

*Article*

## **Management of dietary services at National Institute of Cancer Research and Hospital (NICRH), Bangladesh**

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**Abstract:** Patient meals are an integral part of hospital treatment and crucial to aid recovery. A cross-sectional study was conducted to determine the Management of Dietary Services at National Institute of Cancer Research and Hospital. The purpose of this study was to make provision for safe, clean, hygienic and nutritious diet for the indoor patient as per their caloric requirement. This study compiled from 1<sup>st</sup> January to 31<sup>st</sup> December 2017 and the sample size was 113(dietary personnel 9 and patients 104) and it was purposive sampling technique. Data were collected through semi-structured questionnaire and observational check-list. Data analysis was done using SPSS software version 20. Satisfaction level was categories in to Satisfied and Dissatisfied. Among the service receiver of this hospital 15.4% were found satisfied with the dietary services. Cleanliness status of kitchen was average. It was highly suggested that the higher number of trained manpower needs to be appointed in future as required. Moreover, a standardize cooking system should be adopted by the authority for improving the quality of cooking food in order to obtain increased patient's satisfaction.

**Keywords:** dietary management; food; diet; quality of diet; menu; hospital food

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### **1. Introduction**

Food service (US English) or Catering Industry (British English) defines those business, industries and companies responsible for any meal prepared outside the home. The dietary service is one of the important supporting services of the hospital unlike any other supporting services. The objective of the diet services is to make provision for clean, hygienic and nutritious diet for the indoor patient as per their caloric requirement.

The dietary service is one of the important supporting service of the hospital unlike any others supporting service. The objective of the diet service is to make provision for clean hygienic and nutritious diet for the indoor patient as per their caloric requirement. The dietary service can be providing either by in house provision or by out sourcing (Das, 2010). Dietary guidelines are sets of advisory statements providing principles and criteria of good dietary practices to promote national wellbeing. They are intended for use by individuals (Dietary Guidelines for Bangladesh, 2014).

The following advisory statements indicate what type of foods have to be consumed, the extent to which they have to be consumed, including the use of spices, condiments and water. It also suggests the use of healthy preparation and cooking methods for the retention of nutrients and to promote better health (Waid *et al.*, 2019). Patient satisfaction has become a key criterion by which the quality of health care services is evaluated. When looking at overall hospital patient satisfaction, foodservice satisfaction may sometimes go unnoticed, as nursing and physician quality and the quality of technical medical care are more commonly identified in the research. However, the need to assess the food services in a hospital is not only important for patients 'welfare and

nutrition but also for financial reasons (Abdelhafez *et al.*, 2012). The present study is conducted to determine the management of dietary services at National Institute of Cancer Research and Hospital.

Access to safe and healthy variety of food is a fundamental human right. Proper food service and nutritional care in hospitals have a beneficial effect on the recovery of patient and quality of life. (Green *et al.*, 2016). The number of undernourished hospital patients is unacceptable and leads to extended hospital stays, prolonged rehabilitation and unnecessary costs to health care. An essential in successful catering management is customer satisfaction; however, in a hospital setting, this is a complex phenomenon and influence by many factors. The public generally view hospitals as institution and intuitional catering has a reputation for being poor. The negative image of hospital food is wide spread and is therefore not necessarily related to the food itself (Cardello *et al.*, 1996).

Since the health industry is more becoming competitive and patients are becoming more discriminating about quality, the health care has redefined patients, recognizing them as customers (Kondrup, 2004). The competitive environment has forced dietitians to provide higher-quality food service with limited resources. As Parasuraman *et al.* (1985) asserted, quality is an elusive and indistinct construct” and is not an easy one to define.

The provision of food service system which optimizes patient food and nutrient intake in the most cost effective manner is therefore seen as essential. The patient satisfaction shows no relationship to the cost of providing and the type of food service method adopted, using criteria of extent of choice, whether meals are appetizing and how they are served (Audit Commission, 2001).

The importance of hospital food service and use of food as treatment are not new and can be traced back to the earliest medical works (Cardello *et al.*, 1996). Concern with the role food may play in the recovery of patients was also highlighted by Florence Nightingale who wrote in her ‘Notes’ in 1859, that ‘The most important office of the nurse, after she has taken care of the patients’ air, is to take care to observe the effects of his food’ (Nightingale, 1859; Hu *et al.*, 2000).

Promoting optimal nutrition status can lead to faster recovery times and reduced hospital costs. European research on food and nutritional care in hospital has recognized that it is necessary to define responsibilities, promote staff qualification, enable patients’ participation in nutritional decisions and integrate the health care team into nutritional care (Dekker *et al.*, 2015).

It is mandatory to get patients’ feedback to assess the satisfaction level on the service provided. We decided to collect feedback from the patients with a commitment to take note of all comments received and plan to look into those areas of service to improve based on their feedback. Their feedback will reflect our quality of service. The present study is conducted to determine the management of dietary services at National Institute of Cancer Research and Hospital.

## 2. Materials and Methods

### 2.1. Ethical consideration

This study was conducted with the intention of protecting the human rights of all subjects. All the information collected for the study was utilized only for the purpose of thesis and was not disclosed to anyone outside the research team. At the beginning, approval was obtained from the ethical committee of NIPSOM, under the Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Before collection of data, written permission was taken from the director of National Institute of Cancer Research and Hospital (NIRCH), Dhaka. Also written permission was taken from the respondents. A complete assurance was given that all information keeps confidentially.

### 2.2. Study Design

A cross sectional study was carried out.

### 2.3. Study Population

Dietary service providers and service receivers

### 2.4. Study Period

The study period was 1<sup>st</sup> January, 2017 to 31<sup>th</sup> December, 2017.

- a. **Place of Study:** National Institute of Cancer Research and Hospital (NICRH), Dhaka.
- b. **Sampling technique:** Purposive sampling technique was done. Sample size 114.
- c. **Inclusion Criteria:**
  - Having work experience in the study place for more than six months
  - Receiving dietary services in the study place for at least 7 days
- d. **Exclusion criteria:**
  - Critically ill patients and those who were not on normal diet

- Unwilling to participate in this study
- e. **Tool of the study:** A semi-structured questionnaire was prepared keeping in view the objectives and variables of the study. Separate questionnaires were used for service receivers and service providers. The questionnaire was first developed in English version and then translated into Bengali. Data from the respondents were collected through face-to-face interview.

### 3. Results and Discussion

This cross-sectional study was carried out among 9 dietary personnel and 104 dietary service receivers to assess the state of management of dietary services at National Institute of Cancer Research and Hospital (NICRH). The findings of the study on the basis of the analysis had been presented as per the followings sections:

The demographic characteristics of the service provider & service receiver are shown in Table 1.

**Table 1. Demographic characteristics of service provider (n=9) and service receiver (n=104).**

<b>Information of the Service providers:</b>		
<b>Age of the</b>	<b>Frequency</b>	<b>Percentage</b>
Below 50 years	3	33.3
50 years and above	6	66.7
<b>Gender of the service providers</b>	<b>Frequency</b>	<b>Percentage</b>
Male	7	77.8
Female	2	22.2
<b>Educational status</b>	<b>Frequency</b>	<b>Percentage</b>
No formal education	2	22.2
Below SSC	4	44.4
SSC and above	3	33.3
<b>Monthly family income (in taka)</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 10000/-	2	22.2
10001-25000/-	3	33.3
Above 25000/-	4	44.4
<b>Duration of service</b>	<b>Frequency</b>	<b>Percentage</b>
4-5 years	2	22.2
≥27 years	7	77.8
<b>Information of the service receiver:</b>		
<b>Age</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 30 years	16	15.4
31-50 years	54	51.9
Above 50 years	34	32.7
<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Male	58	55.8
Female	46	44.2
<b>Educational status</b>	<b>Frequency</b>	<b>Percentage</b>
No formal education	42	40.4
Up to primary	30	28.8
Below SSC	14	13.5
SSC and above	18	17.3
<b>Monthly family income (in taka)</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 10000/-	62	59.6
10001-25000/-	30	28.8
Above 25000/-	12	11.5
<b>Length of hospital stays (in days)</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 10	36	34.6
11-20	32	30.8
Above 20	36	34.6

Table 1 showed that the 33.3% respondents were from below 50 years' age group and 66.7% (n=6) respondents were 50 years and above age group. Among the respondents 77.8% were male and remaining 22.2% respondents were female. One fourth dietary personnel were illiterate, 4(44.4%) dietary personnel had educational level below SSC and 3(33.3%) dietary personnel had educational level SSC and above. From the respondents 33.3% had monthly family income from 10001-25000 taka and 44.4% (n=4) respondents had monthly family income above 25000 taka. Majority of the dietary personnel (66.7%) had duration of service of  $\geq 27$  years.

Majority of the service receiver (51.9%) were from 31-50 years' age group. One third of the respondents (32.7%) were from above 50 years' age group and rests (15.4%) were from up to 30 years' age group. Most of the service receivers (55.8%) were female and rest (44.2%) were male. Among the service receivers, 42 (40.4%) service receivers had no formal education, 30 (28.8%) service receivers had educational level up to primary, 14(13.5%) had educational level below SSC and 18(17.3%) had educational level SSC and above. Majority of them (59.6%) had monthly family income upto 10000 taka and 28.8% (n=30) had monthly family income from 10001-25000 taka. Among them, 34.6% (n=36) service receivers were staying in the hospital for up to 10 days and 30.8% (n=32) service receivers were staying in the hospital from 10 -20 days.

**Table 2. Physical facilities in the kitchen.**

Physical facilities	Criteria
Location of the kitchen	Ground floor
Adequate space for passage of loaded lorry	Present
Ventilation	Not well ventilated
Lighting condition	Inadequate
Smoke outlet (Chimney)	Present but not properly functioning
Safe drinking water facility	Absent
Toilet for dietary personnel	Absent
Changing room for dietary personnel	Absent
Cold room for perishable item	Absent
Enough space in kitchen	Not enough space
Water supply of the kitchen	Present but not adequate
Paste control measure	Absent
Complain /suggestion box	Absent

Table 2 showed the location of the kitchen was in ground floor. There was adequate space for passage of loaded lorry. It was not well ventilated and lighting was inadequate. Chimney was present but not properly functioning. There were no facilities for safe drinking water, toilet, changing room and cold room for perishable item. Enough space was not present in the kitchen. Water supply was present but not adequate.

**Table 3. Distribution of respondents by hygiene practice and cleanliness status of kitchen.**

Cleanliness status of dietary personnel	Criteria
Trimmed fingernails	No
Wear single used gloves	No
Apron used	No
Cap used	No
Wash hand before food handling	No
Cleanliness status of kitchen	
Cleanliness status of kitchen	Criteria
Cleanliness status of kitchen utensils	Average
Cleanliness status of floor of kitchen	Average
Cleanliness status of premises of kitchen	Average
Waste disposal	Twice/day
Condition of supplied food	Unhygienic

Table 3 showed that nails of dietary personnel were not trimmed. Dietary personnel did not use gloves, apron, and cap. They did not wash hand before food handling. Cleanliness status of the utensil, floor and premises were average. Wastes were disposed twice a day. The condition of supplied food was unhygienic.

**Table 4. Distribution of service provider by their opinion regarding problem they are facing and their recommendation to overcome the situation.**

<b>Problems facing regarding management of dietary department</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Rank order of the opinion</b>
Lack of manpower	6	66.6	1
Inadequate ventilation	3	33.3	2
Lack of modern equipment for cooking	2	22.2	3
Lack of training	1	11.1	4
Lack of modern equipment for cleaning	1	11.1	4
Lack of trolley	1	11.1	4
Lack of facility for health check up	1	11.1	4
<b>Recommendation to overcome the situation</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Rank order of recommendation</b>
Increase no. of trained personnel	6	66.6	1
Adequate ventilation	4	44.4	2
Supply of adequate trolley	2	22.2	3
Modernization of kitchen unit	1	11.1	4

Table 4 showed that majority of the dietary personnel (66.6%) faced problem due to lack of manpower, 3 (33.3%) dietary personnel faced problem due to inadequate ventilation, 2 (22.2%) dietary personnel faced problem due to lack of modern equipment for cooking. Others problems that were faced by them were lack of training (11.1%), lack of modern equipment for cleaning (11.1%), lack of trolley (11.1%) and lack of facility for health checkup (11.1%). Majority of the dietary personnel (66.6%) stated that increasing the number of trained personnel would be the solution of problems. Others stated that adequate ventilation (44.4%), supply of adequate trolley (22.2%) and modernization of kitchen unit (11.1%) would be the solution of problems.

**Table 5. Distribution of service receiver by receiving various kinds of food and whole meal from hospital (n=104).**

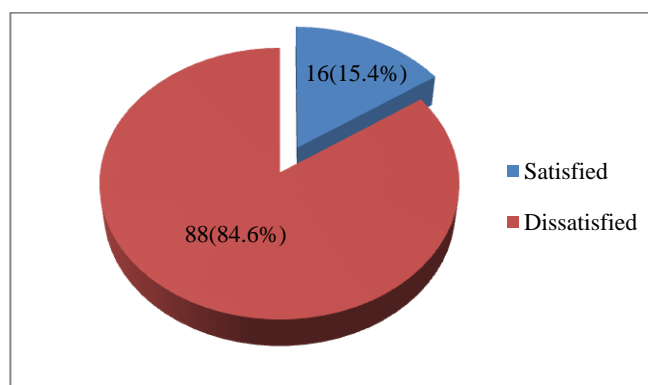
<b>Receive various kinds of food</b>	<b>Frequency</b>	<b>Percentage</b>
No	95	91.3
Yes	9	8.7
<b>Receive whole meal</b>	<b>Frequency</b>	<b>Percentage</b>
No	72	69.2
Yes	32	30.8

Table 5 showed that most of the service receivers (91.3%) did not receive various kinds of food from hospital and 9 (8.7%) received various kinds of food from hospital. Most of the service receivers (69.2%) received whole meal and 32 (30.8%) did not receive whole meal from the hospital.

**Table 6. Distribution of service receiver by the problems faced regarding management of dietary department.**

<b>Problems facing regarding management of dietary department</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Rank order of problems</b>
Low quality food	44	42.3	1
Lack of safe drinking water	15	14.4	2
Food is not given timely	12	11.5	3
Same food daily	9	8.7	4
Low quality of rice	9	8.7	4
Less amount of food	8	7.7	5
Under cooked food	4	3.8	6

Table 6 showed that among the service receivers, 44 (42.3%) faced problem due to low quality food. Others faced problems due to lack of safe drinking water (14.4%), food not given timely (11.5%), same food given daily (8.7%), low quality of rice (8.7%), low amount of food (7.7%) and under cooked food (3.8%).



**Figure 1. Distribution of service receiver by level of satisfaction (n=104).**

Figure 1 showed that among the service receivers, 15.4% (n=16) were satisfied with the dietary service and 84.6% (n=88) were dissatisfied with the dietary service.

**Table 7. Distribution of service receiver by recommendation regarding the solution of problems (n=104).**

Recommendations regarding the solution of problems	Frequency	Percentage	Rank order of recommendation
Quality of food should be improved	31	29.8	1
Authority should take action	16	15.4	2
Increase amount of food	8	7.7	3
Food should be given timely	7	6.7	4
Supply of pure drinking water	6	5.8	5
Variety of food should be given	4	3.8	6
Others	3	2.9	7

\*multiple response

Table 7 showed that among the service receivers, 31 (29.8%) suggested that quality of food should be improved. Others suggested that authority should take action (15.4%), amount of food should be increased (7.7%), food should be given timely (6.7%), pure drinking water should be supplied (5.8%), and variety of food should be given (3.8%).

#### 4. Conclusions and Recommendations

Good food service was not only necessary for physiological and therapeutic needs of the patients but also one of the important public relation measures. Proper diet for proper patient reduces patient's sufferings. Though resources were limited, proper management can ensure quality dietary services and thereby ensure better health care

- All the personnel of dietary services should be trained.
- Hygiene and sanitation of cookhouses should be improved.
- Kitchen staff should wear specific PPE for cleanliness of food.
- Cooking process should be improved in such a way so that micronutrient can be preserved as for as possible.
- Increase the number of personnel in the dietary department.

#### Conflict of interest

None to declare.

#### References

- Abdelhafez AM, LA Qurashi, RA Ziyadi, A Kuwair, M Shobki and H Mograbi, 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: 123-130.
- Audit Commission, 2001. Acute hospital portfolio: review of national findings, Wetherby: Audit Commission Publications.

- Cardello AV, R Bell and FM Kramer, 1996. Attitudes of consumers toward military and other institutional foods. *Food Qual. Prefer.*, 7: 7-20.
- Das NC, 2011. Hospital dietary services. <https://www.slideshare.net/NcDas/hosp-dietary-services-8763455> [retrieved on September 2017].
- Dekker LH, M Nicolaou, RM van Dam, JHM de Vries, EJ de Boer, HAM Brants, MH Beukers, MB Snijder and K Stronks, 2015. Socio-economic status and ethnicity are independently associated with dietary patterns: the HELIUS-Dietary Patterns study. *Food Nutr. Res.*, 59: 26317.
- Dietary Guidelines for Bangladesh, (2014). Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM).
- Green R, J Milner, EJM Joy, S Agrawal and AD Dangour, 2016. Dietary patterns in India: A systematic review. *Br. J. Nutr.*, 116:142–148.
- Hu FB, EB Rimm, MJ Stampfer, A Ascherio, D Spiegelman and WC Willett, 2000. Prospective study of major dietary patterns and risk of coronary heart disease in men. *Am. J. Clin. Nutr.*, 72: 912–921.
- Kondrup J, 2004. Proper hospital nutrition as a human right. *Clinical Nutrition*, 23 (2).
- Nightingale F, 1859. *Notes on Nursing –What it is and what it is not*, London: entury Company.
- Parasuraman A, VA Zeithaml and LL Berry, 1985. A conceptual model of service quality and its implications for future research. *J. Mark.*, 49: 41-50.
- Ramesh S, 2017. Patient’s satisfaction on hospital food service in a tertiary care hospital. *Int. J. Innov.*, 4: 138-140.
- Waid JL, SS Sinharoy, M Ali, AE Stormer, SH Thilsted and S Gabrysch, 2019. Dietary Patterns and Determinants of Changing Diets in Bangladesh from 1985 to 2010. *Curr. Dev. Nutr.*, 3: 091.