



Description of The Level Of Knowledge Dietary Patterns for Diabetes Mellitus Among The Elderly at The Brati Community Health Center

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<p>Track Record Article</p> <p>Accepted: 03 May 2024 Revised: 23 May 2024 Published: 30 November 2024</p> <p>How to cite : Alzura, C., & Artistin, A. R. (2024). Description Of The Level Of Knowledge Dietary Patterns For Diabetes Mellitus Among The Elderly at The Brati Community Health Center. <i>Contagion: Scientific Periodical Journal of Public Health and Coastal</i>, 6(2), 1321–1330.</p>	<p style="text-align: center;">Abstract</p> <p><i>As per the data from World Population Projection, there are currently 901 million individuals who are over 60 years of age. It is anticipated that this number will rise by approximately 56%, from 901 million to 1.4 billion. Hyperglycemia, or elevated blood sugar levels, is a hallmark of diabetes mellitus (DM), a chronic metabolic disease brought on by an imbalance between the supply and demand of insulin (David et al., 2018). Under the heading "Overview of the Knowledge Level of the Elderly About the Diabetes Mellitus Diet at the Brati Community Health Center," the author expresses interest in studying the lack of knowledge that the elderly have regarding the diabetes mellitus diet. The purpose of the study is to find out how much the elderly at the Brati Community Health Center know about the diabetes mellitus diet in 2024. This kind of cross-sectional, quantitative research uses an analytical correlation design. 71 respondents in all were used for the sample selection process in this study, which used total sampling. Cross-tabulation analysis was used to examine the research data, which were collected via a questionnaire about knowledge of the Diabetes Mellitus diet (crosstab). The majority of respondents, or 56 persons (78.9%), had a good understanding of the Diabetes Mellitus Diet, according to the results of a univariate analysis of the respondents' characteristics and their level of diet knowledge. According to the cross-tabulation results, women in their 60s and 70s with upper secondary education, a 3- to 5-year illness duration, and normal GDS measurement results <126 mg/dL were identified as having a good level of knowledge about the DM diet.</i></p> <p>Keywords: <i>Diabetes Mellitus, Elderly, Level of Knowledge</i></p>
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INTRODUCTION

Diabetes Mellitus (DM) is a chronic disease with a prevalence that continues to rise, particularly among the elderly population. If not properly managed, it can lead to various serious complications, such as hypertension, neuropathy, heart disease, and kidney damage. (WHO, 2020). One of the key aspects of diabetes mellitus (DM) management is an appropriate diet, which aims to maintain stable blood sugar levels and prevent complications (Pahrul et al., 2020).

The global prevalence of diabetes has reached 537 million people, and this number is projected to increase to 643 million by 2030 and 783 million by 2045. Additionally, 541 million people are estimated to have prediabetes. It is also projected that more than 6.7 million individuals aged 20–79 will die from diabetes-related causes in 2021. According to data from the International Diabetes Federation (IDF) in 2021, the 10 countries with the highest number

of diabetes cases among individuals aged 20–79 years were identified, with China ranking first (140.9 million). Indonesia ranked fifth among these 10 countries, with 19.7 million cases, making it the only Southeast Asian country on the list. This highlights Indonesia's significant contribution to the prevalence of diabetes cases in Southeast Asia (IDF, 2021).

The consumption patterns of sweet foods and beverages are significant risk factors for diabetes mellitus. According to the 2018 Basic Health Research (Riskesdas) report, most individuals consume sweet foods 1–6 times per week, with a prevalence of 47.8%, while only 12% consume sweet foods less than three times per month. For sweet beverages, the majority consume them more than once per day (61.3%), while only 8.5% consume sweet beverages less than three times per month. The high prevalence of sweet food and beverage consumption may contribute to the increasing incidence of diabetes (Kemenkes RI, 2018).

Knowledge and adherence are essential for diabetes patients to support behavioral changes, increased physical activity, and dietary modifications. This knowledge aims to enhance patients' understanding of their condition, enabling them to achieve optimal health, adapt psychologically, and improve their overall quality of life (Muhammada et al., 2022). Based on the research Massiani et al., (2023), it was shown that there is a relationship between knowledge levels and dietary adherence among diabetes mellitus patients. This is attributed to the low level of knowledge among diabetes patients regarding inappropriate food choices, such as foods high in carbohydrates, trans and saturated fats, dried fruits and cocktails, sugary sodas, energy drinks, and alcohol. (Kartini et al., 2018).

A preliminary survey conducted at the Brati Health Center in 2024 revealed an increase in the number of elderly individuals with Diabetes Mellitus (DM), many of whom experience complications such as hypertension, neuropathy, and cardiovascular disorders, significantly affecting their quality of life. One of the main issues identified was the low level of knowledge among the elderly regarding dietary management of DM. Most elderly individuals continue to consume diets high in simple carbohydrates, sugar, and saturated fats, which pose risks of further metabolic deterioration.

The existing educational programs at the Brati Health Center are inadequate, characterized by sporadic and unstructured delivery of information. Social and cultural factors also influence the dietary habits of the elderly, as traditional high-calorie food consumption is deeply rooted in cultural values and family traditions, making it challenging to change. Consequently, the lack of adequate knowledge about proper dietary practices contributes to suboptimal DM management, increasing the risk of poor blood sugar control and long-term complications.

METHODS

This study employed a quantitative approach with a descriptive-analytic design. The research was conducted by the researcher at the Brati Health Center in May 2024. The location was selected due to its sufficient number of participants, supportive environment, and proximity to the researcher. The population in this study consisted of 71 elderly individuals participating in the Prolanis program at the Brati Health Center. The sampling technique used was total sampling. The inclusion criteria for the sample were patients aged ≥ 45 years, elderly individuals without neurological disorders, and those willing to participate as respondents. Therefore, the total sample size for this study was 71 elderly participants.

Data collection in this study was conducted using a questionnaire. The questionnaire consisted of 20 questions assessing knowledge levels, with correct answers scored as 1 and incorrect answers scored as 0. The questionnaire had undergone validity and reliability testing. The validity test results showed that all variables had a significance value (Sig.) < 0.05 . Furthermore, all variables had positive r-values and r-values greater than the critical r-value ($r_{table} > 0.3120$). This indicates that all questionnaire items were valid and suitable for use in this study. Reliability testing of the questionnaire on knowledge about the diabetes mellitus (DM) diet among the elderly at the Brati Subdistrict Health Center yielded a Cronbach's Alpha value of $\alpha = 0.847$. This demonstrates that the questionnaire is reliable, as it meets the threshold of $\alpha \geq 0.80$.

The data analysis in this study involved univariate analysis in the form of data distribution and percentage values. Bivariate analysis was conducted descriptively using cross-tabulation between the level of knowledge about the diabetes mellitus (DM) diet and respondent characteristics. The data were analyzed using SPSS for Windows version 20.

RESULTS

Table 1. Characteristics of Respondents (n=71)

Characteristic of Respondent	n	%
Age		
Middle age (45-59 years)	28	39.4
Elderly (60-74 years)	32	45.1
Old (75-90 years)	11	15.5
Verry old (≥ 90)	0	0.0
Gender		
Female	50	70.4
Male	21	29.6
Level Of Education		
Elementary School	11	15.5
Junior Hight School	21	29.6

Characteristic of Respondent	n	%
Senior High School	31	43.7
University	5	7.0
No School	3	4.2
Work		
Farmer	12	16.9
Self-employed	15	21.1
Housewife	33	46.5
etc	11	15.5
Long Suffering From Illness		
<3 year	20	28.2
3-5 year	27	38.0
>5 year	24	33.8
Blood Sugar test result (GDS)		
Normal (< 126 mg/dL)	54	76.1
Diabetes (>126 mg/dL)	17	23.9
Total	71	100

Based on Table 1, it can be seen that most respondents were housewives with upper secondary education, most were female, and most were between the ages of 60 and 74 (elderly). Based on the duration of their diabetes mellitus, most respondents have had the condition for three to five years, and the majority of their GDS check results are normal, measuring less than 126 mg/dL.

Tabel 2 Distribution table of respondents' answers regarding knowledge of Diabetes Mellitus diet in the elderly at the Brati Health Center

Question	Yes	No
The amount of food given to Diabetes Mellitus sufferers is adjusted based on high and low blood sugar levels	63 (88.7%)	8 (11.3%)
The amount of food given to diabetes mellitus sufferers is adjusted to body weight	51 (71.8%)	20 (28.2%)
The amount of food for Diabetes Mellitus sufferers must meet the proportions of a balanced diet	65 (91.5%)	6 (8.5%)
Food given to Diabetes Mellitus sufferers must be in large quantities so that their needs are met	20 (28.2%)	51 (71.8%)
Wrong diet can increase blood sugar levels	63 (88.7%)	8 (11.3%)
Types of bitter foods are not recommended for people with Diabetes Mellitus	57 (80.3%)	14 (19.7%)
The type of food consumed by Diabetes Mellitus sufferers must be in accordance with the diet	59 (83.1%)	12 (16.9%)
Types of food that are not sweet can cause blood sugar to increase	14 (19.7%)	57 (80.3%)
Diabetes mellitus sufferers are advised to consume milk with a high fat content	18 (25.4%)	53 (74.6%)
Bitter foods or concoctions are bitter can reduce glucose levels	59 (83.1%)	12 (16.9%)
The eating schedule for Diabetes Mellitus sufferers usually consists of 6 meals, 3 main meals (rice, side dishes and vegetables) and 3 snacks with fruit	57 (80.3%)	14 (19.7%)
Diabetes Mellitus sufferers should eat only in the morning and afternoon	16 (22.5%)	55 (77.5%)
Diabetes Mellitus sufferers do not have to eat regularly	14	57

Question	Yes	No
Regular eating patterns can cause Diabetes Mellitus	(19.7%) 21	(80.3%) 50
The best times to eat in a day are 3 times, namely breakfast, lunch and dinner	(29.6%) 55	(70.4%) 16
Fruit is a healthy food therefore it can be eaten as much as	(77.5%) 57	(22.5%) 14
Diabetes Mellitus sufferers are not allowed to consume granulated sugar, therefore granulated sugar can be replaced with honey or brown sugar	(80.3%) 10	(19.7%) 59
Durian, rambutan, longan, dates, sapodilla and jackfruit should be avoided because these fruits have a high level of sweetness	(14.1%) 57	(83.1%) 14
Foods that are free to eat as much as you like for Diabetes Mellitus sufferers are cakes, bread, noodles, chocolate and fruit except tea, coffee or other sweet drinks	(80.3%) 6	(19.7%) 65
Eating yesterday's rice is good for Diabetes Mellitus sufferers	(8.5%) 59	(91.5%) 12
	(83.1%)	16.9%

Based on Table 2, shows that the questions with the correct answer choices are numbers 3 and 19 with the number of respondents answering correctly 65 people (91.5%) and number 16 with the number of respondents answering correctly 57 people (80.3%), the question with the most wrong answer choices at number 6 with 57 respondents (80.3%) and number 20 with 59 respondents answering incorrectly (83.1%).

Table 3. Overview of the Elderly at the Brati Health Center's Diabetes Mellitus Diet Knowledge Level

Knowledge Level	Frequency	%
Good	56	78.9
Enough	10	14.1
Less	5	7.0
Total	71	100

Based on Table 3. With 56 respondents (78.9%) at the Brati sub-district health center, the results, as presented in Table 3, indicate that 71 respondents had a good level of knowledge regarding the diabetes mellitus diet.

Table 4 Cross Tabulation of Knowledge Level Categories with Respondent Characteristics

Characteristicsk	Knowledge					
	Good		Enough		Less	
	n	%	n	%	n	%
Age						
45-59	22	39.3	5	50.0	1	20
60-74	24	42.9	5	50.0	3	60
75-90	10	17.9	0	0	1	20
Gender						
Female	39	69,6	8	80.0	3	60.0
Male	17	30,4	2	20.0	2	40.0
Level of Education						
Elementary school	9	16.1	2	20.0	0	0.0
Junior Hight School	16	28.6	3	30.0	2	40.0
Senior Hight School	24	42.9	5	50.0	2	40.0
University	4	7.1	0	0.0	1	20.0

Characteristicsk	Knowledge					
	Good		Enough		Less	
	n	%	n	%	n	%
No school	3	5.4	0	0.0	0	0.0
Work						
Farmer	8	14.3	3	30.0	1	20.0
Self-employed	12	21.4	1	10.0	2	40.0
Housewife	28	50.0	4	40.0	1	20.0
etc.	8	14.3	2	20.0	1	20.0
Long suffering from illness DM						
<3 year	16	28.6	2	20.0	2	40.0
3-5 year	22	39.3	4	40.0	1	20.0
>5 year	18	32.1	4	40.0	2	40.0
GDS result						
<126 mg/dL	35	62.5	6	60.0	4	80.0
>126 mg/dL	21	37.5	4	40.0	1	20.0

Table 4. reveals that of the 71 respondents with a good level of knowledge about the Diabetes Mellitus diet, the majority were between the ages of 60 and 74, or 24 respondents (49.9%). Of the respondents, 39 were women. (69.6%), followed by respondents with senior secondary education (up to 24 persons, or 42.9%) who had a high degree of understanding about the Diabetes Mellitus diet. The majority of respondents with a duration of time suffering from DM were those with a good level of knowledge. 22 respondents (39.3%) had been with diabetes for three to five years, and 35 respondents (62.5%) had the highest level of knowledge regarding the Diabetes Mellitus diet with normal GDS measurement results, that is, less than 126 mg/dL.

DISCUSSION

Knowledge is the result of awareness, which occurs after an individual engages in sensory perception of an object. Sensory perception takes place through the human five senses: hearing, sight, smell, touch, and feeling. A significant portion of human knowledge is acquired through the senses of sight and hearing. Knowledge plays a crucial role in shaping an individual's actions, as research and experience have shown that behaviors based on knowledge tend to be more enduring than those that are not grounded in knowledge (Notoatmodjo, 2018).

An individual with higher education will possess a broader knowledge compared to someone with a lower level of education, particularly in areas such as waste management and household waste management, as viewed from the perspective of knowledge. The concept of education posits that education is the transmission of culture from one generation to the next, aimed at acquiring and conveying knowledge (Notoatmodjo, 2014). Education plays a crucial role in developing abilities toward desired and expected outcomes. Every individual comes

from a different educational background, with the goal of acquiring information and knowledge (Astina et al., 2020).

Diabetes Mellitus (DM) is a chronic disease that is particularly vulnerable to affect the elderly, given the aging process, which can disrupt the body's metabolism and increase the risk of blood sugar imbalances (Dasopang, 2018; Anggraini et al., 2024). A good understanding of the diabetes diet is essential for managing blood sugar levels and preventing serious complications such as neuropathy, heart disease, and kidney disorders (Marito et al., 2021; Sari et al., 2024).

Dietary adherence among individuals with diabetes mellitus (DM) is a crucial aspect of management, as patients often neglect to maintain a balanced food intake. An appropriate diet can help control blood sugar levels, considering that elevated blood sugar is a primary cause of insulin imbalance (Bistara et al., 2018). A dominant issue that requires special attention in the elderly is the decline in health and inadequate nutritional intake, which may be caused by a lack of knowledge or by the decreased function of digestive organs due to the aging process (Ariqoh et al., 2022; Bangun et al., 2023).

Based on the research findings, the majority of elderly individuals at the Brati Health Center have not fully understood the role of diet in managing diabetes. Most of the elderly still rely on traditional eating patterns high in simple carbohydrates, sugar, and fat, which exacerbate the condition of diabetes mellitus. This indicates that although some health education has been provided, the approaches used have not been sufficiently effective in changing the dietary habits of the elderly comprehensively. It is important to note that education on diabetes diets for the elderly should be tailored to approaches that are easily understood and applicable, considering the many social and cultural barriers that influence their eating patterns. At the Brati Health Center, the dietary habits of the elderly tend to be shaped by sociocultural factors, such as family eating traditions and local customs, which are challenging to change despite differing medical recommendations. Furthermore, the limited resources at the Brati Health Center, including the lack of healthcare professionals specialized in clinical nutrition and the absence of educational tools tailored to the needs of the elderly, exacerbate this situation.

Limited knowledge about the diabetes diet among the elderly can negatively impact disease management. According to several studies, poor knowledge of diabetes-related dietary practices is often associated with poor blood sugar control, which increases the risk of complications such as retinopathy, neuropathy, and heart disease (Micha et al., 2017;

Ramadhan et al., 2020; Meilani et al., 2022). Research by Lewgood et al., (2021), It also indicates that structured and continuous educational interventions can improve patients' knowledge about the diabetes diet, leading to better disease management outcomes.

In addition to enhancing knowledge about diet, successful interventions must also consider the psychosocial aspects of the elderly (Nadirawati et al., 2021; Anggi & Rahayu, 2020). Education should encompass an understanding of lifestyle changes that not only focus on dietary patterns but also on behavioral modifications, such as increasing physical activity and managing stress (Pahrul et al., 2020). An effective educational program should be based on individual needs and take into account the social and cultural barriers present in the community (Patandean et al., 2023). Therefore, interventions should be designed using a more holistic approach, integrating educational, social, and cultural elements to enhance the understanding and implementation of appropriate dietary practices for the elderly (Kusnanto et al., 2019).

The researcher believes that the description of the level of knowledge of the elderly about the diabetes mellitus diet is good because the people of Brati sub-district are enthusiastic about taking part in prolanis activities. If enthusiasm from the community decreases, the elderly's knowledge about the diabetes mellitus diet will also decrease, which will result in an increase in the DM rate in the Brati District community.

CONCLUSIONS

Based on the findings of the study, the majority of individuals with diabetes mellitus (DM) in Brati Regency are aged between 60 and 74 years, with a higher prevalence among females. Most of these respondents demonstrate a good level of knowledge regarding the management of diabetes mellitus, particularly concerning dietary practices. Notably, those with a good understanding of the diabetes mellitus diet tend to have had the condition for a period of 3 to 5 years. Furthermore, respondents with a good level of knowledge about the diabetes diet generally exhibit normal glucose measurement results, with blood glucose levels under 126 mg/dL. The majority of elderly individuals in Brati Regency have a good understanding of the diabetes mellitus diet, as assessed at the local health center. It is recommended that healthcare workers and community health cadres, who play a key role in the Prolanis program, continue to enhance their services and actively disseminate health information in order to improve the overall health status of the Brati sub-district population.

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