



RESEARCH ARTICLE

Evaluation of food services by the patients in hospitals of Athens in Greece

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Abstract

Introduction: The system of production and distribution of meals can have a significant impact on the food intake of hospital patients who are likely to develop malnutrition. In hospitals, the consequences of food borne infections can range from annoying to life-threatening for a patient, since they can lead up to death in vulnerable groups.

Aim: The aim of the present study was to evaluate the satisfaction of the patients from the food services in Greek hospitals.

Methods: Eleven hospitals of the Attica region were chosen. The sample derived from 637 adult patients who were hospitalized in those hospitals, during the period September 2009 - April 2010. Tailor made questionnaires were used to interview patients upon their satisfaction from the current food service system as well as from the total quality management system of the hospital. The number of completed questionnaires was proportional to the hospital capacity.

Results: The majority of the patients seem to be

pleased from the quality and the variety of the meals; they judged positively the behaviour of the food service personnel and the hygiene of serving conditions. Patients made suggestions for more frequent meals, larger variety of choices and better presented meals served under proper hygiene conditions by the personnel.

Conclusions: The results indicate that the patients are satisfied in regards to the meal choices and the serving methods. However, factors like temperature and hygiene conditions are not always perceived to be in a way that fulfils the necessary prerequisite requirements. A total quality management system as a driver for better patient satisfaction is Indispensable.

Keywords: Food service, evaluation, hospital, patients, HACCP

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Introduction

Meals offered to patients inside the hospital environment are a part of their overall care for recovery. Obviously, this food should be safe and of good quality. However, there are many recorded cases of food-borne infections in hospitals. Such cases may lead to serious diseases, expensive treatments for their cure, contamination to other patients, and services disorganisation.¹ Moreover, the consequences of food borne infections can range from annoying to life-threatening for a patient, since they can lead up to death in vulnerable groups.²⁻⁴ In the context of the overall effort to improve quality of hospital food services, nutrition has been of particular interest. One of the reasons is that the patient perception of the served meals is directly related with their satisfaction of the overall hospital services.⁵ Furthermore, if we take into consideration that a large percentage of the meals served in the ward are not consumed –with

obvious financial consequences— it is evident that the food offered should be desirable by the consumers. In order for this to be achieved, food quality factors or factors regarding the performance and behaviour of the personnel involved in food services should be estimated. However, the most important reason why hospitals should be very careful in food services is the direct relation of a good nutritional status with the overall healing course of the patient. A bad nutritional status combined with the severity of the disease can increase hospitalization time or even morbidity.⁶ According to a meta-analysis, the increase of food intake decreases the rate of complications, mortality and hospitalization time.⁷ Reduced food intake, which may result to macro- and micro-nutrient deficiency, may have functional, metabolic and psychological consequences. Those include risk for postoperative complications, muscle tissue loss, delayed wound healing, structure alterations in the small intestine that may lead to dis-absorption, mood collapse and an overall sense of weakness and appetite loss.⁸

The systems of production and distribution of meals can have a significant impact on the food intake of hospital patients who are likely to develop malnutrition.^{9,10} In a research conducted among 2347 patients in Queensland Australia, a strong relation of patient satisfaction with the catering services on factors such as taste, variety, temperature and personnel was determined, regardless the system used by each hospital.¹¹ There isn't any constant relation between patient satisfaction and various meal distribution systems.¹² On the other hand, there were studies connecting patient satisfaction with the system applied. For example, in a research conducted within a big university hospital of United Kingdom (UK), discovered that generally the patients were more pleased with the steamplivity system.¹³ In another study conducted in England, it was shown that patient satisfaction is amplified by the ability to choose at the point of consumption, provided

by the bulk trolley system. It also depends on the temperature and structure of the meals, which are better in the radial system.¹⁴ Patient satisfaction however, seems to be enhanced by the service of snacks between meals, in serving hours other than those of the standard meals.¹⁵

Aim

The aim of the present study was the assessment of the patient satisfaction from food services in the Greek hospitals.

Methods

Eleven hospitals were chosen to participate, of which the sample derived from adult hospitalized patients. Data was collected through personal interview upon questionnaires.

The questionnaires prepared for this study include 14 questions, simply phrased in order to be comprehended by the patients. All questions except of one were closed type and only one was of open type. Most of them comprise of a verbal or numeral scale, such as Likert type scale. Question number 14 was of an open type in order to records patient suggestions for the improvement of their satisfaction. In the appendix, the layout of the questionnaire is presented.

Prior the interviews the general manager was contacted in order to acquire approval for this research. The interviews were performed after the receipt of the signed letter of approval by the general manager. The patients were orally inquired if they consent for the interview.

For the assessment of the patient satisfaction of the hospital food services, eleven hospitals from the Attica area were chosen to participate to this study (*Agios Savvas, Aretaieio, Sismanogleio, Tzaneio, Metaxa, Asklipieio Voulas, Laiko, Erythros Stavros, A. Siggros, G. Genimatas, Elpis*). The sample derived from 637 adult patients who were hospitalized in the above mentioned hospitals,



from September 2009 until April 2010. Sample collection was randomized from the following clinics: ophthalmology, neurosurgery, cardiology, urology, gynecology, general medicine, pathology, endocrinology, rheumatology, orthopedics, vascular surgery, gastroenterology, plastic surgery, maxillary surgery, oncology, and pneumonology. The patients should be at least two to three days hospitalized. The questionnaires were used for personal interviews with the help of a team of undergraduate students from Harokopio University and from Athens Technical Education Institute.

The anonymity of the volunteers was ensured through encoding of the questionnaires. The data was analysed with statistical program PASW 18.0 for Windows (SPSS Inc. 2009).

Results

As seen in Table 1 the patient participation per hospital ranged from 7 to 27 % with an average of 12%. 52% of the participant patients were men and 48% were women. There was not any statistical significant difference in relation to sex and the finding of a foreign object in the tray, or the finding of expired food. The mean age of the patients that filled the questionnaires, was 61 years (+/-16.3). In the question regarding the overall food assessment the mean score was 7.5 on a 10 grade scale, in the question regarding the personnel behaviour the mean score was 9.2 and in the question regarding the hygiene conditions while serving and during collecting the tray, the mean score was 9.1. For the question regarding the meals that patients like most, 89.5% said traditional Greek *pastitsio* and 87.3% oven baked potatoes (Table 2). Regarding food ordered from outside, 34% replied "quite rarely" while only 5.7% said "often" (Table 3).

As seen in Table 4, in the question "During your stay in the hospital were you given any expired food and if yes, what was that?"; 99.4% answered negatively, while in the question "Did

you notice during your stay in the hospital the presence of a foreign object (insect, metal/ plastic item, etc) in the serving tray or in the food and if yes which kind?"; 98.4% replied no.

As seen in Table 5, in question 5, regarding the temperature of the hot plates, a percentage of 89.5% said that the plates were tepid and in question 6, regarding the temperature of the cold plates, 79.1% of the respondents said that the plates were handed out cold.

As seen in Table 6, regarding the image of the served food, a percentage of 97% said that it was mediocre.

As seen in Table 7, 86.3% finds tastiness to be mediocre while 88.2% think that in a mediocre way, food helps in the faster recovery. Finally, 97.3% of the patients think that the food is not prepared according to hygiene rules and regulations.

As seen in Table 8, regarding patients' suggestions for the improvement of food or catering in the hospital, 89.9% of the sample suggested more meals, while in a percentage 90.8% suggested the use of gloves during serving. A percentage of 91.6% of the sample made a suggestion for pre-packed spoons for the soup and the canned fruits in syrup. Finally, 41.2% suggested tastier food and 78.2% bigger portions.

The statistical analysis regarding sex and food consumption inside the hospital shows that men in comparison to women order from outside more often in a percent of 3.3% and a level of significance $p < 0.05$.

Discussion

The aim of the present research was to study and evaluate the factors that influence patient satisfaction in regards to their meals during their hospitalization. This study also investigated the perception of hygiene during serving of the meals and furthermore the personnel's behaviour during

serving.

The results indicate that overall in Greek hospitals the basic hygiene in regards to serving food is implemented, as deemed by the Committee of Hospital Infections or by the Public Health Inspector in the hospital. In a study that was contacted to seven hospitals of Missouri USA it was discovered that the clinical dietician and the personnel involved in the catering services, have different perspectives in regards to implementing the Total Quality Management.¹⁶ It is obvious that the education, cooperation and communication of the personnel are essential elements for the food service department of the hospitals.

In regards to the meals temperature, most of the cold plates are served tepid, while 79.1% of the cold plates are served cold. This find is supported from other research as well, such as a research held in England, where the patients' satisfaction was increased by the possibility to choose at the consumption site, given by the bulk trolley system.¹⁴ Furthermore, it depends on the temperature and the structure of the meals which are better in the satellite serving system. However patients' satisfaction seems to increase by the serving of intermediate snacks, in times other than those of the scheduled meals.¹⁵

The image of the served food was judged to be mediocre by the majority of the patients. In a percentage of 86.3%, the patients think that the food tastiness is mediocre, while 88.2% think that the food in a mediocre level helps in the faster patients' recovery. Furthermore, most of the patients think that the food is prepared according to hygiene rules in a mediocre way.

Regarding the patient's suggestions for the meals or nutrition improvement in the hospital, almost the majority of the sample suggested more meals and the use of gloves during serving. The majority of the patients suggested disposable spoons for the consumption of soup and canned fruit. Increased food taste was the suggestion of

41.2% and 78.2% proposed the serving of larger portions.

It should be noted that quantity, safety and organoleptic characteristics of the food are included in the qualitative characteristics of a meal. According to a research that took place in four institutions of NHS, the strongest marker of patients' satisfaction of the hospital meals, is the food quality.¹⁷ The outputs of the study in a private hospital of Australia are in accordance to the above mentioned.⁵ In this study, food quality gathered 60% of the patients' negative comments. Those comments were in regard to the portion size, the meat texture and the way the vegetables were cooked. Taste, image and temperature seem to play an important role as well.¹⁸ This could be true for an adequate variety of foods in the menu, so that the patient can have a number of choices.¹⁹

The method of this study has certain limitations. The answers to the questions are subjective and cannot be verified with audits or sampling. The emotionally stressed patients are not used at taking part in such kind of surveys and environmental sources play a role in overall patient satisfaction with an in-bed hospitalization.²⁰ However the proposed questionnaire has simple questions that require straightforward answers and can be used for further research.

Conclusions

The results of this study indicate that the majority of the patients seem to be pleased from the quality and the variety of the meals; they judged positively the behaviour of the food service personnel and the hygiene of serving conditions. Nevertheless, factors like temperature and hygiene conditions for the meal that reaches the patient are not always perceived to be in such a way to fulfil the necessary prerequisite requirements. In a small amount of the questionnaires there were reports and suggestions for changes in the serving of meals



and in the personnel's behaviour.

In conclusion, a re-evaluation of the patient satisfaction in a larger sample of patients in the near future could be necessary, for comparison purposes. Finally, the results indicate the importance of total quality management systems as a driver for better patient satisfaction.

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ANNEX

Table 1. Participation of patients per hospital

Hospital	capacity	participation	%
<i>Aretaieio</i>	200	52	26
<i>Sismanogleio</i>	450	54	12
<i>Tzaneio</i>	600	90	15
<i>Metaxa</i>	500	49	9.8
<i>Asklipieio Voulas</i>	700	50	7.1
<i>Laiko</i>	600	51	8.5
<i>Erythros Stavros</i>	550	60	10.9
<i>Agios Savvas</i>	450	40	8.8
<i>A. Syggros</i>	200	20	10
<i>G. Genimatas</i>	760	100	13.1
<i>Elpis</i>	260	71	27.3
Total	5270	637	12

Table 2. Which of the following food items did you like most.

Food Preference	positive answers	%
Chicken	146	22.9
Steak	50	7.8
Beef	71	11.1
Hamburger	68	10.7
Vegetables stew a la grecque	38	6.0
Fish	43	6.8
Pasta	52	8.2
Rice	30	4.7

Food Preference	positive answers	%
Mashed potatoes	22	3.5
Baked potatoes	29	4.6
Traditional Pastitsio	14	2.2
Other	66	10.4
<i>Missing</i>	8	1.3
Total	637	100.0

Table 3. Have you ever ordered in.

Take away food	positive answers	%
Often	36	5.7
Very often	37	5.8
Rarely	70	11.0
Quite rarely	72	11.3
Not at all	415	65.1
<i>Missing</i>	7	1.1
Total	637	100.0

Table 4. During your stay in the hospital were you given any expired food or notice the presence of a foreign object.

Evaluation	Q3 (expired food)		Q4 (foreign object in food)	
	freq	%	freq	%
YES	4	6	10	1.6
NO	627	98.4	621	97.5
missing	6	0.9	0.6	0.9
TOTAL	637	100.0	637	100.0

**Table 5 Questions about the temperature of hot and cold plates.**

	Q5		Q6		
	freq	%	freq	%	
Burning	3	5	Ice Cold	19	3
Very hot	3	1.1	Very Cold	37	5.8
Hot	287	45.1	Cold	431	67.7
Tepid	253	41.3	Tepid	128	20.1
Cold	66	10.4	Warm	1	0.2
<i>missing</i>	11	1.7	<i>MISSING</i>	21	3.3
TOTAL	637	100.0	TOTAL	637	100

Table 6. Question about the image of the served food in the plate.

Food presentation	positive answers	%
Good	277	43.5
Very Good	162	25.4
Mediocre	168	26.4
Bad	15	2.4
Very bad	4	0.6
<i>Missing</i>	11	1.7
Total	637	100.0

Table 7 Analysis regarding the tastiness of the food.

	Q8 (tastiness)		Q9 (faster recovery)		Q10 (hygiene regulations)	
	freq	%	freq	%	freq	%
Very much	19	3.0	69	10.8	116	18.2
A lot	94	14.8	148	23.2	185	29.0
enough	236	37.0	200	31.4	217	34.1
Mediocre	186	29.2	129	20.3	90	14.1
Note at al	85	13.3	73	11.5	17	2.7
<i>Missing</i>	17	2.7	18	2.8	12	1.9
Total	637	100.0	637	100.0	637	100.0

Table 8 Suggestions for the improvement of hospital food or catering.

Suggestions	freq	%
Salt or oil	27	23,3%
Variety	26	22,4%
Tastier food	15	12,9%
Warmer food	8	6,9%
Covered food	7	6,0%
More salads	5	4,3%
Better raw material	4	3,4%
Package	3	2,6%
Cutlery	3	2,6%
Badly cooked food *	3	2,6%
Faster service	2	1,7%
Bigger portion	2	1,7%
Increase of personnel	2	1,7%
Dry food *	2	1,7%
Plate presentation	1	0,9%
More meals	1	0,9%
Larger quantities	1	0,9%
Gloves for serving	1	0,9%
Packed spoons	1	0,9%
Not reusable trays	1	0,9%
Fruit juice	1	0,9%
Total of answers	116	22,4%
<i>Missing</i>	<i>518</i>	<i>81.3%</i>
Total	634	100.0%

** Though there is a negative context, this is how the patients expressed themselves, obviously meaning quite the opposite*