

The Effect Of Vegetable Reception Development On Acceptance Of Patients' Ordinary Food

AASP Chandrawati^{1*}, Luh Suranadi², Reni Sofiyatin³, and Indri Aprillia⁴

¹⁻⁴ Department of Nutrition, Ministry of Health Polytechnic Mataram

Jln. Praburankasari Dasan Cermen, Sandubaya Mataram City

Tel./Fax. (0370) 631160

*Email : chandradewi@gmail.com

Article Info

Article history:

Received November 9th, 2022

Revised January 18th, 2023

Accepted March 17th, 2023

Keyword:

Food Acceptability; Recipe Development; Vegetables

ABSTRACT

Background: The challenge of providing food in the hospital that must be followed up immediately is that there are still many leftovers from the patient's nutrition. The remaining food needs to be paid attention to because the food the patient consumes will help meet energy and nutritional needs. The remaining food is still a lot of vegetables; poor vegetable processing due to the long cooking process will reduce the nutritional content of the vegetables. Processing vegetables is not only to get healthy and nutritious vegetables, but also in the processing, it is expected to produce vegetables that taste delicious and can be consumed by many people, meaning that in processing, you must also think about the acceptance of these foods.

Research Methods: To determine the effect of developing vegetable recipes on the acceptability of patients' average food at Dompur Hospital. This study was a quasi-experimental study using a one-group pretest-posttest design. This study was conducted in May 2021. The population of this study was Class III patients, with a sample of 27 patients data analysis using an independent t-test.

Research Result: The results showed that the most vegetable residue was scrambled vegetables, as much as 88.9%, while the least remaining vegetables, and corn cream soup, as much as 70.3%. The results of the statistical test conducted indicated that there was a significant difference in acceptance after modification of the vegetable recipe ($p < 0.05$).

Conclusion: The results of the modification stated that out of 27 samples, eight samples (29.7%) still left vegetables included in the category of many $> 20\%$, and 19 samples (70.3%) used up vegetables so that they were included in the category of less $< 20\%$. The comparison of leftover vegetables before and after modification showed that the highest yield was found in scrambled vegetables, as much as 88.9%. In contrast, the fewest remaining vegetables were cream corn soup, as much as 70.3%.

BACKGROUND

Nutrition services are a benchmark for the quality of a health service because food is a basic human need that can affect the state or nutritional status of patients and prevent disease. Therefore, quality nutrition services must be optimized. Organizing food is part of nutrition services, from menu planning activities to patient food distribution activities.

The challenge of organizing food at the hospital, which must be followed up immediately, is that many patient leftovers still exist. Leftover food needs attention because the food consumed by the patient will help meet energy and nutrient needs. The success of serving food is related, among other things, to the

patient's acceptance of the food served, so it is a simple way of determining or evaluating it. It can be used as an indicator of the success of nutrition services.

Food acceptance is acceptance of the food served. To determine the patient's acceptance of food can be assessed from the presence or absence of food scraps so that food waste can be used as an indicator to evaluate food administration activities in the hospital. Based on research conducted at RSAL by Dr. Ramelan Surabaya, leftover vegetables at dinner, based on the taste of the food, needed to be more suitable. As much as 98.3% of respondents stated that the taste of vegetables at dinner was quite right, leaving vegetables at 74.1% and very convenient as much as 60%. The acceptability of food, especially vegetables, at Dompu General Hospital is still relatively low; according to data on patient leftovers from the nutrition installation from February to June, patients still leave a lot of vegetables, namely around 80% -90%.

Recipe development is an effort to improve the taste, color, aroma, texture, and nutritional value of a food so that it is of higher quality and attractive to increase acceptance and increase the variety of menus at the institution. Recipe development needs to be done so that the food served to consumers becomes attractive. It will increase appetite and minimize the feeling of saturation and patient food waste. Recipe development is classified into several types, one of which is a modification of processing techniques; poor processing of vegetables due to the cooking process for too long will reduce the nutritional content in vegetables.

Based on the results of initial observations made at Dompu Hospital in class III inpatient rooms, the menu cycle used by the hospital is a 7-day menu cycle. The provision of menus at the hospital includes types of food from carbohydrate sources in the form of rice and porridge, sources of animal protein in the form of meat, fish, and chicken, sources of vegetable protein in the form of tempeh, sources of vitamins and minerals in the form of vegetables and fruits. The vegetable menu served at Dompu Hospital is corn soup, macaroni soup, bean soup, chickpea soup, chicory cash, scrambled vegetables, and stir-fried beans. Based on report data from the nutritional installation of leftover vegetable food at Dompu Hospital, the patient's leftover vegetables are still high, namely $\geq 80\%$ of the vegetables served as much as 200 grams.

This study aimed to determine the effect of prescription development on patient acceptance at the Dompu District General Hospital. The vegetable menu at the Dompu Hospital showed that the most leftover vegetables at breakfast were scrambled vegetables with corn and carrots (88.9%). The average patient only spends 20%-30% of the vegetables the hospital provides. Therefore the authors want to know the effect of the development of vegetable recipes on the acceptability of the usual food of patients at Dompu Hospital.

MATERIAL AND METHODS

This research was conducted at the Dompu Regional General Hospital, born for two weeks in May 2021. This type of research was a quasi-experimental study using a one-group pretest-posttest design. The population in this study were class III inpatients who received regular food, as many as 27 patients, according to data for May 2020. The sampling technique used in this study was purposive sampling.

Data were collected by observing and recording the patient's leftover food brought back by the waiter to the nutrition installation, from the results of initial observations and the most leftover vegetables, namely scrambled vegetables (corn, carrots), at breakfast time. Scrambled vegetables are modified based on traditional seasonings and processing techniques to become corn cream soup using the same essential ingredients, namely 100 grams of corn and 100 grams of carrots.

The use of spices based on three treatments, namely the first treatment with the addition of 5 grams of cornstarch, the second treatment with the addition of 20 grams of onions and 5 grams of cornstarch, the third treatment with the addition of 50 grams of eggs, 20 grams of onions and 5 grams of cornstarch. The panelists used in this organoleptic test were six nutritionists at Dompu Hospital. The best treatment is used to develop vegetable recipes that have been tested for their acceptability to patients at Dompu Hospital. Data on the acceptability of vegetables before and after the development of recipes based on processing techniques and standards for vegetable seasonings were obtained by weighing the remaining vegetables using the food weighing method. The panelists used are trained panelists (hospital nutritionists). Acceptance data is collected by observing and weighing the remaining vegetables not consumed by the patient.

RESULTS AND DISCUSSION

The results of initial observations made on the vegetable menu with a menu cycle of 7 days for one week found that the most remaining vegetables were scrambled vegetables, with the main ingredient being corn. The hospital served seven vegetable menus. On the first day, corn soup vegetables from 27 patients. 20 patients had leftovers in the large category, and seven other patients had pieces in the small class. On the second day, the vegetable menu was served macaroni soup; out of 27 patients, 16 had leftovers in the large category, and 11 had pieces in the small class. On the third day of bean setup, from 27 patients, there were 22 patients with food leftovers in the large category and five patients in the small category.

On the fourth day of chickpea soup, out of 27 patients, there were 19 patients whose leftovers were in the large category, and six patients had pieces in the small class. On the fifth day of white mustard, out of 27 patients, there were 13 patients with food leftovers in the large category and 14 with pieces in the small category. On the sixth day of scrambled vegetables, out of 27 patients, 24 patients had leftovers in the large variety, and three patients had pieces in the small category. On the seventh day of stir-fry, the chickpeas from 27 patients, there were 17 patients whose leftovers were still in the large class and ten patients whose pieces were already in the small category.

Table 1. Distribution of the frequency of acceptance of vegetable menus for 7 days at Dompu Hospital

Category	Corn Soup	Macaroni Soup	Bean Setup	Chickpea Soup	White Mustard	Scrambled Vegetables	Stir-fry the Chickpeas
Large > 20%	20	16	22	19	13	24	17
Small < 20%	7	11	5	8	14	3	10
Total	27	27	27	27	27	27	27

Table 2. Frequency distribution of leftover scrambled vegetables at Dompu Hospital

Leftover Vegetables	Observation Results	
	n	%
Large >20%	24	88,9
Small <20%	3	11,1
Total	27	100

Based on the table of acceptability, it can be seen that of the seven types of vegetables, the most residual vegetables were scrambled vegetables (88.9%), making scrambled vegetables the vegetables that left the most residue. This is why scrambled vegetables are modified into corn cream soup so that the acceptance of these vegetables can be increased. Based on the table of leftover vegetables, it can be seen from the 27 samples of the most vegetable residues, namely 24 samples (88.9%), and the few remaining vegetables, namely three samples (11.1%).

Table 3. Organoleptic test results for corn cream soup

Parameter	Parameter				Average
	Scent	Color	Flavor	Vegetable Appearance	
First Treatment	3,67	4,33	3,67	3,83	3,87
Second Treatment	3,83	3,83	4,33	4,17	4,04
Third Treatment	4,17	4	4,5	4	4,16

Organoleptic tests were conducted on modified vegetable recipes for the best treatment. In carrying out the organoleptic test, the vegetables were presented simultaneously. The three treatments were given before six trained panelists, namely nutritionists at Dompu Hospital. The parameters assessed were color, aroma, taste, and appearance of vegetables. Based on the results of organoleptic tests conducted by six trained panelists, the average for treatment one was 3.87 (poor), treatment 2 was 4.04 (good), and treatment 3 was 4.16 (very good). The most favorable organoleptic test results regarding the aroma, color, taste, and

appearance of vegetables are treatment 3. The color of vegetables is related to the formation of vegetables. If the color of vegetables is not attractive, then this makes the appearance of vegetables also unattractive. The cream of corn soup is bright yellow, which makes the cream of corn soup look attractive compared to the pale green scrambled vegetables. The aroma of vegetables is related to the taste of vegetables; this is due to the use of spices in scrambled vegetables which are still not diverse enough to make the vegetables not smell sharp, which affects the patient's appetite. At the same time, the cream of corn soup has a strong aroma of spices. In line with research conducted by Eriza Mareta at Siti Khadijah Islamic Hospital Palembang regarding the organoleptic test of ordinary food on average according to the color of the food from 32 respondents, in general, the respondents said they were interested in lunch vegetables, namely, as many as 25 people (78.1%) according to the taste of the food of the 32 respondents, in general, respondents said it was delicious, as many as 24 people (75%) according to the smell of food, from 32 respondents, in general, respondents said it smelled good, as many as 25 people (78.1%).

Based on the nutritional value, the energy content increased after being modified by 103.95 kcal as well for protein which increased by 6.61 grams; for fat, there was quite a significant increase of 5.46 grams, and for carbohydrates, there was also a slight increase, of 6.44 grams. Based on the cost graph above, it can be seen that there is an increase in the price of modified standard vegetables. The price difference between the two classic vegetables is Rp. 1,700. The price increase for the modified recipe lies in the addition of the spices used, which is approximately 10%.

Based on the processing time, it takes an average of 40 minutes to process scrambled vegetables for 50 servings, while processing corn cream soup takes 60 minutes; the difference between before and after being modified is 20 minutes. Based on the processing time for the basic recipe for scrambled vegetables, hospital processing personnel carried out the processing time. In contrast, for modified vegetables, the processing was carried out by researchers.

Table 4. Frequency distribution of leftover corn cream soup vegetables at Dompu Hospital

Category	Modified Result	
	n	%
Large > 20%	8	29,7
Small < 20%	19	70,3
Total	27	100

After modifying the vegetables from scrambled vegetables to corn cream soup, an organoleptic test was also carried out first on corn cream soup; the results were that the third treatment was the best, so this treatment was given to patients. Corn cream soup vegetables were tested for acceptance by patients.

Based on the table of leftover corn cream soup vegetables, it can be seen that out of 27 samples, eight samples (29.7%) still had vegetables left in the category of lots > 20%, and 19 samples (70.3%) spent vegetables, so they were included in the little category < 20 %. This relates to research conducted by Dini Febianti at the Semarang City Regional General Hospital regarding assessing taste and residual vegetables based on recipe development; the patient's leftover vegetable dishes were classified as significant after patient development. Patients who left a lot of vegetable dishes on the plateau were 28%, and left a few vegetable dishes on the table were 72%. This shows that most patients liked the vegetable dishes from the recipe developmenresults.

Table 5. Frequency distribution of leftover scrambled vegetables and cream of corn soup

Category	Acceptability			
	Scrambled Vegetables		Corn Cream Soup	
	n	%	n	%
Large > 20%	24	88,9	8	29,7
Small < 20%	3	11,1	19	70,3
Total	27	100	27	100

After modifications based on traditional seasonings and processing methods from sautéing to boiling, cream corn soup had better acceptability than scrambled vegetables. Based on the table of leftover scrambled vegetables and corn cream soup, it shows that the highest amount of leftover vegetables are found in scrambled vegetables, as much as 88.9%. In contrast, the most miniature remaining vegetables are corn cream soup, as much as 70.3%. The results of the statistical tests conducted stated that there was a significant difference in acceptability after modification of the vegetable recipe, namely ($p < 0.00$) ($p < 0.05$). Based on research by Almira Sitasari at JIH Yogyakarta Hospital, the analysis of patient leftovers for standard and modified dishes showed a significant difference ($p < 0.05$). Preference for food greatly influenced patient acceptance and determined the quality of meal delivery. If the reception is good in the hospital, the patient's food waste will decrease.

Acceptability data is measured from the percentage of vegetable residue consumed by patients with good acceptance criteria if the residue is less than or equal to 20% and less acceptable if the deposition is above 20%.

CONCLUSIONS

Based on the results of this study, it was concluded that during the seven days of observation, it was found that of the seven types of vegetables, the most leftover vegetables were scrambled vegetables (88.9%), making scrambled vegetables the vegetables that left the most residue. This is the background of why scrambled vegetables are modified so that the acceptability of these vegetables can be increased. Modifications were made using the essential ingredients of corn and carrots, as much as 100 grams each, seasoning standards based on the best treatment, and standard portions weighing 100 grams/portion. Scrambled vegetables modified into corn cream soup. Modification of spicing from 3 treatments, namely the addition of flour. Five grams of cornstarch, 20 grams of onions and 5 grams of cornstarch, 50 grams of eggs added, 20 grams of onions, and 5 grams of cornstarch. The results of the organoleptic tests conducted on six trained panelists averaged treatment 1, which was 3.87, and treatment 2, which was 4.04. And treatment 3, which was 4.16. The most favorable organoleptic test results regarding the aroma, color, taste, and appearance of vegetables were treatment 3.

The results of the modification stated that out of 27 samples, eight samples (29.7%) still left vegetables included in the category of many $> 20\%$, and 19 samples (70.3%) used up vegetables so that they were included in the category of less $< 20\%$. The comparison of leftover vegetables before and after modification showed that the highest yield of vegetable residue was scrambled vegetables, with 88.9%. In contrast, the least remaining vegetables were cream corn soup, with 70.3%. The results of the statistical tests conducted stated that there was a significant difference in acceptability after modification of the vegetable recipe, namely ($p < 0.00$) ($p < 0.05$).

REFERENCES

- Almatsier, Sunita. (2004). New Edition Diet Guide. PT Gramedia Pustaka Utama. Jakarta
- A, S. V. (2018). Description Of The Suitability Of Standard Hospital Food Portions With The Large Portions Served At The Bahteramas Hospital Nutrition Installation In Kendari City.
- Aula, L. E. (2011). Factors Associated With The Occurrence Of Food Waste In Inpatients At The Haji Hospital In Jakarta. Indonesian Journal of Human Nutrition, 2(1), 123. kalteng.litbang.pertanian.go.id
- Depkes RI. (2013). Nutrition adequacy (AKG) 2013. Litbangkes, 2013, 2–4. <https://doi.org/10.1007/BF03077564>
- Emadwiandr. (2013). DM research methods in the Padukuhan Kasih by using audio-visual and leaflets. Journal of Chemical Information and Modeling, 53(9), 1689–1699. <https://doi.org/10.1017/CBO9781107415324.004>
- Febrianti, D. dkk. (2015). Differences in the assessment of taste and residual vegetable dishes based on recipe development in class III patients with a normal diet at the general hospital in the city of Semarang. Jurnal Reset Gizi, 1–13. <http://ejournal.poltekkes->

smg.ac.id/ojs/index.php/jrg/article/download/4294/1146%0Ahttp://ejournal.poltekkes-smg.ac.id/ojs/index.php/jrg/article/view/4294/1146

- Hamidah, S. (2015). Vegetables and Fruit and their benefits for health were conveyed in the recitation of the congregation of Langar Mafaza Kotagede Yogyakarta. Yogyakarta State University Faculty of Engineering , 1–10.
- Hastjarjo, T. D. (2019). Psychology Bulletin Quasi-Experimental Design, 27(2), 187. <https://doi.org/10.22146/buletinpsikologi.38619>
- Kartini, R. F., & Primadona, S. (2018). The relationship between form, food taste and and serving method with leftover snacks in pediatric patients at the Naval Hospital Dr. Ramelan Surabaya. Amerta Nutrition, 2(3), 212. <https://doi.org/10.20473/amnt.v2i3.2018.212-218>
- Kementerian Kesehatan RI. (2013). Hospital Nutrition Services.
- Lastmi Wayansari. (2018). Institutional Food Service Management System.
- Marlina, Y. (2009). Overview of Food Appearance abd Acceptability of Soft Food at the Jakarta National Brain Center Hospital. 103, 1–12.
- Nida, K. (2011). Factors Related to Food Leftovers Inpatients at the Sambang Lihumi Mental Hospital.
- Padella Dian Julia Armadita, Suzanna Primadona, T. M. (2019). The Taste of food and Leftover egetables from pediatric patients at the Dr. Ramelan Naval Hospital Surabaya. Indonesia Nutrition Media 14(1), 66–74.
- Permenkes 41. (2014). Regulation of the Minister of Health the Republic of Indonesia Concerning Guidelines for Balances Nutrition. Regulation of the inister of Health of the epublicof Indonesia No 75 Tahun 2014 about Community Health Centers., 1–96. <https://doi.org/10.1038/132817a0>
- Purnita, N. R. (2017). Relationship Between Waiting time and Food Temperature with food acceptability in RSUD Dr, Drajat Prawiranegara, Serang district, Banten. 10–31.
- Santoso, S, 2011. (2011). Literature Review. Convention Center Di Kota Tegal, 6.
- Sri Velita A. (2016). The Influence of food Presentation and taste on food waste of patients at the Deli Serdang General Hospital YEAR 2016. 4–16.
- Triastuti, S. A. Y. R. S. N. M. (2017). the Effect of Variation of Food Serve To Appear Perception and Acceptance Food for Children. Jurnal Riset Gizi, 2, 62–71.
- Yuliantini, E. (2018). The Appearance and taste of food as a factor for food waste in pediatric patients at Dr. Sobirin Musi Rawas. Health Journal, 8(2), 184–189. <https://doi.org/10.33088/jmk.v8i2.282>