

Establishing best practice in dining experiences in hospitals

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Background

The Monash Health Partnering with Consumers Committee Food and Nutrition working group requested an evidence review of best practice dining experiences in hospitals (public or private) in Australia and internationally.

Questions

What is considered best practice for patient dining experiences in hospitals (public or private)?

Are there specific quality improvement initiatives to improve patient satisfaction with their hospital food experience?

Search methods

Table 1. Inclusion/Exclusion criteria

Setting	<i>Include:</i> Hospitals (public and private); international <i>Exclude:</i> Other settings	
Interventions	<i>Include:</i> Initiatives that involve <ul style="list-style-type: none"> • Food services (including staff attitudes) • Type of food • Timing of food delivery • Presentation of food • Assistance with food or eating 	<i>Exclude:</i> Initiatives that focus on <ul style="list-style-type: none"> • Nutritional content of food
Outcomes	Patient satisfaction	
Publication details	<i>Inclusion:</i> Peer reviewed literature, project reports, quality improvement reports <i>Exclusion:</i> Presentations, opinions, editorials and blogs	
Limitation	2012-2017; English	
Databases	Google, Google Scholar	
Search terms	"patient food preferences"; "improving food experience for hospital patients"; "hospital food best practices"	

Results

The search of Google and Google Scholar identified seven papers relevant to patient dining experiences in hospitals and quality improvement initiatives to improve patient satisfaction of their hospital food experience. Four papers were based on interview surveys or questionnaires of current status of food service or after the introduction of a new model¹⁻⁴, two papers were quality improvement reports⁵⁻⁶ and one, a systematic review, of hospital food service patient satisfaction studies⁷ made up of questionnaires, surveys, focus groups and before and after studies.

The results are summarised according to best practice components of patient dining experiences in hospitals, and quality improvement projects identified in literature.

A summary of individual papers is provided in Appendix 1, Table 2.

Summary of Results

Best practice components of patient dining experiences in hospitals

“Food satisfaction in hospitals is the result of an evaluation process that does not always depend solely on the quality of the service, but also on the prejudices and expectations of the patient. Patient assessment of meal service is multidimensional... perceptions of food service could be represented by a number of dimensions including: food quality, meal service timeliness, service reliability, temperature of food, attitude of the staff who deliver menus, attitude of the staff who serve meals, and customisation of meals”.⁷ The literature recognises that, whatever the methods of food service and the environment, every patient makes an implicit comparison with their own home when answering questions about satisfaction with hospital food service.⁷

Factors contributing to overall patient satisfaction with food service

Considering the above findings from the 2015 systematic review⁷ the literature was consistent in identifying key factors for patient satisfaction of dining experiences. These include:

- Taste, temperature and variety^{1-4, 7}
- Appearance of food²⁻⁴
- Service timeliness^{2,3}
- Customisation of menu items^{4,7}
- Attitudes of staff delivering food to patients^{4,7}.

Best practice components of a hospital food service model

The following components of food service models were highlighted by the literature as leading to positive patient food experiences:

- Provide patients with control over their food experience (e.g., fresher food, more choice, dietary preferences such as gluten-free, vegetarian, vegan etc.)¹
- Serve patients food they will enjoy (providing choice)¹
- Provide food that is familiar and acceptable to diverse groups¹, where English is not the first language use a pictorial or translated menu³
- Specific menus for younger patients³
- Extended menu choices for patients who have longer stays as they typically become bored with the menu³
- Offer different portion sizes – patients who say they have not had enough to eat are the single most dissatisfied group³
- Ensure patients with cognitive impairment are provided with different choices in food and menu style to meet their needs³
- Offer and give help to those patients who need help selecting menu items as well as eating³
- Ensure meals are delivered at a consistent times³
- Leave menus with patients and families to facilitate choice³

Quality Improvement Projects

The following is a brief summary of identified quality improvement projects. The majority of projects focused on restaurant style - on demand dining services.

On Demand Dining

Interview based research from HealthcareCAN¹ highlighted that alternative models for serving food to patients via restaurant style menus, on demand dining room service and hybrid models positively impact patient satisfaction and reduce food waste. These lower waste costs may help to offset increased labour costs that are sometimes associated with on demand food service models.

Nourish Leadership Program

The Nourish Leadership Program¹ is focused towards organisations for investigating and advancing the question of how food can improve the patient experience, institutional culture and community wellbeing, projects include:

- Developing new menus that feature more sustainable, nourishing foods that promote healing and comfort
- Shifting purchasing towards more local sustainable food sourcing
- Engaging patients, families and staff in decision making and food education
- Developing institutional policy that supports a culture of food for health and
- Addressing social determinants of health

Evaluation of the program is due to be complete late 2018.

Acute Care Hospital Patient and Staff Survey Case Study

The Acute Care Hospital Patient and Staff Survey Case Study² presented a food service model consisting of four sets of seasonal menus throughout the year, rotating on a two-weekly cycle. Patients order food 24 hours before the corresponding mealtime by filling in printed forms – individual food orders were consolidated by ward staff and sent to the kitchen. Meals were transported to patients in heated trolleys by porters and left for ward staff to distribute.

This survey found that food quality (tastiness and temperature) and food service were the main contributors to determining an overall positive or negative patient experience.²

Food is Care, Norther Westchester Hospital Mount Kisco, New York

The aim of the Food is Care project was to significantly enhance food quality, choice, personalisation and service.⁵

The intervention consisted of four distinct patient menus: Heart-healthy, Eat-Well-To-Feel-Well (regular menu), a tailored menu for diabetic patients (Consistent Carbohydrate Menu), and a Liquid Menu.

Three main components maintain the program's top-notch food quality: Healthy food with locally grown options when available, strong culinary and nutritional education expertise, and an interactive environment where patients learn how to manage their diet.

Outcomes: Patients now have a restaurant quality menu with "anytime selections" so they control meal times and stick with a personal routine. Production batch cooking was completely eliminated and all of the meals are cooked to order and be delivered within 45 minutes.

Press Ganey scores have showed that food quality and temperature scores (in hospitals where this project was implemented) increased from the lower quartile to the top 10% of hospitals in the nation. Listening to the voices of patients and caregivers informed a comprehensive patient-centered inpatient redesign, that has included Food is Care, and has led to Norther Westchester Hospital sustaining HCAHPS patient satisfaction scores well above the national average.⁵

Cottage Health System, California

The Cottage Health System, California re-imagined a food service model similar to that of room service in the luxury hotel industry, where each meal is individually prepared to order with top quality ingredients.⁶

Interventions included:

- Giving control to the patient to order meals based on their care plan schedule and preference.
- Using organic ingredients sourced locally with no canned food.
- Implementing small batch cooking, each meal individually prepared, "a la minute" style, upon order by the patient.
- Committing to a maximum of 45 minutes from time of order to delivery.
- Styling food items artfully on the plate to complement the quality of the food served, appealing to the senses.
- Delivering meals restaurant-style by a group of highly-trained servers dressed in white shirt and black tie.

Outcomes:

- Increased "meals" scores on the Press Ganey survey from a monthly average ranking of 45% between 2009-2011 to 83% during the first month of full implementation in February 2012.
- Sustained Press Ganey "meals" score monthly average of 95% or better from March 2012 to March 2013.
- Decreased food waste by 25% (approx. 2000 fewer "wasted and uneaten" food trays per month).
- Increased the quality of food (i.e. petit filet mignon, salmon, locally sourced organic produce, etc.) while reducing food cost by 12%.

Limitations

It is important to note that the studies included in this review were not assessed for methodological quality, and the majority of studies note that the questionnaires used to survey staff and patients were not validated tools so the results should be interpreted with caution.

Conclusion

Our search of the literature identified the most common factors that contribute to a patients dining experience in hospital as well as components of best practice for hospital food service models. The most common food service model seen to provide positive patient dining experiences are those based on a restaurant style – on demand dining service. It was not made clear in the literature the size of the health services that were able to implement this model of food service however the components of this type of service e.g., timeliness and food choice may still be able to be implemented without the on-demand service aspect. Overall food quality plays an integral part of overall patient experience, patients are reportedly four times more likely to rate their hospital as 10 out of 10 when they rate the quality of the food (taste, temperature and variety) as excellent.¹

References

1. Murphy T. 2017. **The role of food in hospitals**. HealthcareCAN consultant.
2. Hartwell HJ et al. 2016. **What do patients value in the hospital meal experience?** *Appetite*, 96: 293e-298.
3. The Patients Association. 2016. **Patients First: Improving patients' food and drink experience through a better understanding of their priorities**. The Patients Association & Compass Group UK & Ireland
4. Abdelhafez AM et al. 2012. **Analysis of factors affecting the satisfaction levels of patients toward food services at general hospitals in Makkah, Saudi Arabia**. *American Journal of Medicine and Medical Sciences*, 2(6): 123-130
5. Swift D. & Hale M. 2013. **Patient-Centered Innovation in Healthcare Cuisine**. Planetree.org
6. Association for Patient Experience. 2013. **Patient-Centred Room Service Style Meal Service**. Cottage Health System, California
7. Dall'Oglio I et al. 2015. **A systematic review of Hospital Foodservice Patient Satisfaction Studies**. *J Acad Nutr Diet*. 115:567-584.

Appendix 1

Table 2. Summary of Findings

Reference	Summary of paper
<p>Murphy T. 2017. The role of food in hospitals. HealthcareCAN consultant.</p>	<p>Interview based research paper.</p> <p>Patient Food Experience:</p> <p>Key informants noted that patients value food, want to be healthier, and want some control over their food experience (fresher food, more choice, dietary preferences such as gluten-free, vegetarian, vegan, etc.). Food in hospitals can provide a small touch of normalcy in the patient’s daily routine. Many key informants supported the idea of simple hospital menus with enticing, healthy offerings.</p> <p>Interviewees expressed support for serving patients food that they will enjoy, and that will lend itself to patient recovery and a positive experience. Some interviewees also expressed a desire to decrease the number of hospital diets and menus, unless dietary restrictions are absolutely required.</p> <p>A report by the Saskatchewan Health Quality Council, based on acute care patient experience survey data from 2009 to 2012, found that patients are four times more likely to rate their hospital as “10 out of 10 – best hospital possible” when they rate the quality of the food (taste, temperature, variety) as excellent.</p> <p>Providing food that is familiar and acceptable to diverse groups is a sign of respect, and will help to increase patient satisfaction and reduce waste.</p> <p>Innovations in hospital food</p> <p>New ways to service patient food:</p> <p>Alternative models for serving food to patients have become more common over the past decade or so. These include restaurant-style menus, on-demand dining, room service, and hybrid models. Key informants indicated that these innovations positively impact patient satisfaction and help to reduce food waste. Lower waste costs may offset increased labour costs sometimes associated with on-demand food service models. In sectors including mental health, rehabilitation, and children’s hospitals, approaches that enable patients to make choices about their food, or even prepare or select their own food in serveries are expanding.</p> <p>Nourish Leadership program:</p> <p>Innovators are working collaboratively on the challenges and opportunities of leveraging health care institutions to be anchors of health, within and beyond their walls. Through dialogue, project design, and practice, Nourish innovators are investigating and advancing the question: How can food improve the patient experience, institutional culture, and community wellbeing? Projects include, but are not limited to:</p> <ul style="list-style-type: none"> • Developing new menus that feature more sustainable, nourishing foods that promote healing and comfort; • Shifting purchasing towards more local sustainable food sourcing; • Engaging patients, families, and staff in decision-making and food education; • Developing institutional policy that supports a culture of food for health; and • Addressing social determinants of health.
<p>Hartwell HJ et al. 2016. What do patients value in the hospital meal experience? Appetite, 96: 293e-298.</p>	<p>Patient and Staff Questionnaire</p> <p>Background: Table 1 covers factors in decreasing order of importance for the meal experience for 6 studies: top factors include food quality, service timeliness, food temperature, appearance of food.</p> <p>Method: The hospital used as a case study had 42 catering staff who prepared the meals for all the wards, providing over 3000 patient meals per day. In addition, they supplied the day wards with cold lunches and snacks and provided meals for two public restaurants used by staff, visitors and some ambulant patients. The hospital used 4 sets of seasonal menus throughout the year on a two-weekly cycle. Under normal ward practice, patients ordered their food 24 h before the corresponding mealtime by filling in printed forms, and these individual food orders were consolidated by ward staff and telephoned to the kitchen as a bulk order for the following day.</p>

	<p>Bulk orders were then entered into a computer system for the kitchen to action. Meals prepared in the main hospital kitchen were transported in heated trolleys by porters to the corridors of the individual wards. They were left there for ward staff to bring them onto the wards. Health Care Assistants or Ward Hostesses then served individual patients by their bedside. After meal service was over the trolleys were returned to the corridors and collected by the porters, who returned them to the kitchen.</p> <p>Patients: It was administered to a purposive sample of 325 orthopaedic ward patients selected as discussed above. The hospital was an Acute Care Hospital with 26 wards including medical, elective surgery, maternity and intensive care. Data were collected from the orthopaedic wards as these patients tended to stay longer and their medical condition would not interfere with food consumption.</p> <p>Results: This model emphasises food quality and service quality as the main contributors to the experience.</p> <p>The notion of service in hospital dining is clearly complex. In the present study, food tastiness and temperature loaded highly on the factor Food, but also had relatively high loadings on Service.</p> <p>It demonstrated from first principles that food quality, followed by service quality were the most important predictors of customer satisfaction, thereby confirming findings of some previous authors. After this, the social environment, the personal characteristics of the patient and the immediate eating environment were the most important factors. However only food and service contributed sufficiently to the total variance to produce a statistically significant relationship, so that the order of the latter factors cannot be guaranteed. Nevertheless, from a practical point of view, the results suggest that improving the quality of the food and the timeliness with which it is provided remain the most important objectives of hospital food service.</p>
<p>The Patients Association. 2016. Patients First: Improving patients' food and drink experience through a better understanding of their priorities. The Patients Association & Compass Group UK & Ireland</p>	<p>Independent Survey Report of patients' preferences and experiences of hospital meals.</p> <p>Aim: The aim was to conduct face to face interviews with patients in hospital wards to give useful insight into their requirements and views, providing both robust numbers and a good qualitative understanding.</p> <p>Method: 780 patients in six acute hospitals were interviewed, covering a wide geographical spread. The sample was structured to provide a broadly representative mix of patients by age and gender.</p> <p>Survey findings used to develop recommendations for food providers, food servers, hospitals, commissioners and regulators.</p> <p><i>Recommendations as follows:</i></p> <p><u>Food Providers:</u></p> <p>Recommendation 1: Providers should work to satisfy the top three patient priorities for meal experience, namely Taste, Choice and Temperature, closely followed by Appearance. Continue to develop choices, using qualitative work and trials with core groups of patients.</p> <p>Recommendation 2: Ensure delivery of specific breakfast choices, and to a high quality. Toast (a preference of one third of patients) is available in some wards and some hospitals so should be possible everywhere. Similarly some hospitals provide toast to the requisite quality so, again, it should be possible everywhere. Consider whether it is possible to meet the preference of the quarter of patients who want cooked breakfast.</p> <p>Recommendation 3: Work to fulfil the needs and priorities of groups of patients who are currently less satisfied, see table in Appendix B. In summary:</p> <ul style="list-style-type: none"> • Research and develop a menu range for younger patients; • Provide relevant food and menu options for the quarter of patients with special dietary needs. Work to improve texture modified meals. Provide more snacks and 'light bite' options; • Work to develop food choices for non-white British patients. • Extend the choice for patients who have longer stays as they typically become bored with the menu; • Offer different portion sizes and extras to satisfy patients who say they have not eaten enough (especially since people who say they have not had enough to eat are the single most dissatisfied group); • Do further work to explore the needs of people with cognitive impairment and provide different choices in food and menu style to meet their needs

	<p>Recommendation 4: Ensure the full range of existing food and menu styles are available in all sites, wherever possible, to meet patients' needs and priorities. This includes menus for specific food requirements, such as religious and vegan offers, as well as picture formats and large print menus.</p> <p><u>Servers of Food:</u></p> <p>Recommendation 5: For all patients ensure high standards of service, backed by appropriate training. Some specific suggestions are:</p> <ul style="list-style-type: none"> • Always deliver the meal that was ordered; • Ask patients about their tastes and provide these, e.g. strength of tea, amount of milk in hot drinks; • Ensure meals are delivered at a consistent time and patients on a ward are served at the same time; • Consider making supper later; • Offer and give help to all those patients who need it. <p>Recommendation 6: Work to fulfil the specific needs of patients who are currently less satisfied, as shown in the table in Appendix B, including:</p> <ul style="list-style-type: none"> • Ensure correct provision of meals for those with special dietary requirements, by checking with patient and/or relative and keeping notes (no vegetables for some, no sugar for others); • Offer patients from minority ethnic backgrounds alternative menus and where English is not the first language, use the pictorial/translated menus; • Offer different menus to long-stayers to avoid boredom; • Ask if patients have had enough to eat and provide extra helpings to those who say they have not. Offer snacks to all patients, (according to hospital protocol), not just 'on demand to those who know to ask'; • Show full menu to all patients – do not use laptop to read out limited range; • Leave menus with patients and families to facilitate choice. <p><u>For Hospitals:</u></p> <p>Recommendation 7: Ensure drinking water is available and in reach at all times.</p> <p>Recommendation 8: Ensure all patients who miss a meal because they are away for tests or are moving between wards or from Accident and Emergency Departments are offered an alternative meal.</p> <p>Recommendation 9: Ensure all patients who need help with eating are offered that help.</p> <p>Recommendation 10: Look at provision of nutritional advice. More patients would like advice than are currently being given it. Such advice could in some cases help prevent further admissions, and will in all cases benefit patient satisfaction and wellbeing.</p> <p>Recommendation 11: Foster strong relationships between staff serving food and clinical staff to gain full understanding and satisfaction of individual patient needs.</p> <p>Recommendations also listed for commissioners and regulators however these have a focus on food nutrition which is outside the scope of this review.</p>
<p>Dall'Oglio I et al. 2015. A systematic review of Hospital Foodservice Patient Satisfaction Studies. J Acad Nutr Diet. 115:567-</p>	<p>Aim: To retrieve and review the literature describing patient satisfaction with hospital food-service.</p> <p>Systematic Review inclusion criteria: presence of an explicit description of the instrument, tool, questionnaire, or interviews applied to gather the data.</p> <p>31 included studies</p> <p>Results</p> <p>The main objective of most of the studies selected for this review was to evaluate patient satisfaction with hospital food and foodservice. The surveys were conducted mainly in the specific context of private insurance based health care, and showed a rather good level of satisfaction.</p>

584.	<p>Seven studies compared new foodservice systems to traditional food-delivery systems with the aim of improving patient satisfaction. The new systems were similar to a hotel room service. Patients ordered meals from an extended choice menu approximately 2 hours before meal service. Six studies examined the relationship between ratings given on inpatient and post-discharge questionnaires.</p> <p>Many questionnaires used were not evaluated for validity or internal consistency.</p> <p>All items of the questionnaires were rated on a Likert scale and focused on factors like food quality (taste, amount, variety, and temperature of food), time of the meal tray delivery, and staff/service issues (attention and courtesy).</p> <p>The majority of the ratings for food and nutrition service were good or very good/excellent for all attributes assessed even if results are not always comparable.</p> <p>Overall satisfaction was good in about half of patients, the main factors being food quality, presentation, and delivery. Similarly, Dubè and colleagues found that food quality, customization, and attitude of the staff were the factors significantly associated to satisfaction with meals and with foodservice. Presentation of meals was the only variable that predicted overall satisfaction ($P < 0.001$).</p> <p>The first factor was relevant for the aim of the first study and showed a preference for meal delivery by dietary personnel rather than nursing personnel.</p> <p>One study, evaluated the introduction of a spoken menu (a food and nutrition practitioner presented menus to the patients), with or without additional features (eg, a menu for a fee), but patients' satisfaction was unchanged. In another study, no difference was found between traditional foodservice (meals delivered to patients by an employee or a nurse) and non-traditional distribution (meals delivered by an employee or nurse trained to provide a range of services).</p> <p>Food satisfaction in hospital is the result of an evaluation process that does not always depend solely on the quality of the service, but also on the prejudices and expectations of the patient. patient assessment of meal service is multidimensional...patient perceptions of foodservice could be represented by seven dimensions: food quality, meal service timeliness, service reliability, temperature of cold food, attitude of the staff who deliver menus, attitude of the staff who serve meals, and customization.</p> <p>Patients' satisfaction with hospital foodservice does not only depend on food quality, but also on the way it is presented and delivered; for example, provision of a spoken menu and room service. It should be recognized that, whatever the methods and the environment, every patient makes an implicit comparison with his or her own home when answering questions about satisfaction with hospital foodservice, and most of the results published should be considered significant achievements.</p>
<p>Swift D. & Hale M. 2013. Patient-Centered Innovation in Healthcare Cuisine. Planetree.org</p>	<p>Quality Improvement Project: Food is Care, Norther Westchester Hospital in Mount Kisco, New York.</p> <p>Aim of the project was to significantly enhance food quality, choice, personalization and service.</p> <p><i>Intervention:</i></p> <p>Four distinct patient menus</p> <ul style="list-style-type: none"> • Heart-healthy, • Eat-Well-To-Feel-Well (regular menu) • a tailored menu for diabetic patients (Consistent Carbohydrate Menu) • a liquid Menu <p>Three main components maintain the program's top-notch food quality.</p> <ul style="list-style-type: none"> • Healthy food with locally grown options when available • Strong culinary and nutritional education expertise • An interactive environment where patients learn how to manage their diet <p><i>Outcomes:</i></p> <p>Patients now have a restaurant quality menu with "anytime selections" so they control meal times and stick with a personal routine. Patients have their own unit food advocate (the nursing Patient Care Associate) who supports and educates about viable dining choices. Patients have menus in their rooms and when they call to place</p>

	<p>an order, they have a conversation with a nutrition associate. The person in this role is friendly and customer focused and has nutritional and culinary training. The patient's meal order and food preferences are then entered into specialized clinical nutrition software that links to the patient's diet order in the electronic medical record.</p> <p>Production batch cooking was completely eliminated and all of the meals are cooked to order and delivered within 45 minutes. Special attention is paid to creating beautiful, appetizing plates that are comparable to a restaurant and further refute hospital food stereotypes. Patients have taken notice which is evident in the Press Ganey scores. Food quality and temperature scores skyrocketed from the lower quartile to the top 10% of hospitals in the nation. Listening to the voices of patients and caregivers informed a comprehensive patient-centered inpatient redesign, that has included Food is Care, and has led to NWH sustaining HCAHPS patient satisfaction scores well above the national average</p>
<p>Association for Patient Experience. 2013. Patient-Centred Room Service Style Meal Service. Cottage Health System, California</p>	<p>Quality Improvement Project run by Cottage Health System, California.</p> <p>Re-imagined a food service model similar to that of room service in the luxury hotel industry, where each meal is individually prepared to order with top quality ingredients.</p> <p><i>Interventions included:</i></p> <ul style="list-style-type: none"> • Giving control to the patient to order meals based on their care plan schedule and preference. • Using organic ingredients sourced locally. NO CANNED FOOD. • Implemented small batch cooking, each meal individually prepared, "a la minute" style, upon order by the patient. • Committed to a maximum of 45 minutes from time of order to delivery. • Styled food items artfully on the plate to complement the quality of the food served, appealing to the senses. • Delivered meals restaurant-style by a group of highly-trained servers dressed in white shirt and black tie. <p><i>Outcomes:</i></p> <ul style="list-style-type: none"> • Increased "meals" scores on the Press Ganey survey from a monthly average ranking of 45% between 2009-2011 to 83% during the first month of full implementation in Feb. 2012 • Sustained Press Ganey "meals" score monthly average of 95% or better from March 2012 to March 2013. • Decreased food waste by 25% (approx. 2000 fewer "wasted and uneaten" food trays per month). • Increased the quality of food (i.e. petit filet mignon, salmon, locally sourced organic produce, etc.) while reducing food cost by 12%
<p>Abdelhafez AM et al. 2012. Analysis of factors affecting the satisfaction levels of patients toward food services at general hospitals in Makkah, Saudi Arabia. American Journal of Medicine and Medical Sciences, 2(6): 123-130</p>	<p>Aim: to determine the factors affecting satisfaction level of patients with food services in a sample of general hospitals in Makkah, Saudi Arabia.</p> <p>Study type: Cross-sectional study.</p> <p>Data Collection: interview questionnaire – did not use a "valid, reliable, and sound questionnaire"</p> <p>Results: 78.8% of the patients were satisfied overall with the quality of food services in the hospital in general, that the most satisfied aspect by the patients was the cleanness of food equipment, and 96.8% of the patients were satisfied with this aspect. On the other hand, the aspect that the patients were the least satisfied with was unavailability of place to heat or cool food as stated by (92.0%) and (90.8%) of patients respectively.</p> <p>Spearman correlation coefficients between the variable of overall satisfaction and the aspects attached to foods and hospital food services are presented in (table 5), the first four variables that had the strongest correlation with overall satisfaction were the taste of foods ($r = 0.428$, $p < 0.01$), Prior hospitalization ($r=0.414$, $p < 0.01$), being served with the favourite food ($r =0.402$, $p < 0.001$), and the appearance of food ($r =0.339$, $p < 0.001$).</p> <p>Results of logistic regression (Table 6) revealed that low monthly income, taste and temperature of food, attitude of staff serving food, and absence of disturbance inside ,and/or outside the room were statistically significant independent variables related to patient satisfaction with hospital food and food services ($P < 0.05$).</p>