group, which is presented in Table 4.

Table 4. Distribution of Knowledge Levels Before and After Giving Nutrition Counseling to the Booklet and Leaflet Groups

Category	Leaflets				Booklets			
	Pre Test f	%	Post Test f	%	Pre Test F	%	Post Test F	%
Not enough	19	63.3	14	46.7	12	40	7	23.3
Enough	3	10	4	13.3	6	20	4	13.3
Good	8	26.7	12	40	12	40	19	63.3
Total	30	100	30	100	30	100	30	100

Based on table 4, the results showed that there was an increase in the two groups before and after being given nutritional counseling. In the Leaflet group there was an increase before being given nutritional counseling using leaflet media and after being given nutritional counseling using leaflet media, where before being given nutritional counseling using leaflet media the good percentage was 26.7%, the adequate percentage was 10%, and the poor percentage was 63.3%, while after being given nutritional counseling using leaflet media, the good percentage was 40%, the adequate percentage was 13.3% and the poor percentage was 46.7%. And in the booklet group there was also an increase before being given nutritional counseling using booklet media and after being given nutritional counseling using booklet media. Where before being given nutritional counseling using booklet media the good percentage was 40%, the adequate percentage was 20%, and the poor percentage was 40%, whereas after being given nutritional counseling using booklet media the good percentage was 63.3%, the adequate percentage was 13.3% and the percentage is less than 23.3%.

3. Bivariate Test Results

a. Paired Sample T-Test

1. Effectiveness of Nutritional Counseling using Booklets and Leaflets on Diet Compliance in Type 2 DM Patients at Meuraxa Regional Hospital, Banda Aceh City

A. Paired Sample T-Test (Pretest Leaflet with Posttest Leaflet)

In this research, the effectiveness of nutritional counseling using leaflets was identified on diet compliance in type 2 DM patients at the Meuraxa Regional Hospital, Banda Aceh City, which is presented in Table 5.

Table 5. Paired Sample T – Test Results (Pretest Leaflet & Posttest Leaflet) on Diet Compliance

Treatment	Average	Sig.
Pretest Leaflet	13.4667 ± 2.51524	,000
Leaflet Posttest	15.0667 ± 2.71564	

The data presented are 30 replications (n=30), further tests were carried out at the 5% level.

Based on the Paired Sample T – Test table (Pretest Leaflet with Posttest Leaflet) on dietary compliance, the average value of the Pretest Leaflet score is 13.4667, and the average value of the Posttest Leaflet score is 15.0667, meaning that there is an increase in the value between the scores. Pretest Leaflet with Posttest Leaflet in this study and the improvement was significant. Apart from that, the significance = 0.000 ($p < 0.05$) was also obtained and the calculated t value was -7.180 and the t table was - 2.04523 (with $df = 29$ in two tail 0.05). See a significance value of 0.000 ($p < 0.05$). Then a decision can be taken that the test results reject H_0 . This means that there is a difference between nutritional counseling before being given leaflet media and nutritional counseling after being given leaflet media.

B. Paired Sample T-Test (Pretest Booklet with Posttest Booklet)

In this research, the effectiveness of nutritional counseling using booklets was identified on diet compliance in type 2 DM patients at the Meuraxa Regional Hospital, Banda Aceh City, which is presented in Table 6.

Table 6. Paired Sample T – Test Results (Pretest Booklet & Posttest Booklet) on Diet Compliance

Treatment	Average	Sig.
Pretest Booklet	13.4667 ± 2.45979	,000
Posttest Booklet	16.4667 ± 2.66178	

The data presented are 30 replications ($n=30$), further tests were carried out at the 5% level. Based on the Paired Sample T – Test table (Pretest Booklet with Posttest Booklet) on dietary compliance, the average value of the Pretest Booklet score is 13.4667, and the average value of the Posttest Booklet score is 16.4667, meaning that there is an increase in the value between the scores. Pretest Booklet with Posttest Booklet in this study and the increase was significant. Apart from that, the significance = 0.000 ($p < 0.05$) and the calculated t value was -13,047 and the t table was - 2.04523 (with $df = 29$ in two tail 0.05). Seeing the significance value of 0.000 ($p < 0.05$) and the calculated t value - 13,047 ($< - t$ table). Then a decision can be taken that the test results reject H_0 . This means that there is a difference between nutritional counseling before being given the booklet media and nutritional counseling after being given the booklet media.

2. Effectiveness of Nutritional Counseling using Booklets and Leaflets on the Level of Knowledge in Type 2 DM Patients at Meuraxa Regional Hospital, Banda Aceh City

A. Paired Sample T-Test (Pretest Leaflet with Posttest Leaflet)

In this research, the effectiveness of nutritional counseling using leaflets was identified on the level of knowledge of type 2 DM patients at the Meuraxa Regional Hospital, Banda Aceh City, which is presented in Table 7.

Table 7. Paired Sample T – Test Results (Pretest Leaflet & Posttest Leaflet) on Knowledge Level

Treatment	Average	Sig.
Pretest Leaflet	5.9333 ± 2.11617	,043
Leaflet Posttest	6.8333 ± 2.08580	

The data presented are 30 replications (n=30), further tests were carried out at the 5% level.

Based on the Paired Sample T - Test table (Pretest Leaflet with Posttest Leaflet) on the level of knowledge, the average value of the Pretest Leaflet score is 5.9333, and the average value of the Posttest Leaflet score is 6.8333, meaning that there is an increase in the value between the scores. Pretest Leaflet with Posttest Leaflet in this study and the improvement was significant. Apart from that, the significance = 0.000 ($p < 0.05$) was also obtained and the calculated t value was -2,121 and the t table was -2.04523 (with $df = 29$ in two tail 0.05). Look at the significance value of 0.000 ($p < 0.05$) and the calculated t value -2.121 ($< -t$ table). Then a decision can be taken that the test results reject H_0 . This means that there is a difference between nutritional counseling before being given leaflet media and nutritional counseling after being given leaflet media.

B. Paired Sample T-Test (Pretest Booklet with Posttest Booklet)

In this research, the effectiveness of nutritional counseling using booklets was identified on the level of knowledge of type 2 DM patients at the Meuraxa Regional Hospital, Banda Aceh City, which is presented in Table 8.

Table 8. Paired Sample T – Test Results (Pretest Booklet & Posttest Booklet) on Knowledge Level

Treatment	Average	Sig.
Pretest Booklet	6.7333 ± 1.92861	.016
Posttest Booklet	7.9000 ± 1.95378	

The data presented are 30 replications (n=30), further tests were carried out at the 5% level.

Based on the Paired Sample T – Test table (Pretest Booklet with Posttest Booklet) on Knowledge Level, the average value of the Pretest Booklet score is 6.7333, and the average value of the Posttest Booklet score is 7.9000, meaning that there is an increase in the value between the scores. Pretest Booklet with Posttest Booklet in this study and the increase was significant. Apart from that, the significance = 0.016 ($p < 0.05$) was also obtained and the calculated t-value was -2,564 and the t-table was -2.04523 (with $df = 29$ in two tail 0.05). Look at the significance value of 0.000 ($p < 0.05$) and the calculated -t value -2.564 ($< -t$ table). Then a decision can be taken that the test results reject H_0 . This means that there is a difference between nutritional counseling before being given the booklet media and nutritional counseling after being given the booklet media.

b. Independent Sample T-Test

1. Independent Sample T-Test (Posttest Booklet with Posttest Leaflet) on Diet Compliance

In the research, an Independent Sample T-Test (posttest booklet with posttest leaflet) identification was carried out on the diet compliance of type 2 DM patients at the Meuraxa Regional Hospital, Banda Aceh city, which is presented in Table 9.

Table 9. Results of Independent Sample T – Test (Posttest Booklet with Posttest Leaflet) on Diet Compliance

Treatment	Average	Sig. 2(-tailed)
Leaflets	15.0667 ± 2.71564	,048
Booklets	16.4667 ± 2.66178	

The data presented are 30 replications (n=30), further tests were carried out at the 5% level.

Based on the Independent Sample T - Test table (Posttest Leaflet with Posttest Booklet) on Diet Compliance, the average value of the Posttest Leaflet score was 15.0667, and the average value of the Posttest Booklet score was 16.4667, meaning that there was an increase in the value between the Posttest Leaflet and Posttest scores. Booklet on this research and significant improvement. Apart from that, significance = 0.048 ($p < 0.05$) was also obtained. See a significance value of 0.000 ($p < 0.05$). Then a decision can be taken that the test results reject H_0 . This means that there is a difference between nutritional counseling after being given leaflet media and nutritional counseling after being given booklet media regarding Diet Compliance.

2. Independent Sample T-Test (Posttest Booklet with Posttest Leaflet) on Diet Compliance

In the research, an Independent Sample T-Test (posttest booklet with posttest leaflet) identification was carried out on the level of knowledge of type 2 DM patients at the Meuraxa Regional Hospital, Banda Aceh city, which is presented in Table 9.

Table 10. Independent Sample T – Test Results (Posttest Booklet with Posttest Leaflet) on Knowledge Level

Treatment	Average	Sig. 2(-tailed)
Leaflets	6.8333 ± 2.08580	,045
Booklets	7.9000 ± 1.95378	

The data presented are 30 replications (n=30), further tests were carried out at the 5% level.

Based on the Independent Sample T – Test table (Posttest Leaflet with Posttest Booklet) on Knowledge Level, the average value of the Posttest Leaflet score is 6.8333, and the average value of the Posttest Booklet score is 7.9000, meaning that there is an increase in the value between the Posttest Leaflet and Posttest scores. Booklet on this research and significant improvement. Apart from that, significance = 0.045 ($p < 0.05$) was also obtained. See a significance value of 0.000 ($p < 0.05$).

Then a decision can be taken that the test results reject H_0 . This means that there is a difference between nutritional counseling after being given leaflet media and nutritional counseling after being given booklet media regarding the level of knowledge.

Contents of Discussion Results

The effectiveness of nutritional counseling using booklets and leaflets on dietary compliance and the level of knowledge of Type 2 DM patients

The statistical test results of this research used the Independent Sample T-Test, based on the table above, P value = 0.048 ($p < 0.05$). From this data and what has been discussed in the booklet group and leaflet group, it can be concluded that these results have a significant difference between after being given nutritional counseling using Booklet media compared to after being given nutritional counseling using Leaflet media. This is in line with research by Sinta Purnama Dewi, (2022) which states that providing health education using booklet media is very influential and can increase diabetes mellitus diet compliance, if seen from the leaflet group, the majority of which did not experience an increase in diabetes mellitus diet compliance. The results of 3J diet compliance in the type aspect in this study before being given nutritional counseling using booklet media were 6 respondents (20.0%) and after being given nutritional counseling using booklet media were 23 respondents (76.7%) resulting in an increase of 17 respondents. who have reduced the frequency of eating foods that are sweet and contain a lot of sugar as well as foods that contain a lot of oil or high fat, while respondents before receiving nutritional counseling using leaflets were 10 respondents (33.3%) who complied and after receiving nutritional counseling using leaflets this increased to 12 respondents (40.0%) were compliant, meaning that there was only an increase of 2 respondents who adhered to the 3J diet in terms of type.

Meanwhile, in terms of numbers in the Booklet group, before being given nutritional counseling using Booklet media, there were 7 respondents (23.3%) who were compliant, but after receiving nutritional counseling using Booklet media, 18 respondents (60.0%) were compliant and had consumed appropriate food. needs, whereas before being given nutritional counseling using leaflet media there were 15 respondents (50.0%) who complied and after being given nutritional counseling using leaflet media there were 18 respondents (60.0%) who complied. Diet compliance in the quantity aspect is measured using a 1x24 hour recall, with objective criteria, namely compliance if the amount of intake is 95% - 105% of the recommended diet based on calculating the needs of each individual using the Perkeni formula, and non-compliance $< 90\%$ and $> 150\%$ (Dwi et al. , 2015). Diet compliance with the schedule aspect in the Booklet group before being given nutritional counseling using Booklet media, there were 16 respondents (53.3%) who complied, but after receiving nutritional counseling using Booklet media, 21 respondents (70.0%) were compliant and had consumed food according to the recommended schedule, namely 3x staple foods and 2x snacks with small portions frequently, whereas before being given nutritional counseling using leaflet media there were 10 respondents (33.3%) who complied and after being given nutritional counseling using leaflet media there were 14 respondents (46.7%) were compliant. Therefore, it can be concluded that nutritional counseling using booklets is more effective in increasing dietary compliance in DM patients.

The results of the level of knowledge in this research statistical test also used the Independent Sample T-Test, based on the table above, P was obtained value= 0.045 ($p < 0.05$). From this data and what has been discussed in the treatment group (Booklet) and control group (Leaflet), it was concluded that there was a significant difference between after being given nutritional counseling using Booklet media and after being given nutritional counseling using Leaflet media. In line with the knowledge carried out by Ahmad Farudin, (2011) there is a significant difference with p value = 0.010 ($p < 0.05$), which shows that there is a difference in the increase in knowledge value in the Booklet group compared to the difference in knowledge in the Leaflet group. This is because

nutritional counseling media, both leaflets and booklets, have their own advantages and disadvantages. This is also in accordance with research conducted by Wibowo, (2013) that there was an influence on respondents' knowledge after health education was carried out using booklets. Booklet nutritional counseling media has advantages over leaflet nutritional counseling media, namely that booklets are more detailed and clear because they can contain more information and can review the message conveyed. This is in accordance with Satmoko et al, (2006) who stated that booklets contain information clearly, firmly and easily understood, apart from that there is also writing and pictures.

The statistical test results in this study used the Independent Sample T-Test, where in diet compliance the result was p value = 0.048 ($p < 0.05$), which means there was a significant difference between the results after being given nutritional counseling using a booklet compared to after being given counseling. nutrition using leaflets. Meanwhile, the statistical test results in this study used the Independent Sample T-Test, where at the level of knowledge the result was p value = 0.045 ($p < 0.05$), which means there was also a significant difference between those given nutritional counseling using the Booklet compared to after given nutritional counseling using leaflets on the level of knowledge in type 2 DM patients.

CLOSING

Conclusion

Based on the results of this research, it can be concluded as follows

1. Based on the frequency distribution of respondent characteristics, the majority of respondents were aged 56 - 65 years as much as 38.3%, with the majority being female at 75.0%, the majority of respondents had the last level of education at elementary school (SD) at 33.3%, the majority of occupations were mothers. Households (IRT) were 55.0%, the majority had suffered from Diabetes Mellitus for 1 - 3 years, 65.0%, and the majority of respondents had a Body Mass Index (BMI) Obesity I of 38.3%.
2. There was an increase between before being given nutritional counseling using leaflet or booklet media and after being given nutritional counseling using leaflet or booklet media regarding diet compliance.
3. There was an increase between before being given nutritional counseling using leaflet or booklet media and after being given nutritional counseling using leaflet or booklet media in the level of knowledge.
4. There was a significant difference after nutritional counseling using booklets and after nutritional counseling using leaflets on diet compliance with a significant value of p value = 0.048 ($p < 0.05$).
5. There was a significant difference after nutritional counseling using booklets and after nutritional counseling using leaflets in the level of knowledge with a significant value of p value = 0.048 ($p < 0.05$).

Suggestions

1. For Respondents

With nutritional counseling in this study, it is hoped that it can help respondents increase their knowledge about diabetes mellitus to comply with the recommended diet.

2. For Nutrition Workers at Meuraxa Regional Hospital, Banda Aceh City

After seeing the results of this research, we especially hope that the nutrition staff at Meuraxa Regional Hospital, Banda Aceh City, can use the booklet media as a reference in providing nutritional counseling to diabetes mellitus patients in increasing knowledge and compliance with the recommended diet.

3. For Other Researchers

With this research, it is hoped that future researchers can provide more innovative and interesting media and more varied content so that it is easier to accept and understand the material presented.

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