



THE FACTORS THAT RELATED WITH OCCURRENCE FOOD WASTE OF DIABETES MILITUS PATIENTS

Ajib Jayadi*, Dewi Woro Astuti, Asep Jalaludin Saleh

Faculty of Health, Universitas Mitra Indonesia, Jl. ZA. Pagar Alam No.7, Gd. Meneng Bandar Lampung 40115, Indonesia
*ajibhani07@gmail.com

ABSTRACT

According to the survey, the percentage of food waste's diabetes militus patients in the Imanuel Hospital of Bandar Lampung still have not reached the minimum service standards. This study aimed to analyze the factors associated with food waste in diabetes militus patients in Hospital Imanuel. This is a descriptive analytic study using a cross sectional research design. The sample of this study was 50 patients who suffered diabetes mellitus and were hospitalized. The sample is taken = by purposive sampling. The Analysis of the relationship between the dependent variable and the independent variable is done by using the chi square test. Data on age, gender, appearance of food, taste of food and attitude of officers were obtained through a questionnaire while leftover food was obtained through the Comstock form. Of the total samples from 50 th 46% 56 years old, and 78% sex women. The results of correlation test there is a significant association between appearance of food (p value 0,005) and taste of food (p value 0,002) with the food waste. There were no significant associations between service providers (p value 0,776) with the food waste.

Keywords: diabetes; food waste; hospital

INTRODUCTION

A reflection of the performance of nutrition installations in terms of food procurement is called quality if it is in line with established guidelines (PGRS Guidelines, 2013). Regulation on Health Minister No. 129/Menkes/SK/II/2008 concerning Minimum Hospital Service Standards (SPM) stipulates that the indicators of the Nutrition Service Standards include the timeliness of feeding patients with a standard of 90%, the patient's inedible leftovers 20% and no errors. 100% standard diet. Uneaten food waste is seen economically as a wasted expense when there is a lot of leftover food and the most important thing is that it will be difficult to fulfill adequate nutritional intake.

In Indonesia, research in various hospitals, the leftover food ranges from 17% to 67%, including the University of Muhammadiyah Malang Hospital, the average leftover food is 57% (Tanuwijaya, 2018) similar to that also at Dr. H. Abdul Moeloek Lampung Hospital found leftovers with the highest category at dinner time of 33.66%, while breakfast was 28.62% and lunch was 31.56% (Wulan, 2017). Diabetics need to regulate the food they consume, one of the important principles is to pay attention to the amount of food, if there is a lot of leftover food that is not eaten, it means that the need for energy and nutrients needed to control blood sugar is not optimal, in addition this can also lead to acute complications. in people with diabetes mellitus who use insulin such as hypoglycemia or chronic complications such as heart disease, kidney disease, hypertension and automic neuropathy (Etik, 2016).

Based on medical record data at the Imanuel Bandar Lampung Hospital in 2019, there were 674 patients diagnosed with diabetes mellitus who were hospitalized, and were ranked 2nd among the 10 largest disease cases in 2019 patients who were hospitalized. This shows that this disease still needs to get priority health services. From the data at the nutrition installation at Imanuel Hospital, the minimum service standard for leftover lunch that the patient did not eat in 2020 was 24% in January and 21.4% in February. In particular at the Imanuel Way Halim Hospital in Bandar Lampung, the compliance rate of diabetes mellitus patients spending diets from the hospital is an indicator of the quality of the clinical

priority of the hospital, so a study was conducted to see compliance and the rest of the lunch that was not eaten by diabetes mellitus patients and the results in January were 38% and February at 34.8%. This appears to be quite a big difference with the overall results of the food waste of hospitalized patients.

It can be said that it is not good if >20% of the food served is not consumed by the patient. Categorized as high if the remaining food is > 25% (Wibowo et al, 2018). According to Rizani A (2013), food intake is influenced by internal factors including the patient's clinical condition such as appetite, changes in the sense of taste, psychology, eating habits, and boredom while external factors include food portions, food appearance, taste, attitude of the staff, food schedule and atmosphere of the place of care. According to Bilous (2014) administration of oral antidiabetic drugs such as metformin can provide the main side effects, namely nausea, anorexia or diarrhea which affects a third of patients.

Given the importance of regulating diabetes mellitus food so that the patient's blood sugar can be well controlled, the researchers are interested in knowing what factors are associated with the occurrence of food waste in diabetes mellitus patients at Imanuel Way Halim Hospital, Bandar Lampung. Services by paying attention to nutritional, clinical and metabolic status, all of which are closely related to nutritional conditions that have an impact on the process of travel and disease healing are nutritional services in hospitals (PGRS Guidelines, 2013).

The uniqueness of food administration in hospitals is not found in other institutional food services, starting from the main goal of providing direct personal total nutritional care for patients with regular meals or on special diets by taking into account the patient's condition. Most patients visit not of their own volition or choice, therefore they must also pay attention to the patient's psychology in providing food to people who are not familiar with the hospital environment and also consider those related to the patient's health condition (Martalena, 2019). Hospital food standards are food standards that are made as an effort to provide food quality assurance in meeting the nutritional needs of inpatients based on the patient's disease and nutritional problems.

Diabetes mellitus can also be called hyperglycemia due to blood sugar cannot be used properly due to carbohydrate metabolism disorders (Sulistiyowati, 2016). Excess body mass index has a greater risk of diabetes mellitus than the risk of other diseases. Being overweight as measured by body mass index can be a major risk factor for developing insulin resistance in type 2 diabetes mellitus. Leftovers from a patient's food are usually used to measure the quality or not of providing food, because if there is a lot of leftover food, it is difficult to meet the nutritional adequacy. Factors that affect food waste are internal, including age, gender, changes in the sense of taste, psychology, eating habits, boredom, physical activity, special circumstances, digestive disorders as well as treatment factors and external external factors including food portions, food appearance, the taste of the food and the attitude of the officers, the schedule of meals, the atmosphere of the place of care, the food from outside the hospital. This study aims to determine the factors associated with the occurrence of food waste in patients with diabetes mellitus.

METHOD

This study used a cross sectional research design with an analytical descriptive approach. The study was conducted at the Imanuel Way Halim Hospital, Bandar Lampung, which was held from January 1 to March 31, 2020. The population of this study were all patients with diabetes mellitus who were treated in the inpatient ward of the Imanuel Hospital. The sampling technique used is purposive sampling, which is based on the researcher's decision alone, if it is included in the inclusion criteria, it is used as a sample, if it is included in the exclusion criteria, it is not taken as a sample. The number of samples to be studied is 50 respondents. The variables studied were age, gender, food appearance, food taste and staff attitude. The dependent variable in this study was food waste. Data on age, gender, food appearance, food taste and the officer's attitude were obtained through a questionnaire and the validity

and the reliability were tested. From the test, the validity coefficient was 0.331 and r 0.872 which showed that the reliable scale was in good category, and leftover food was obtained through the Comstock form, and leftovers were obtained through the Comstock form.

Univariate analysis was carried out in order to get an overview of age, gender, appearance of food (color, texture and shape of food), taste of food (aroma, seasoning, consistency, tenderness and temperature), attitude of officers (attitude, cleanliness and tidiness of the presenter), and leftovers. food served using a frequency distribution table and analyzed descriptively. Bivariate analysis was conducted to see the relationship between two variables, namely the independent variable consisting of the appearance of the food, the taste of the food and the attitude of the officers with the dependent variable in the form of leftovers. To prove the existence of a relationship between the two variables, the Chi Square statistical test with a 95% confidence level was used and the SPSS program was used.

RESULTS AND DISCUSSION

Table 1.
Age Distribution (n=50)

Age (years)	f	%
26-35	2	4
36-45	5	10
46-55	20	40
56-65	23	46

Based on table 1, 23 respondents (46%) with diabetes mellitus aged 56-65 years followed by 20 respondents (40%).

Gender

Tabel 2.
Gender Distribution (n=50)

Age	f	%
Male	11	22
Female	39	78

Based on table 2, it can be seen that the majority of respondents are women by 39 respondents (78%) compared to men only 11 respondents (22%). The results showed that most of the patients suffering from diabetes mellitus were female, 39 respondents (78%). In line with that, other studies such as Wulansary (2017) as many as 56.7% and Juwariyah (2019) by 82.1% are female. With a history of giving birth to a baby >4 kg or gestational diabetes mellitus or with polycystic ovary syndrome, they are more likely to suffer from diabetes mellitus (Perkeni, 2015). Diabetes mellitus patients with more average nutritional status have blood glucose levels above normal (Harsari, 2018) and blood glucose is strongly influenced by body mass index (Raudatul, 2018).

Food Appearance

The appearance of the food is the respondent's assessment including the color, texture and shape of the food. The appearance of food is categorized into 2 groups, namely attractive and unattractive.

Table 3.
Food Appearance Distribution (n=50)

Food Appearance	f	%
Interesting	37	74
Uninteresting	13	26

Based on table 3, it can be seen that respondents rated the appearance of the food served as attractive by 37 respondents (74%) while those who considered it unattractive were 13 respondents (26%). Based on the results of research at Imanuel Way Halim Hospital, Bandar Lampung, there were 37 respondents (74%) who stated that the food served was interesting. This shows that the food served to the respondents is quite good at being noticed by the nutrition installation as a provider of patient food. Efforts to make food appear more attractive are done for example by paying attention to the combination of colors, textures, cut shapes and also has been given garnishes to beautify the appearance of the food served so that it is hoped that through the sense of sight it can stimulate and arouse the taste buds.

In accordance with the theory which states that the appearance of food is the first thing that the patient will assess the quality of the food. An attractive appearance can cause stimulation to feel through the sense of sight (Setyaningsih et al, 2010). With an attractive appearance, it will stimulate the patient to feel and consume the food so that the food served is expected to be eaten so that the remaining food is little or is eaten.

The Food Taste

The respondents' assessment includes aroma, seasoning, consistency, softness and temperature of food. Food tastes are categorized into 2 groups, namely good and bad.

Table 4.
Food Taste Distribution (n=50)

Food Taste	f	%
Good	28	56
Not good	22	44

Based on table 4, it can be seen that respondents rated the taste of the food served as good by 28 respondents (56%) while those who rated it bad were 22 respondents (44%). Based on the results of research at Imanuel Hospital, 28 respondents (56%). The delicacy and taste of food that arises due to the spices used will produce an aroma that can increase appetite through the smell. The limited use of spices and food processing methods for treated diabetics also affects the aroma of the food produced.

There is one respondent who thinks that the smell actually makes him more nauseous so that the food served leaves 96% of food. Maybe it's because of delaying eating so that the aroma of the food disappears because it evaporates, so the food is no longer flavorful or the aroma changes so that when it is eaten, the aroma of the food is reduced or no longer smells. In addition, respondents are patients who are being treated, so they may experience other health problems when being treated, for example, nausea and vomiting due to digestive disorders, allowing respondents to give an assessment that the food served has an aroma that makes them more nauseous.

In theory, aroma, seasoning, consistency, tenderness and temperature are a combination that produces the taste of food, so that when served it will cause and also increase appetite so that it can reduce food waste (Melinda et al., 2019). The taste of good food can stimulate intake, and foods that taste better are often consumed in larger quantities.

The Officer's Attitude

The attitude of the officer is the respondent's assessment including the attitude and way of presentation. The attitude of the waitresses was categorized into 2 groups, namely friendly and polite and unfriendly and impolite.

Table 5.
Officer's Attitude Distribution (n=50)

Sikap Petugas	f	%
Polite and Friendly	44	88
Impolite and unfriendly	6	12

Based on table 5, it can be seen that respondents rated the attitude of the waiters as friendly and polite by 44 respondents (88%) while those who considered it unfriendly and impolite were 6 respondents (12%). Based on the research results of the Imanuel Way Halim Hospital in Bandar Lampung, 44 respondents (88%) assessed the attitude of the officers as friendly and polite. Paying attention is one of the tasks of the waiter because as the spearhead in food service to patients, he also acts as an information intermediary so that he can find out the wishes and needs and expectations of patients related to food, for example eating schedules, allergies or taboos and the patient's reasons when there are still a lot of leftovers. However, there were 2 respondents who considered that the attitude of the waiter staff at Imanuel Hospital was not friendly. Respondents' assessment of standards of friendliness and courtesy is very dependent on the daily habits of the patient at home or in the surrounding environment, perhaps because of the attitude or words of the waiters who feel or are judged by the patient to be unfriendly, unlike what respondents usually get at home or not in accordance with his hope. The form of a person's response to external stimuli is very dependent on the factors of the person concerned, sometimes even though the stimulus is the same, the response will be different for each person which is very dependent on the characteristics, physical environment, socio-cultural, economic, political of the person (Notoatmodjo, 2007).

At the nutrition installation itself, there is already a standard operating procedure for serving food to patients, with the first step introducing yourself then identifying the patient and being friendly, polite, smiling when greeting and serving food and respecting the patient. Waiters are expected to be able to carry out standard operating procedures in serving food to patients as a work culture by improving communication skills and being good through facial expressions or smiles. In addition to being required to be friendly and polite, they must also maintain body cleanliness and use clean and neat clothes with complete identities while on duty.

Leftovers

The rest of the patient's food in the study was calculated using the comstock method, divided into 2 categories according to the 2013 PGRS, namely good if leftover food 20% and not good if >20%.

Table 6.
Leftovers Distribution (n=50)

Leftovers	f	%
Good	15	30
Not good	35	70

Based on table 6, it can be seen that 15 respondents with good food leftovers (30%) while those with not good leftovers amounted to 35 respondents (70%). The results of the study at the Imanuel Way Halim Hospital in Bandar Lampung found that the average patient leftovers was 38.98%. The same

study from Zahara (2019) at H. Abdul Manan Simatupang Hospital got 30.92% leftover food and Wulansary (2017) at Dr. RSUD. Soedarso Pontianak found 63.3% of his food leftovers. From the food waste data at Imanuel Hospital above, this shows that the respondent's food intake is classified as lacking because more than 20% of the food provided is not consumed.

The assessment of food waste in this study was influenced by the appearance of the food and the taste of the food. In addition, it may also be caused by the respondent eating food that is not provided by the hospital but from family or visitors so that the food served by the hospital cannot be spent. Imanuel Hospital does not allow bringing food from outside to be given to patients but there is no special supervision, if the patient wants to eat from outside, it is recommended to report it to the nurse on duty to be consulted by a nutritionist.

Correlation Between Food Appearance and Leftovers

The results of the Chi Square statistical test on the analysis of the relationship between appearance and food waste with a 95% confidence level obtained p value of 0.005. The decision to reject H_0 if $p \text{ value} < \alpha(0,05)$, which means that there is a correlation between food appearance and food waste.

The Correlation Between Food Taste and Leftovers

The results of the Chi Square statistical test on the analysis of the relationship of taste with a 95% confidence level obtained a p value of 0.002. The decision to reject H_0 if $p \text{ value} < \alpha (0.05)$ which means there is a correlation between food taste and leftovers.

The correlation between officer's attitude and leftovers

The results of the Chi Square statistical test on the analysis of the relationship between officers' attitudes and leftovers with a 95% confidence level obtained p value of 0.776. The decision to reject H_0 if $p \text{ value} < \alpha (0.05)$ which means that there is no relationship between the attitude of the officer and the leftovers.

CONCLUSION

Most respondents are respondents aged 56-65 years, namely 23 people (46%) and respondents with female gender 39 people (78%). There is a relationship between food appearance and food waste with a p value of 0.005 ($p < 0.05$). There is a relationship between the taste of food and leftovers with a p value of 0.002 ($p < 0.05$). There is no relationship between the attitude of the officers with the rest of the food with a p value of 0.776 ($p > 0.05$).

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