OREM SELF-CARE IN THE CONTEXT OF NUTRITION MANAGEMENT
DIABETIC FOOT ULCER PATIENTS

SELF CARE OREM DALAM KONTEKS MANAJEMEN NUTRISI
PASIEN DIABETIC FOOT ULCER

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ABSTRACT

Changes in eating patterns cause more and more people to suffer from diabetes mellitus. A proportion of the population nationally consumes sweet foods more than once a day (40.1%), sweet drinks a day (61.27%), and the behavior of consuming fatty foods and cholesterol more than once per day (41.7%). Risky eating patterns often consume high-carbohydrate food sources, sweet drinks and foods, fatty meats, fat sources, fast food, and preserved foods. Diabetic foot ulcer (DFU) is one of diabetes mellitus. The majority of DFUs suffer from micronutrient deficiency due to inadequate diet and lack of protein sources that should be obtained from side dishes. The study was conducted in children’s care. The purpose of describing the type of food, the amount of food, food processing, and eating patterns in the context of self-care Orem.

This type of research is a descriptive quantitative cross-sectional approach. In the population of people with diabetes mellitus with complications of DFU, the number of samples is 52 with a purposive sampling technique. The questionnaire uses nutrition management. The results of the study The type of food was good (71.2%), not good (28.8%), the amount of food was good (67.3%), not good (32.7%), food processing was good (75.0%), not good (25.0%), good diet (75.0%), not good (25.0%). Conclusion: Nutritional management of patients with DFU is in good and bad criteria.

Keywords: diabetic foot ulcer; nutrition management; self-care orem

ABSTRAK

Perubahan pola makan menyebabkan semakin banyak menderita diabetes mellitus. Proporsi penduduk secara nasional mengonsumsi makanan manis lebih dari satu kali sehari (40,1%), minuman manis lebih dari satu kali sehari (61,27%), perilaku konsumsi makanan berlemak dan berkolesterol lebih dari satu kali per hari (41,7%). Pola makan yang berisiko sering mengkonsumsi sumber makanan tinggi karbohidrat, minuman dan makanan manis, daging berlemak, sumber lemak, makanan cepat saji serta makanan yang diawetkan Diabetic foot ulcer (DFU) salah satu diabetes mellitus. Mayoritas DFU yang mengalami defisiensi micronutrient dikarenakan pola makananya tidak memadai dan kekurangan sumber protein yang seharusnya didapatkan dari asupan lauk pauk. Penelitian dilakukan di anak lanang care. Tujuan mendekripsikan jenis makanan, jumlah makanan, pengolahan makanan dan pola makan dalam konteks self care orem. Jenis penelitian Deskriptif Kuantitatif pendekatan Cross Sectional, dengan Populasi penderita diabetes miltius dengan komplikasi DFU, Jumlah sampel 52 dengan Teknik Purposive Sampling. Kuesioner menggunakan manajemen nutrisi. Hasil penelitian Jenis makanan baik (71.2%), kurang baik (28.8%), jumlah makanan baik (67.3%), kurang baik (32.7%), pengolahan makanan baik (75.0%), kurang baik (25.0%), pola makan baik (75.0%), kurang baik (25.0%). Kesimpulan: Manajemen nutrisi penderita DFU dalam kriteria baik dan kurang baik.

Kata Kunci : diabetic foot ulcer; manajemen nutrisi; self care orem
INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by high levels of glucose in the blood (hyperglycemia) due to defects in insulin secretion, defects in insulin action, or a combination of both. Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Diabetes mellitus ranks 4th in the non-communicable diseases (PTM) group. (Soelistijo, 2021).

Changes in diet are causing more and more people to suffer from diabetes mellitus. Diet and physical activity as well as exposure to cigarette smoke have a major influence on the incidence of diabetes mellitus. The proportion of the population consuming sweet food more than once a day nationally is (40.1%), sweet drinks more than once a day is (61.27%) and the national proportion of the population consuming fatty and cholesterol foods more than once per day (41.7%). (Jais et al., 2021) A risky diet is a diet that often consumes high-carbohydrate food sources (rice, bread, and noodles), sweet drinks and foods, fatty meats, sources of fat, fast food, and preserved food. (Jais et al., 2021).

The results from the International Diabetes Federation (IDF) state that currently Indonesia is in position 5 with diabetes mellitus in the world, with a total of 19.5 million people, and is predicted to increase to 2045 with a total of 28.6 million people who have the potential for complications of Diabetic Foot Injury (LKD). (Central Java Provincial Health Office, 2018)

The number of people with diabetes mellitus in Central Java Province in 2019 was 652,822 people, and 83.1 percent had received health services according to standards. (Central Java Provincial Health Office, 2018). Based on data from the Semarang City Health Office in 2019 diabetes mellitus is the 5th most common disease in health centers in Semarang City. (Central Java Provincial Health Office, 2018)

Carried out by the government in dealing with the problem of diabetes mellitus, but the problem of diabetes mellitus is still high in Indonesia and is increasingly exacerbated by the emergence of various complications due to diabetes mellitus. (Jais et al., 2021) The problems experienced by people with diabetes mellitus can be minimized if they have sufficient ability and knowledge to control their disease, namely by self-care. (Munir et al., 2019).

Nutrition for diabetic patients must be known and properly implemented by diabetic patients to control nutritional intake according to the body's needs. The efforts are in the form of consuming healthy and balanced nutrition, consuming at least 5 portions of vegetables and fruit a day, reducing sugar consumption to a maximum limit of 50 grams per day, and avoiding foods/drinks that contain lots of sweets, in addition to adequate rest and good stress management (Utomo et al., 2011).

Ulcers themselves are one of the complications of diabetes mellitus. Diabetic wounds are caused by infection as a result of high blood glucose, thus increasing the proliferation of bacteria, and coupled with a deficiency of the immune system which causes a long period of wound inflammation. In addition, inappropriate treatment of diabetic wounds (ulcers) can exacerbate the condition of the wound. (Aini Anisa & Indarjo, 2021). Diabetic wounds or neuropathy are injuries that occur in diabetic patients involving disorders of the peripheral and autonomic nerves. Diabetic ulcers (diabetic ulcers) are often called diabetic foot ulcers, neuropathy wounds, and diabetic neuropathy wounds. (Power, 2006) Diabetic foot ulcer (DFU) occurs because the arteries narrow so the need for nutrients and oxygen is insufficient. (Health et al., 2020).

Orem's self-care in the case of diabetes mellitus is a chronic condition whose management depends on the patient's self-care. In the process of providing nursing care using the Orem Self-Care, nurse help patients meet their needs according to self-care, namely whole compensatory, partly compensatory, and supportive educative. The results of Linda Riana Putri's research on the Self Care of Diabetes Mellitus (DM) sufferers at the Strondol Health Center in Semarang 2017 to 135 respondents said that self-care and self-care had almost the same results, but more respondents in this study had good self-care behavior, self-care as many as 68 respondents. Data at Lanang Care Children in August 2022 60 patients received Diabetic foot ulcer (DFU) treatment. This study was conducted to obtain an overview of nutritional
management in the context of self-care patients' diabetic foot ulcers which includes the type of food, amount of food, food processing, and eating pattern in the context of self-care for Orem

**METHOD**
The research was conducted at Lanang Care Children. This type of research descriptive approach cross-sectional in collecting data. The survey method is the design used. The population of diabetes mellitus patients with complications of DFU. Using the Slovin formula, a sample of 52 people was obtained using purposive sampling with the inclusion criteria of diabetic foot ulcer without comorbidities and aged 30-70 years and willing to be respondents to a questionnaire using nutritional management. The data analysis technique used is univariate analysis to explain or describe the type of food, the amount of food, food processing, and eating patterns.

**RESULTS**

**Nutrition management by type of food**
Table 1. Frequency distribution by type of food

<table>
<thead>
<tr>
<th>Type of food</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>good</td>
<td>37</td>
<td>71.2</td>
</tr>
<tr>
<td>Poor</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1 shows the data that the type of food of respondents who had diabetic foot ulcers at Lanang Care Children consisted of 2 categories, namely the majority of Good: 37 (71.2%), Poor: 15 (28.8%).

**Nutrition Management based on the Amount of Food**
Table 2. Frequency Distribution Based on the Amount of Food

<table>
<thead>
<tr>
<th>Amount of Food</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>35</td>
<td>67.3</td>
</tr>
<tr>
<td>Poor</td>
<td>17</td>
<td>32.7</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2 shows the data that the number of respondents who have diabetic foot ulcers at Lanang Care Children consists of 2 categories, namely the majority of Good: 35 (67.3%), Poor: 17 (32.7%).

**Nutrition management based on food processing**
Table 3 Frequency distribution based on food processing

<table>
<thead>
<tr>
<th>Food processing</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>39</td>
<td>75</td>
</tr>
<tr>
<td>Poor</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3 shows the data that the Food Processing of respondents who have diabetic foot ulcers at Lanang Care Children consists of 2 categories, namely the majority of Good: 39 (75.0%), Poor: 13 (25.0%).

**Nutrition Management Based on Diet**
Table 4 Frequency Distribution Based on Diet

<table>
<thead>
<tr>
<th>Based on Diet</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>39</td>
<td>75</td>
</tr>
<tr>
<td>Poor</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4 shows that the eating patterns of respondents who have diabetic foot ulcers at Lanang Care Children consist of 2 categories, namely the majority of Good: 39 (75.0%), Poor: 13 (25.0%).

**DISCUSSION**

**Nutrition Management Based on Types of Food**

Types of food in the context of diabetic foot ulcer patients at Lanang Care Children, seen from the results of all respondents' answers about the type of food in nutrition management at Lanang Care Children.
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consisted of 2 categories, namely Good: 37 (71.2%), Poor: 15 (28.8%). The unfavorable category is caused by patients not getting information about the types of food that are good for consumption and not consumed. Often eating noodles added with rice can produce 750 calories only from carbohydrates.

Perkin stated that the ideal number of basal calories is 25-30 calories/kg, depending on gender, age, activity, and nutritional status. Calorie needs in women are smaller than in men. The calorie requirement for women is 25 kcal/kg BW and for men, it is 30 kcal/kg BW. The high levels of carbohydrates in the body that are processed into sugar can increase the insulin hormone. High levels of carbohydrates in the body and a lack of intake of fruits that are rich in fiber can prolong the healing process and hurt the healing of diabetic foot ulcers. (Bertalina & Aindyati, 2016)

Perkin stated that people with DFU are advised to consume fiber from legumes, fruit, and vegetables as well as sources of carbohydrates that are high in fiber. The recommended amount of fiber consumption is 30 grams per day because it is very effective. Witasari (2018) states that fiber consumption is recommended (≥25 grams per day) because high fiber intake can control blood glucose levels in diabetic foot ulcers. (Soelistijo, 2021)

DFU sufferers are stated to avoid refined carbohydrates with a high glycemic index. Examples of carbohydrates with a high glycemic index are white bread and sugary drinks which tend to cause spikes in blood sugar. diabetics can meet the needs of carbohydrates as much as 45-60 grams in each large meal portion. This value is roughly equivalent to 100 grams of brown rice, 50 grams of vermicelli, or 120 grams of cassava. (Power, 2006)

Bayu et. al (2019) presented a food composition with a breakfast menu of white rice, steamed tofu, and boiled mustard, a lunch menu of boiled tofu white rice, fried tempeh, a dinner menu of boiled sweet potato without skin, breast fried chicken, omelet, watermelon morning snack menu, filled tofu, avocado butter, orange fruit midday/afternoon snack menu, cooked egg whites, and avocado butter. The composition of the meal menu contains 1423 Kcal. The number of calories already meets the patient's calorie needs of 1423 Kcal. (Soelistijo, 2021)

Nutrition management based on the Amount of Food

The results obtained based on the amount of food in the context of diabetic foot ulcer patients at Lanang Care Children, seen from the results of all respondents' answers about the amount of food in nutrition management at Lanang Care Children consisted of 2 categories, namely Good: 35 (67.3%), Poor: 17 (32.7%). As for patients who do not maintain the amount of food a percentage of patients (32.7%). This is caused because the patient consumes bread too often in an amount that is more than 3 times a week. Because bread is a high-carbohydrate food and when consumed in excess can potentially increase blood sugar levels. Consuming more bread can increase the excessive levels of carbohydrates in the body. Lack of nutritional protein intake, fiber content, and excessive amounts of carbohydrate levels can hinder the healing process of diabetic foot ulcer patients. (Jais et al., 2021)

Perkeni states that the recommended carbohydrate intake is 45-65% of total energy intake, limiting total carbohydrates to <130 g/day is not recommended. Sucrose recommendations may not consume 5% sugar of total calories. Alternative sweeteners can be used as a substitute for sugar, as long as they do not exceed the safe limits for daily consumption. (Soelistijo, 2021)

Dhela (2021) stated that in his study as many as 42 (70%) patients consumed packaged drinks, tea, and coffee every morning. As well as likes to consume cakes and bacon which contain sugar in them so their blood glucose is still difficult to control. (Jais et al., 2021)

Nutrition management based on Food Processing

The results obtained based on food processing in the context of diabetic foot ulcer patients at Lanang Care Children, seen from the results of all respondents' answers about food processing in nutrition management at Lanang Care Children consisted of 2 categories, namely Good: 39 (75.0%), Poor: 13 (25.0%). There
were also patients who did not know how to maintain processed food with a percentage of 13 (25.0%) patients. This is due to a lack of knowledge and information on how to process food from coconut milk which can cause an increase in fat and cholesterol. Related high cholesterol in the body and an increase in the fat levels in the body can lead to buildup in the arteries which can make the patient's condition worse. (Harmet et al., 2021)

Indonesian Nutritionists recommend that food should be processed by baking, steaming, brewing, boiling, and baking. Vegetables and fruit, it is recommended to consume enough vegetables and fruit. When cooking by frying, it is better to use oils such as olive, canola, peanut, or walnut oil compared to ordinary vegetable oil, margarine, or butter. (Jais et al., 2021)

The percentage of respondents' consumption of foods containing coconut milk, salty, fatty, and sweet is 50%, 48%, 40%, and 50%. The percentage consuming coconut milk, salty and sweet foods is almost the same, while those consuming fat are smaller. Consumption of foods containing coconut milk, salty and sweet has a risk of 2.62 times. 65% of respondents from all respondents who consumed salty foods had diabetes mellitus. (Soelistijo, 2021)

How to cook it so that it can be eaten and can taste good, for example by boiling it and adding Indonesian spices, cooking with pipes can also be an alternative for diabetes patients. It is recommended for diabetes patients to avoid Indonesian dishes that contain excessive calories, such as adding coconut milk to rendang and curry. (Hassanein et al., 2022)

**Nutrition Management based on Diet**

The results obtained based on diet in the context of diabetic foot ulcer patients at Lanang Care Children, seen from the results of all respondents’ answers about diet in nutrition management at Lanang Care Children consisted of 2 categories, namely Good: 39 (75.0%), while also patients who less in maintaining their diet by 13 (25.0%). This is due to the lack of patient knowledge in maintaining a proper diet. Such as giving an interval of eating rice at least once every 3 hours can increase carbohydrate levels as a result the number of sugar levels in the body also increases.

Meals are divided into 3 main meals, 3 side meals with 3-hour intervals, namely breakfast at 07.00, morning snack at 10.00, lunch at 13.00, lunch at 16.00, evening meal at 19.00, and evening snack at 21.00. An example of a good diet for patients with diabetic foot ulcers is breakfast with a cup of whole wheat toast with fried or scrambled eggs or a bowl of oatmeal with a glass of low-fat milk and 1 pear. For morning snacks you should eat 1 apple or orange and cinnamon boiled water, or nuts (almonds, cashews, and kidney beans). Lunch includes brown or brown rice, fish or tofu, and tempeh, spinach, and corn. For lunch, fruit juice (mango, avocado, kiwi, or strawberry) without sugar, or yogurt with fruit. Meanwhile, for dinner, eat red or brown rice, boiled chicken, capacity vegetables, or stir-fried broccoli. (Aini Anisa & Indarjo, 2021)

Poor eating patterns can cause an increase in blood sugar levels that are not controlled, this tends to cause levels of fatty substances in the blood to increase, thus accelerating the occurrence of atherosclerosis (accumulation of fatty plaques in blood vessels). (Soelistijo, 2021)

Diabetic Foot Polyclinic at Ulin Hospital, Banjar Masin, 19 people (61.3%) of 31 respondents had poor fasting blood sugar levels (> 126 mg/dl) and most of the ulcers were grade II, 17 people (54.84%) so it is concluded that there is a significant relationship between blood glucose control and diabetic ulcers in DM patients, and if the blood sugar level of someone who has diabetic ulcers is not well controlled it will cause anaerobic pathogenic bacteria to easily develop in the blood plasma so that the degree of foot injury DM sufferers will get worse. (Hassanein et al., 2022)
CONCLUSION
Nutrition management in the context of Orem self-care: type of food, amount of food, food processing and diet of DFU sufferers in good and poor criteria in Lanang Care Children.

REFERENCES


