

PATIENT SATISFACTION WITH FOODSERVICE IN PRIVATE HOSPITALS IN SOUTH AFRICA

Chad Saus¹ and Reshma Sucheran²

¹Masters Candidate, Faculty of Management Sciences, Durban University of Technology, South Africa

²Senior Lecturer, Faculty of Management Sciences, Durban University of Technology, South Africa

Tel, 27836587426

Email reshma@dut.ac.za

Abstract

In private healthcare services, patient satisfaction is of special importance to service providers, and the quality of food can influence a patient's satisfaction with the total hospital experience. The quality of foodservice is strongly associated with patient satisfaction in hospitals, and most hospital foodservice organisations are changing their focus to patient care in order to boost patient satisfaction. Also, hospital foodservice standards are important in gaining the market share edge in a highly competitive healthcare industry. This study investigates the level of satisfaction with foodservice amongst patients in private hospitals in KwaZulu-Natal, South Africa. A quantitative research approach was used for the study, and the data was collected by means of a survey questionnaire that was targeted at patients admitted to various wards at three private hospitals in KwaZulu-Natal. A total of 275 patients completed the survey. Overall, the study concluded that patients were generally satisfied with the foodservice in the private hospitals, especially with the food equipment and the food serving staff. However, reduced levels of satisfaction was noted with cultural considerations in menu choices and meal serving times. The study offers several recommendations to improve the quality of foodservice in hospitals.

Keywords: foodservice, patient, satisfaction, hospitals

1. Introduction

“The foodservice system in a hospital is an ancillary part in health services which is part of medical therapy, and therefore must work hand in hand with medical services and other service systems that operate in the hospital in order to provide optimal service to patients” [1]. Due to the rise in competition within the healthcare industry, many hospital foodservice operations are looking for strategies to improve patient satisfaction, given that the public's perception of hospitals is always considered as an institution, and that institutional catering is generally viewed as being inferior [2]. A patients' overall perception of the hospital experience is based on their food expectations and other aspects of foodservice delivery, and patients seem to be more satisfied once their expectations are met [3]. Therefore, provision of hospital foodservices must go beyond the expectation levels of the patient, and must be considered as an essential contribution towards the quality of service in a hospital [4].

Hospital foodservice standards are important in gaining a market share edge in a highly competitive healthcare industry [2]. Many hospital foodservice organisations are evolving, to be more focused on patient care in order to improve patient satisfaction [5]. Moreover, researchers confirm that the quality of service and patient satisfaction has a direct link to patients' behavioural intentions to recommend the hospital to other patients or re-use it [6, 7,8]. With increasing competition, many organizations are recognising that yielding satisfied consumers through superior quality services is of strategic importance in achieving a competitive advantage. It has been noted that patients' quality perceptions account for 17 to 27 percent of variation in financial performance of a healthcare, and to disregard the importance of these critical issues can be abysmal for the future of hospitals [9]. A review of literature reveals gaps with respect to the dimensions of hospital foodservice quality and patient satisfaction. This paper therefore examines the impact of foodservice quality on patient satisfaction in private hospitals in KwaZulu-Natal, South Africa.

2. Literature review

Patient satisfaction is one of the most commonly reported outcome measures for quality of care used in interventional and quality improvement studies, and is a vital characteristic of healthcare service quality and an important indicator of success in healthcare [10]. Whilst measures of customer satisfaction include expectations, performance and loyalty, satisfaction (or the lack of satisfaction) is an inevitable outcome of the consumption of services. Consequently, it can be argued that patient satisfaction is a result of perceived service quality and is a function of observed performance of healthcare service and patient expectations [11].

The quality of food can influence a patient's satisfaction with the total hospital experience [2]. Often, in addressing the general patient satisfaction, foodservice seems to go unnoticed, as other elements such as nursing and physician quality are more easily observed [12]. Yet, if the foodservice fails to meet the patient's expectations, they may decline eating the hospital food, and this may lead to malnutrition and contribute to the deterioration of their health condition [13]. For that reason, quality foodservice in hospitals is a vital requirement for the healthcare management of patients, and a critical component of hospital treatment [14,15]. Most patients have a negative perception about hospital food as being tasteless, cold, badly served and poorly presented [16]. A study conducted at teaching hospitals in Sri Lanka, revealed that the majority of patients ranked the quality of foodservice as satisfactory in terms of the aroma, taste, and the variety of food [17]. Conversely, other studies confirmed that most patients were generally satisfied with the hospital foodservices [18,19]. Essentially, food quality (taste, presentation, flavor, preparation, variety) is the best forecaster of patient satisfaction in general, and a broader menu, improved timing, and information on ingredients, presentation and food delivery, are vital variables to consider in the improvement of hospital foodservice [20].

2.1 Factors that affect patient satisfaction with foodservice in hospitals

The key factors affecting patient satisfaction with foodservice in hospitals generally includes: staff, menu and menu design, environmental factors, food presentation, food temperature, cultural factors, taste of food, serving times and portion size [21]. Several studies corroborate that the staff responsible for foodservice in hospitals, is a component that contributes to the foodservice quality, and their mannerisms, attitude and physical appearance has a bearing on the patient's perception on meal quality [22, 23]. The path from the patient's choice of meal to the actual service of the meal, starts with the menu, and is the first point of contact between the kitchen and the patient [24]. Research indicates that it is imperative to place special consideration to patient choices and variety in menu planning, because the menu is associated with a positive hospital meal service experience (25, 26).

Several researchers have concluded that although many people think that the taste of food is the main factor that influences food intake, the first sensory contact with the food is through the eyes, and therefore the physical appearance is also a factor that greatly determines food intake and satisfaction (27, 28). There are many visual factors that are interrelated with food appearance, such as the colour, variety, portion size, and volume, which influence food acceptance and consumption (25, 27). The correct temperature of food also has a significant effect on patient satisfaction [13, 29, 30]. A study conducted in Spain to assess the impact of temperature on the amount of food consumed by patients, revealed that patients who ate hot food that was stored in isothermal trolleys, ate very well [31]. Research undertaken in Australia [13], in Sri Lanka [17], and in Turkey [29], revealed that the taste of meals is the most important element of overall foodservice satisfaction in hospitals. Meal size is another important determinant in foodservice satisfaction in hospitals [26]. A study conducted in a hospital in Iran, found that more than two-thirds of the patients felt hungry during hospitalization, as the meal portion sizes were quite small and the hospital did not cater for an additional snack service in between meals.

Meal serving times greatly influences patient's satisfaction with foodservice [15]. The traditional meal system in a hospital usually consists of three meals, which include breakfast, lunch and dinner, with an additional service of hot and cold beverages and sometimes snacks. Very few hospitals offering flexible mealtimes, which is when a meal is missed by the patient, the meal can be easily served by the ward hostess to the patient when they available or back in their ward and ready for foodservice [15]. There are a variety of menu diets that patients in hospital must adhere to. The common patient diets include normal diets, short-term liquid diets, soft transitional diets, restricted or special diets, and therapeutic hospital diets, and each type of diet may have an impact on the patient's meal satisfaction [26]. Research also confirms that patients who stayed in hospital for a period longer than eight days were generally dissatisfied with hospital food. To overcome this, it was found that long staying patients were given different menus with additional and different choices [19].

Although a standard hospital menu meets most patient's cultural and religious food needs, there are many other patient groups with alternative needs [31]. Many religions such as Christianity, Islam and Hinduism, have rules or guidelines about foods which may not be eaten, or which may be restricted at certain times of the year. In a varied hospital patient population, food must meet the dietary needs of patients, appropriate for religious, different age groups, cultural and social backgrounds, and across a range of medical conditions needs [31]. Moreover, meal service times need to be flexible to accommodate for the specific religious festivals and celebrations, such as Ramadan [31]. The eating environment is a great determinant in patient satisfaction with foodservice [24, 28]. The management of environmental conditions in which food is served, such as the room temperature, levels of noise, smells, and background music may greatly influence arousal of emotions, leading to a more positive patient fulfilment level with the foodservice. On the other hand, unpleasant odours, mealtime

interruptions, unclean and damaged crockery, and cutlery shortages are environmental factors that can undesirably influence patient satisfaction with foodservice [26].

3. Research methodology

The target population for this study comprised of 295 patients admitted in three private hospitals in the KwaZulu-Natal Province of South Africa. A census sampling method was chosen for the study, and participants included all patients who were admitted in the selected hospitals at the time of data collection. The patients comprised of those from the medical, surgical, orthopaedic, maternity and general (male and female) wards at each of the hospitals. A total of 275 patients completed the survey, representing a 93% response rate. The quantitative research design was adopted for this study and a survey questionnaire was used as the data collection instrument. After all the paperwork had been approved, the researcher made appointments to see the relevant authorities i.e. general manager, hospital managers, matrons and sisters at each hospital, to brief them about the research to be conducted. A letter pertaining to the ethics was then presented at the meeting, in order to receive permission to proceed with the data collection. An explanation was then given on how the questionnaire would be administered, highlighting the benefits that would arise thereafter. The questionnaire was accompanied by a covering letter specifying the purpose of the study, and assured the respondents of their anonymity. The willingness to complete the questionnaires were voluntary, and was administered to participants who were competent enough to participate in the study.

The survey data was analysed using the Statistical package for Social Scientists (SPSS). The questionnaire was designed to contain Likert measurement scales focusing on key content areas such as patient characteristics and their perceptions of foodservice quality. Internal reliability of the measurement scales was assessed using the Cronbach Alpha coefficient (α). Descriptive statistics such as frequencies, percentages, mean values and standard deviations were used to describe and summarise the data. Moreover, inferential statistics were used to make inferences and draw conclusions about the population, using chi-square analyses. Assuring the anonymity and confidentiality of respondents was imperative for this study. To protect participants from any negative consequence, this study followed the regulations and guidelines stipulated by the Research Ethics Committee of the Durban University of Technology, as well as that of the selected three private hospitals in KZN. Ethical clearance for this research was obtained from the Ethics Committee of the Durban University of Technology. Permission to conduct the study was requested from three private hospitals and approval was granted by the Group General Manager of the three private hospitals.

4. Results and discussion

Table 1: Reliability table

Section	Number of items	Cronbach's Alpha (α)
Temperature	2 of 2	.713
Food Quality	4 of 4	.859
Environmental factors	5 of 5	.745
Menu design	6 of 6	.835
Meal serving times	4 of 4	.757

Internal reliability of the measurement scales was appraised using the Cronbach's Alpha coefficient (α). All measurement scales showed high internal reliability and consistency, having a reliability coefficient value above the acceptable limit of 0.7.

Table 2: Characteristics of patients (n=275)

Patient attributes		Frequency	Percent
Gender	Male	104	37.8
	Female	171	62.2
Age group	21 to 30 years	64	23.3
	31 to 40 years	103	37.4
	41 to 50 years	72	26.2
	51 to 60 years	28	10.2

	More than 60 years	8	2.9
Race	Black	242	88.0
	Coloured	22	8.0
	Indian	6	2.2
	White	5	1.8
Religion	Christian	249	90.5
	Hindu	11	4
	Muslim	3	1.1
	Other	12	4.4
Duration of stay in hospital	1 day	22	8.0
	2 to 3 days	112	40.7
	4 to 7 days	118	42.9
	8 to 14 days	17	6.2
	More than 15 days	6	2.2
Type of diet	Normal	215	78.2
	Diabetic	31	11.3
	Other	29	10.5

The findings presented in Table 2 show that majority of the patients (62.2%) in the study were female. In terms of the age of respondents, 37.4% of the patients were between the ages of 21 to 30 years old, 26.2% were between 31 to 40 years old. With regards to the religious profile of patients, the majority of respondents (90.5%) were Christian. In terms of the racial composition of patients in the study, the data shows that majority of the patients were Black (88%). The data indicates that 42.9% of patients stayed in hospital for a period of between 4 to 7 days and 40.7% for between 2 to 3 days. Most patients (78.2%) were on a normal diet and 11.3% were on a diabetic diet.

Table 3: Patients satisfaction with foodservice

Foodservice attributes		SD	Item Mean	Group Mean
Food quality	The food quality has met my expectations	.676	2.08	2.29
	I am able to choose a healthy meal from the menu.	.571	2.23	
	The meals taste good.	.614	2.28	
	The meals have good and distinct flavours	.598	2.34	
Menu design	I am able to choose different meal portions	.568	2.27	2.50
	The menu has plenty of variety	.754	2.44	
	Food portions are adequate	.721	2.35	
	Cultural considerations are given to menu design	.700	2.45	
	Snacks are available in between meals	.905	2.96	
	Meals are well-suited to my dietary requirement	.644	2.32	
Temperature	Meals are served at the correct temperature	.681	2.20	2.25
	Beverages were served at the correct temperature	.553	2.31	
Meal serving times	Meals are served each day at the same time	.685	2.35	2.26
	Breakfast is served at a suitable time	.569	2.21	
	Lunch is served at a suitable time	.553	2.20	
	Dinner is served at a suitable time	.629	2.27	
Environmental factors	Hostesses are neat and tidy	.340	2.06	2.13
	The hostess is helpful when taking menu orders	.367	2.22	
	Hostesses are friendly and helpful	.489	1.80	
	Crockery and cutlery are clean and well-kept	.378	2.09	
	The meal trays are clean and in good condition	.530	2.17	

SD= Standard Deviation

Respondents were asked to rate their level of satisfaction with various aspects of foodservice on a 5-point Likert scale, where “1” indicated “strongly agree” and “5” indicated “strongly disagree”. The indicators for patient’s satisfaction with foodservice focused on general food quality, menu design, temperature of food, meal serving times and environmental factors (staff and equipment). Overall, the highest levels of satisfaction with foodservice was noted in the environmental factors (mean=2.13), followed by the temperature of foods (mean=2.25), meal serving times (mean=2.26), and food quality (mean=2.29). Patients showed lower levels of satisfaction with the menu design (mean=2.50). More specifically, patients were most satisfied with the friendliness and helpfulness of food hosts (mean=1.80), the neatness and tidiness of food hosts (mean=2.06), the food quality meeting their expectations (mean=2.29) and the cleanliness and quality of crockery and cutlery (mean=2.09). Reduced levels of satisfaction were observed with the availability of snacks between meals (mean=2.96), cultural considerations in menu design (mean=2.45), and a variety of meals on the menu (mean=2.44).

The findings of this study concur with that of another study on acute care patient’s satisfaction with hospital foodservice in Australia, which concluded that foodservice satisfaction is related to flavour, variety, vegetables, meal tastes, texture and temperature [13]. Conversely, other studies confirm that hospital food was rarely as good as expected [20] and did not smell or taste desirably [32]. Hospital staff should take cognizance of the negative influence that medication can have on the patient’s appetite and the taste of the food. Also, the use of certain drugs can create side effects of nausea and gastrointestinal symptoms which can influence the taste of the food and the patient’s appetite. It is therefore necessary for the nursing department to inform the dietician of the patient’s medical chart.

Menu design plays a crucial role in patient satisfaction while impacting on the nutritional value of meals provided to patients in the hospital setting. The menu must be able to provide choice for all patients, if it is likely to help patients improve their food intake. Contrary to the findings of this study, it was observed that patients in Malaysia were not satisfied with the food quality, because there was less variety on the menu [33]. Also, linked to menu design is the issue of cultural considerations, which must be considered in the planning of hospital menus. It is very important to introduce a multicultural menu for patients, as the different cultures require different menu patterns, variations, cooking methods and serving techniques. In some religions, there are stringent procedures of how meals are prepared and served. A lack of adherence to such procedures may reduce the food acceptability, limit the menu choices and influence patient satisfaction

The study also confirmed that environmental factors, such as those relating to serving staff and equipment, are an important determinant in foodservice satisfaction in hospitals. Similar findings were observed in a study which found that some of the fundamental factors that impact on foodservice quality in hospitals in Pakistan were physical facilities, equipment, appearance of personnel and empathy [34]. Another study revealed that taste, warmth of food, variability of food, time of food distribution, cleanliness of cutlery and serving staff attitude were the most important factors that determine dissatisfaction. In particular, serving staff’s attitude plays a pivotal role in the patient’s perception of the foodservice quality [29].

Table 3: Actual and preferred meal serving times

Meals	Actual serving times	Preferred serving times	
		Time	Percent
Breakfast	07h00	06h00	3.6
		07h00	23.6
		08h00	65.8
		09h00	6.9
Lunch	11h00	11h00	3.6
		12h00	65.1
		13h00	31.3
Supper	16h30	16h30	4.4
		17h00	33.5

		18h00	48.4
		19h00	13.8

Meal serving times can influence patient’s satisfaction with foodservice at hospitals as confirmed by this study. In terms of the serving of breakfast, majority of the respondents (65.8%) preferred breakfast to be served at 08h00, instead of it currently being served at 07h00. Although the current serving time for lunch is 11h00, many respondents (65.1%) preferred lunch to be served at 12h00, and 31.3% preferred that lunch be served at 13h00. And, whilst dinner is served at 16h30 in all hospitals, 48.4% of the respondents preferred dinner to be served at 18h00, and 33.5% of the patients preferred the serving time for dinner to be at 17h00.

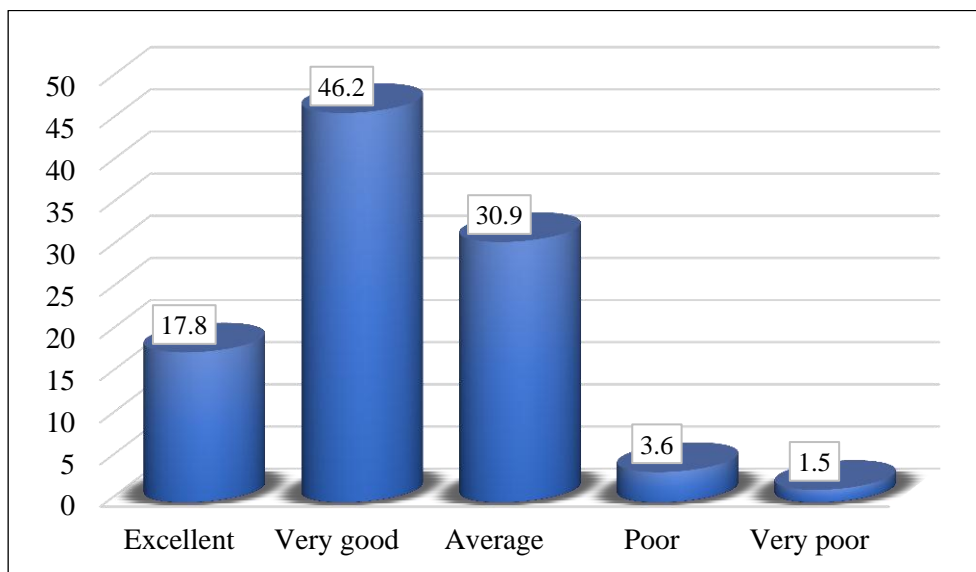


Figure 1: Overall perception of hospital food

Figure 1 denotes that 17.8% of respondents found the hospital food to be ‘excellent’, 46.2% found it to be ‘very good’ and 30.9% found the hospital food to be ‘average’. Other research revealed similar results, where 78% of patients were satisfied with hospital food in Switzerland [19]. Hospital foodservice is also known to be an important element in determining patient’s overall perception and is a vital component in the hospital management of patients. If patients are satisfied with hospital food, then their overall hospital experience will improve [33].

Table 4: Cross-tabulation: Perception of hospital food by patient characteristics and foodservice attributes

Patient characteristics	Chi-square (X ²)
Gender	.039*
Age	.409
Race	.019*
Religion	.141
Duration of stay	.383
Hospital ward	.017*
Foodservice attributes	Chi-square (X ²)
Meals are served at the correct temperature	.000*
Meals taste good	.000*
A wide variety of meals on the menu	.000*
Staff serving meals are neat and tidy	.000*
Staff serving meals are friendly and helpful	.001*
Cultural considerations are given to meals and menus	.004*
Meals are served at consistent times	.000*
Meals are well-suited to dietary requirements	.003*
Food portions are adequate	.003*

*Significant values (p<0.05) Chi-square analysis

A cross-tabulation and chi-square analysis was undertaken to ascertain the relationship between patient's perceptions on foodservice with patient characteristics and foodservice attributes. As depicted in Table 4, the chi-square test of independence revealed significant associations between perceptions of foodservice and gender where $X^2(4, n=274) = 10.08, p = .039$; race where $X^2(12, n=274) = 24.27, p = .019$; and hospital ward where $X^2(8, n = 274) = 18.62, p = .017$. Other studies also confirm that race and gender have an impact on patient's nutritional intake and their satisfaction with foodservice (35, 36, 37, 38, 39). The chi-square tests confirmed no significant association between perception on foodservice and age, religion and duration of hospital stay.

The chi-square test of independence further revealed strong associations with perception of foodservice and all attributes pertaining foodservice, viz. meal temperature [$X^2(8, n = 274) = 39.49, p = .000$]; the taste of meals [$X^2(8, n = 274) = 47.45, p = .000$]; menu variety [$X^2(8, n = 274) = 28.76, p = .000$]; neatness and tidiness of serving staff [$X^2(8, n = 274) = 30.17, p = .000$]; friendliness and helpfulness of serving staff [$X^2(8, n = 274) = 26.03, p = .001$]; cultural consideration in menus [$X^2(8, n = 274) = 22.45, p = .004$]; consistent meal serving times [$X^2(8, n = 274) = 36.20, p = .000$]; suitable dietary requirements of meals [$X^2(8, n = 274) = 23.66, p = .003$]; and adequate food portions [$X^2(8, n = 274) = 23.40, p = .003$].

5. Conclusion and recommendations

This study provided an insightful overview on patient satisfaction with foodservice in private hospitals and concluded that patients were fairly satisfied with foodservice at the respective hospitals. In particular, satisfaction levels were higher for the environmental factors of foodservice, viz. the service from food staff and food equipment. Level of satisfaction was somewhat lower for menu design at hospitals, especially in terms of the variety of food and the availability of snacks in between meals. Patients also preferred different mealtimes from those adopted by the hospitals. The study clearly demonstrates that hospital foodservice is an important aspect of a patient's overall satisfaction and recovery. Therefore, every hospital must ensure that the foodservice provider aims to provide food that meets the nutritional requirements and satisfies the needs of patients.

Although, the overall satisfaction with foodservice in this study is quite favourable, satisfaction levels can nonetheless be improved, and several recommendations are proposed from this study. South Africa is a multicultural society and patients may have different cultural preferences. It is imperative for hospital menus to incorporate cultural diversities in the menu design to improve satisfaction levels with foodservice. Hospital menus must also consider the inclusion of snacks in between mealtimes to ensure the patients protein and energy intake is maintained throughout the day. Dinner in hospitals is often served earlier than most patients would eat at home, which leads to a long duration of time between dinner and breakfast. Some patients may prefer their main meal at mid-day while others may prefer it in the evening, hence the menu must be able to provide adequate meal choice and portion sizes for all patients if it is likely to help patients improve their food intake and improve satisfaction. Dieticians must work with the catering staff to ensure that emphasis be placed on the flavour and presentation of the food to stimulate the patient's appetite. It is important for hospital menus to consider the various medical dietary categories in their menu design, so that patients have a healthy and suitable variety to choose from. Dieticians and nutritionists must also analyse other aspects of food satisfaction and dietary adequacy of patients to ensure that the nutritional intake is adequate for patients.

The key findings from this paper are reflections of patient satisfaction with foodservice at hospitals in KZN, which could be served as the baseline data for future food quality improvement initiatives. Whilst this study was conducted only in private hospitals in one province, future studies may be conducted in such hospitals throughout South Africa in order to enhance the generalizability of the findings. Future researchers can also focus on segregating patients from private and public hospitals in a n effort to comparatively examine foodservice satisfaction levels between the two types of hospitals.

6. Disclosure statement

No potential conflict of interest was reported by the author.

7. References

- [1] Simanjuntak, L.M.A., Aulia, D., & Siagian, A. (2020). Patients' Perceptions of foodservice Quality at Royal Prima Hospital Medan. *Britain International of Exact Sciences (BloEx) Journal*, 2 (1), 197-209.
- [2] Theurer, V. A. (2011). Improving patient satisfaction in a hospital foodservice system using low-cost interventions: Determining whether a room service system is the next step. M.D.A., Utah State University.

- [3] Fottler, M. D., Ford, R. C., Roberts, V., & Ford, E. W. (2000). Creating a healing environment: The importance of the service setting in the new consumer-oriented healthcare system. *Journal of Healthcare Management*, 45 (2), 91-106.
- [4] Fallon, A., Gurr, S., Hannan-Jones, M., & Bauer, J. D. (2008). Use of the acute care hospital foodservice patient satisfaction questionnaire to monitor trends in patient satisfaction with foodservice at an acute care private hospital. *Nutrition and Dietetics*, 65 (1), 41-46.
- [5] Buzalka, M. (2008). You've tossed your trayline... now what. *Food Management*, 43 (12), 32-35.
- [6] Gray, P. S., Williamson, J. B., Karp, D. A., & Dalphin, J. R. (2007). The research imagination: An introduction to qualitative and quantitative methods. Cambridge University Press.
- [7] Javed, S.A. & Ilyas, F. (2018). Service quality and satisfaction in healthcare sector of Pakistan - the patients' expectations. *International Journal of Health Care Quality Assurance*, 31 (6), 489-50.
- [8] Haerani, R.S., Jus'at, I., & Tahjoo, A. (2020). The Relationship Between Quality of Food and Nutrition Services and Patient Loyalty with Mediated Patient Satisfaction at X Hospital Bogor. *Journal of Multidisciplinary Academics*, 4 (6), 343-350.
- [9] Naidu, A. (2009). Factors affecting patient satisfaction and healthcare quality. *International Journal of Health Care Quality Assurance*, 22 (4), 366-381.
- [10] Sawyer, A., Ayers, S., Abbott, J., Gyte, G., Rabe, H., & Duley, L. (2013). Measures of satisfaction with care during labour and birth: a comparative review. *BMC Pregnancy and Childbirth*, 13 (1), 108-117.
- [11] Shabbir, A., Malik, S.A. & Malik, S.A. (2016). Measuring patients' healthcare service quality perceptions, satisfaction, and loyalty in public and private sector hospitals in Pakistan. *International Journal of Quality & Reliability Management*, 33 (5), 538-557.
- [12] Abdelhafez, A. M., Al Qurashi, L., Al Ziyadi, R., Kuwair, A., Shobki, M., & Mograbi, H. (2012). Analysis of factors affecting the satisfaction levels of patients toward foodservices at General Hospitals in Makkah, Saudi Arabia. *American Journal of Medicine and Medical Sciences*, 2(6), 123-130.
- [13] Wright, O. R., Connelly, L. B., & Capra, S. (2006). Consumer evaluation of hospital foodservice quality: an empirical investigation. *International Journal of Health Care Quality Assurance*, 19 (2), 181-194.
- [14] Jamaluddin, R., Aqmaliza Abd Manan, N., Mardiah Basri, A., & Shahrim Karim, M. (2010). Patients' satisfaction with the bulk trolley system in a government hospital in Malaysia. *Leadership in Health Services*, 23 (3), 260-268.
- [15] Doorduijn, A. S., Van Gameren, Y., Vasse, E., & de Roos, N. M. (2016). At Your Request. *Clinical Nutrition*, 35 (5), 1174-1180.
- [16] Ahmed, M., Jones, E., Redmond, E., Hewedi, M., Wingert, A., & Gad El Rab, M. (2015). Food production and service in UK hospitals. *International Journal of Health Care Quality Assurance*, 28 (1), 40-54.
- [17] Fernando, G. & Wijesinghe, C. (2016). Patient perceptions on hospital foodservice at Teaching Hospital, Karapitiya. *Galle Medical Journal*, 20 (2), 13-20.
- [18] Al-Torky, M. A., Mohamed, E. A., Yousef, F. M., & Ali, N. A. (2016). Inpatients' satisfaction with foodservices in Sohag University Hospital. *The Egyptian Journal of Community Medicine*, 34 (2), 33-45.
- [19] Stanga, Z., Zurflüh, Y., Roselli, M., Sterchi, A., Tanner, B., & Knecht, G. (2003). Hospital food: a survey of patients' perceptions. *Clinical Nutrition*, 22 (3), 241-246.
- [20] Messina, G., Fenucci, R., Vencia, F., Niccolini, F., Quercioli, C., & Nante, N. (2013). Patients' evaluation of hospital foodservice quality in Italy: What do patients really value? *Public Health Nutrition*, 16 (4), 730-737.

- [21] Kim, K., Kim, M., & Lee, K.E. (2010). Assessment of foodservice quality and identification of improvement strategies using hospital foodservice quality model. *Nutrition Research and Practice*, 4 (2), 163-172.
- [22] Johns, N., Hartwell, H., & Morgan, M. (2010). Improving the provision of meals in hospital. The patients' viewpoint. *Appetite*, 54 (1), 181-185.
- [23] Vilnai-Yavetz, I. & Rafaeli, A. (2011). The effects of a service provider's messy appearance on customer reactions. *Services Marketing Quarterly*, 32 (3), 161-180.
- [24] Hartwell, H. J., Shepherd, P. A., Edwards, J. S., & Johns, N. (2016). What do patients value in the hospital meal experience? *Appetite*, 96, 293-298.
- [25] Navarro, D. A., Boaz, M., Krause, I., Elis, A., Chernov, K., Giabra, M., Levy, M., Giboreau, A., Kosak, S., & Mouhieddine, M. (2016). Improved meal presentation increases food intake and decreases readmission rate in hospitalized patients. *Clinical Nutrition*, 35 (5), 1153-1158.
- [26] Jessri, M., Mirmiran, P., Jessri, M., Johns, N., Rashidkhani, B., Amiri, P., Barfmal, N., & Azizi, F. (2011). A qualitative difference. Patients' views of hospital foodservice in Iran. *Appetite*, 57 (2), 530-533.
- [27] Zellner, D. A., Loss, C. R., Zearfoss, J., & Remolina, S. (2014). It tastes as good as it looks! The effect of food presentation on liking for the flavor of food. *Appetite*, 77, 31-35.
- [28] Dall'Oglio, I., Nicolò, R., Di Ciommo, V., Bianchi, N., Ciliento, G., Gawronski, O., Pomponi, M., Roberti, M., Tiozzo, E., & Raponi, M. (2015). A systematic review of hospital foodservice patient satisfaction studies. *Journal of the Academy of Nutrition and Dietetics*, 115 (4), 567-584.
- [29] Sahin, B., Demir, C., Celik, Y., & Teke, A. K. (2006). Factors affecting satisfaction level with the foodservices in a military hospital. *Journal of Medical Systems*, 30 (5), 381-387.
- [30] Tranter, M. A., Gregoire, M. B., Fullam, F. A., & Lafferty, L. J. (2009). Can patient written comments help explain patient satisfaction with food quality? *Journal of the American Dietetic Association*, 109 (12), 2068-2072.
- [31] Williams, P., Hazlewood, T., & Pang, G. (2014). Development of nutrition standards and therapeutic diet specifications for public hospitals in New South Wales. *Australian Health Review*, 38 (4), 467-470.
- [32] Naithani, S., Whelan, K., Thomas, J., Gulliford, M. C., & Morgan, M. (2008). Hospital inpatients' experiences of access to food: a qualitative interview and observational study. *Health Expectations*, 11 (3), 294-303.
- [33] Aminuddin, N. F., Vijayakumaran, R. K., & Abdul Razak, S. (2018). Patient satisfaction with hospital foodservice and its impact on plate waste in public hospitals in East Malaysia. *Hospital Practices and Research*, 3 (3), 90-97.
- [34] Kitapci, O., Akdogan, C., & Dortyol, I. T. (2014). The impact of service quality dimensions on patient satisfaction, repurchase intentions and word-of-mouth communication in the public healthcare industry. *Procedia-Social and Behavioral Sciences*, 148, 161-169.
- [35] Williams, J. A., Bartoshuk, L. M., Fillingim, R. B., & Dotson, C. D. (2016). Exploring ethnic differences in taste perception. *Chemical Senses*, 41 (5), 449-456.
- [36] Mahdavinia, M., Fox, S. R., Smith, B. M., James, C., Palmisano, E. L., Mohammed, A., Zahid, Z., Assa'ad, A. H., Tobin, M. C., & Gupta, R. S. (2017). Racial differences in food allergy phenotype and health care utilization among US children. *The Journal of Allergy and Clinical Immunology: In Practice*, 5 (2), 352-357.
- [37] Lee, R., Baeza, J. I. & Fulop, N. J. (2018). The use of patient feedback by hospital boards of directors: A qualitative study of two NHS hospitals in England. *BMJ Quality Safety*, 27 (2), 103-109.

- [38] Miyoba, N. & Ogada, I. (2019). Diet satisfaction and associated factors among adult surgical orthopaedic inpatients at a teaching hospital in Lusaka province, Zambia; a hospital-based cross-sectional study. *BMC Nutrition*, 5 (1), 25.
- [39] Vijayakumaran, R. K., Eves, A., & Lumbers, M. (2018). Understanding Patients' Meal Experiences through Staff's Role: Study on Malaysian Public Hospitals. *Hospital Practices and Research*, 3 (2), 50-58.