

## Evaluation of Quality of Dietary Service in Relation to Sociodemographic Characteristics of Indoor Patients: A Cross-sectional Study in a Tertiary Hospital in Bangladesh

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### Abstract

**Background:** Dietary services in the hospital are responsible for providing safe, clean, optimum nutrition in a scientific and sanitary way with minimum cost at right time and right place to right person. Impact of socio-demographic variations on quality dietary services process in tertiary care hospitals needs to be identified and appropriate recommendations for improvement.

**Objective:** To evaluate the quality of dietary services in relation to socio-demographic variations in a tertiary hospital of Bangladesh.

**Methods:** This study was cross sectional and descriptive in nature which included 101 purposively selected patients admitted at CMH Dhaka from July 2020 to December 2020. A face to face interview was taken using "Acute Care Hospital Foodservice Patient Satisfaction Questionnaire (ACHFPSQ)". Data were analyzed by SPSS v23 and appropriate statistical analyses were done.

**Results:** More than half (61.4%) of the respondents were male and overall mean age (both male and female) were 56.02%. Majority (80.2%) of the respondents regarding food quality expressed their satisfaction as "good". Other facilities like physical environment (92.1%), food service satisfaction (83.2%) received a positive remarks. However low percentage of satisfaction observed in the above mentioned factors also. Mean scoring for food quality, meal service, staff issues and physical environment were 2.77, 4.83, 4.96 and 3.94 respectively. Association among sex and physical environment were found statistically significant ( $p=0.0$ ).

**Conclusion:** To improve quality of dietary services, this study can effectively contribute in both public and private hospitals regarding their commitment to quality food service. Quality dietary services and patient satisfactions are directly connected to the healing of admitted people.

**Keywords:** Dietary services, Food, Tertiary Hospital.

### Introduction

Eating balanced and nutritious food is important for everyone's health and well-being. To meet individual nutritional requirements, it is necessary to choose appropriate food for different age groups.

Dietary requirements and personal choices depending upon one's religious, cultural and social backgrounds, as well as for different medical conditions. For improving dietary qualities, every individual should put their attention on food intake.<sup>1</sup> Now a days hospital management has become more patient centred which not only achieved by improved clinical services through disease diagnoses and treatment. It also depends on quality dietary services as it is parallelly important for rapid healing. In a tertiary care hospitals, multiple challenges faced regarding dietary services as patients requirements differ.

Health care institutions in a competitive environment are seeking novel approaches to meet these challenges through constant upgrading of their meal distribution services.<sup>2</sup> Dietary service is a recognized support service of hospital services which not only ensures proper nutrition and maintains good health but also contributes to widen the image of the hospital in the eyes of public. Diet is compulsory for all In-patients. Proper diet is the key to good health and helps patients in the hospital to get well soon. Quality is the degree to which a set of inherent characteristics fulfils requirements.

Quality of food refers to balancing nutritional requirements in every food staff. A balanced and nutritious dietary services helps to ensure patients healing processes by providing vitamins and minerals. So it is essential for any hospital to maintain a quality dietary services for their patients. A healthy food is not only needs for proper functioning but also keeping thrive, while minimizing your calories and keeping up your appetite. This inevitably leads to better results.<sup>3</sup> Giner et al and Johansen et al stated that promoting optimal nutritional status through quality hospital food services can lead to a faster recovery and decreased length of hospital stay which can have a large impact on hospital costs.<sup>3,4</sup> Badrie et al and Scheule et al made it clear that food safety remains a critical issue nowadays among professionals in the food service sector as well as consumers.<sup>5</sup> Studies on satisfaction with food services discuss that the quality of hospital food services is a common problem in all over the world and patients of many hospitals are undernourished, since the patients do not like the food or they say the food is unacceptable.<sup>6,7</sup> McLymont, Sharon, Stell and Williams, Virtue and Adkins revealed in their study that foodservice quality can also influence patients' satisfaction with

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their overall hospital experience. With health care industry competition on the rise, many hospitals foodservice operations are looking for ways to improve patient satisfaction.<sup>8-10</sup> Due to improper management of hospital dietary service there are so many serious consequences may happen like increases risk for chronic diseases, increase average length of hospital stay, wastage of money which ultimately put bad impacts on hospital image to the mass population. So it is a very important issue. If we can assess the quality of dietary service of hospital, we can verify our quality and find out the problem and overcome the problem and improve our quality of care. For this reason, it has been decided to conduct a study on this issue and this research was aimed to evaluate the quality of dietary services in CMH, Dhaka according to age and sex of the patients.

**Materials and Methods**

To assess the socio-demographic determinants in regards to the quality of dietary service of CMH Dhaka, this cross-sectional study was conducted from July 2020 to December 2020. Departments of Neurology, Urology, Medical ward-1, 2, JCO's and Gynecology were selected purposively as study place. A total of 101 admitted patients who were more than 18 years of age, consumed normal diet from hospital, stayed at least two days in the ward and able to give solid opinion were selected purposively as study participants. Indoor patients who consumed therapeutic diet, received enteral or parenteral nutrition, nil by mouth, and/or were unable to communicate well were excluded. Data were collected from the patients through face-to-face interview using a pretested questionnaire. Prior to data collection, informed written consent were obtained from the respondents. Ethical approval for the study was granted by the ethical committee of Armed Forces Medical Institute (AFMI) and neither any intervention nor invasive procedure were given. The study instrument comprised a structured questionnaire which includes demographic, information related to quality of dietary service and checklist. The Acute Care Hospital Foodservice Patient Satisfaction questionnaire (ACHFPSQ) is an accurate, reliable measure of patient foodservice satisfaction and allows quality improvement processes having four dimensions food quality, staff issue meal service quality and physical environment. The items were scored on a 5-point Likert scale ranging from Always=5, Often=4, Sometimes=3, Rarely=2, Never=1. The sum of the all- item score were used which ranges from 18-90. The average score of each domain used as cut-off point and score below the mean was consider as bad and above the mean was good. Cronbach's alpha coefficient of this questionnaire found 0.86.

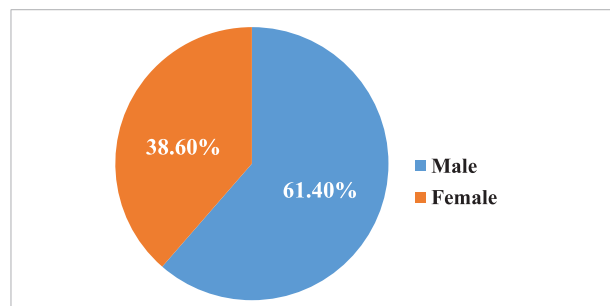
Data processing and analyses were done using Statistical Package for Social Sciences (SPSS) version 23. Frequencies, percentage, mean and standard deviation (SD) were used for descriptive statistics. Chi-square analyses were done to assess the relations between variables with a 95% confidence interval (CI). A two-tailed p<0.05 was considered statistically significant.

**Results**

Table-I shows 45(44.6%) respondents were in the age group 18-37 years, 38(37.6%) were in the age group 38-57 years, 18(17.8%) respondents were in the age group 58-77 years. The mean age of the respondents was 56.02 years with the standard deviation ±6.42 years.

**Table-I:** Distribution of the respondents by age

Age (year)	Frequency	Percentage
18-37	45	44.6
38-57	38	37.6
58-77	18	17.8
<b>Total</b>	<b>101</b>	<b>100.0</b>
Mean ±SD(years) = 56.02 ±6.42 years		



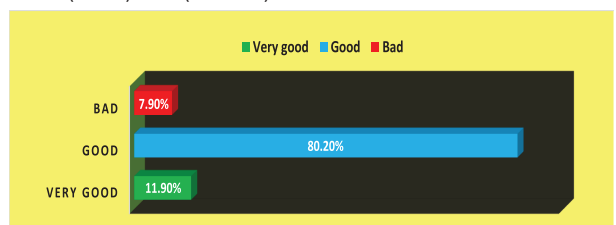
**Figure-1:** Distribution of the respondents by sex

Figure-1 revealed that majority of the respondents were male 62(61.4%) and rest of the respondents were female 39(38.6%).

**Table-II:** Distribution of respondents about quality of different dietary service category

Dietary service category	Category	n	%
<b>Meal service quality</b>	Good	99	98.0
	Bad	2	2.0
	<b>Total</b>	<b>101</b>	<b>100.0</b>
<b>Staff service quality</b>	Good	91	90.1
	Bad	10	9.9
	<b>Total</b>	<b>101</b>	<b>100.0</b>
<b>Physical environment</b>	Good	93	92.1
	Bad	8	7.9
	<b>Total</b>	<b>101</b>	<b>100.0</b>

About 99(98.0%) of the respondents were highly satisfied with the meal service of the dietary department and stated as very good and 2(2.0%) good no bad. Regarding staff service issues 91(90.1%) were very pleased with the dietary department and stated very good and 10(9.9%) good no bad. It was found that 93(92.1%) of the respondents were satisfied with the physical environment and rated as good and 8(7.9%) bad (Table-II).



**Figure-2:** Distribution of respondents about food quality

Figure-2 shows that 81(80.2%) of the respondents were satisfied about the quality of food as good, 12(11.9%) very good and 8(7.9%) bad. Table-II shows that highest score regarding food quality 16.87 given by the respondents of 38-57 years. Score 16.67 by 58-77 years age group and 16.38 by 18-37 years age group. About meal service quality highest score 5.0 was given by most of the respondents of 38-77 years age group. Regarding staff service issue 9.74 was given by respondent of 38-57 age groups. About physical environment the least positive score 3.76 was given by the respondent of 18-37 years age group. The association between food quality and age (year) (p=0.89), meal service quality and age (year) (p=0.29), staff service issue and age (year)(p=0.73) and physical environment and age (year) (p=0.57) was found statistically not significant.

**Table-III:** comparison of mean score of dietary service quality by age

Dietary service category	Age group	n	Mean	Std. Deviation	Statistic
Food quality	18-37	45	16.38	4.71115	F=0.11
	38-57	38	16.87	4.67409	df=2
	58-77	18	16.67	4.62728	p=0.89
Meal service quality	18-37	45	4.91	.41682	F=1.26
	38-57	38	5.0	.00000	df=2
	58-77	18	5.0	.00000	p=0.29
Staff service issues	18-37	45	9.62	0.89	F=0.32
	38-57	38	9.74	0.69	df=2
	58-77	18	9.56	1.15	p=0.73
Physical environment	18-37	45	3.76	1.44844	F=0.57
	38-57	38	4.05	1.82989	df=2
	58-77	18	4.17	1.50489	p=0.57

Table-III reveals that female scores 17.96 about food quality where male scores 15.94. About meal service quality female had given the highest score 5.0. For staff service issue male had given score 9.69 where female 9.59. Regarding physical environment female had given lowest score of 3.15. The association between sex and physical environment (p=0.0) were found statistically significant.

**Table-IV:** Comparison of mean score of dietary service quality by sex

Service category	Sex	n	Mean	Std. Deviation	Statistic
Food quality	Male	62	15.94	4.0	t=-1.875
	Female	39	17.69	5.39	df=99, p=.064
Meal service quality	Male	62	4.94	0.37	t=-1.13
	Female	39	5.0	0.0	df=99, p=0.26
Staff service issues	Male	62	9.69	0.80	t=0.59
	Female	39	9.59	0.97	df=99, p=.0.56
Physical environment	Male	62	4.44	1.84	t=4.22
	Female	39	3.15	0.54	df=99, p=0.0

**Table-V:** Foodservice Satisfaction Results by Survey Category

Survey category	Mean	Standard deviation
Food quality (Q1,7,8,12,13,14)	2.77	1.19
Meal service quality (Q9)	4.83	0.61
Staff service issues (Q3,10)	4.96	0.28
Physical environment (Q2,4,5)	3.94	1.61
Overall foodservice satisfaction (Q18)	3.13	1.04

Data analysis in Table-V revealed scores for each foodservice category. Serving hot foods being the highest rated (score 4.99). The least rated categories included food quality (score 2.77), hunger and food quantity (score 2.83), meal size (score 3.90), physical environment (score 3.94). Meal service quality (score 4.83) and staff service issues (score 4.96) and overall foodservice satisfaction was scored at 3.13 out of 5.

## Discussion

Characteristics like age and sex, it was found that out of 101 respondents majority were in 18 to 37 years age group followed by 38 to 57 years of age group and 58 years. The mean ages of the respondent were 56.02 years with the standard deviation 6.42 years. Regarding the socio-demographic characteristics of the studied patients, the result of this study showed that patient of specific characteristics such as age to be insignificant variables in affecting overall satisfaction of the patients as highest score regarding food quality 16.87 given by the respondents of 38-57 years. Score 16.67 by 58-77 years age group and 16.38 by 18-37 years age group was very much similar. In this study 80.2% were satisfied with food quality of the hospital. About meal service quality highest score 5.0 was given by most of the respondents of 38-77 years age group. Regarding staff service issue 9.74 was given by respondent of 38-57 age groups. About physical environment the least positive score 3.76 was given by the respondent of 18-37 years age group. Tranter et al also stated that age did not have an effect on the level of patient satisfaction.<sup>11</sup> This is in contrast to Sahin et al who found that satisfaction level was significantly higher in younger age groups.<sup>12</sup> In addition, other previous studies reported that patients aged 70 and older gave higher overall foodservice ratings when compared to younger patients.<sup>13</sup>

Among all participants majority were male i.e. 61.4% and 38.6% were female. In this study female scored 17.96 about food quality where male scored 15.94. About meal service quality female had given the highest score 5.0. For staff service issue male had given score 9.69 where female 9.59. Regarding physical environment female had given lowest score of 3.15 which was opposite to the study conducted by Naglaa et al.<sup>14</sup> The association between sex and physical environment (p=0.0) were found statistically significant. A related cross sectional study was carried out in four general hospitals in Makkah, Saudi Arabia where results showed that 78.8% of patients were satisfied with quality of food in hospitals which is very much similar to this study.<sup>13</sup> Current study also found out that respondents scored food quality by bad i.e. 7.9%. In current study, 98.0% of the respondents were highly satisfied with the meal service quality of the dietary department and stated as very good and 2.0% good where a study carried out by Sahinet al found out only 51.3% respondents were highly satisfied by food service quality.<sup>12</sup> When the views of the patients on different aspects of food and hospital food services were considered it was seen that 90.1% were very satisfied with the staff service issues of the dietary department where a study carried out by Sahin et al found 85.6% of the patients were satisfied with this aspect.<sup>12</sup> Amany et al also found out the higher percentage of patients 78.8% were satisfied with the attitude, and behaviour of the staff serving foods.<sup>15</sup> Among the respondents 5.9% of the respondents scored bad and 83.2% of the respondents stated good about overall foodservice satisfaction where in the study carried out by Sahin et al found only 51.3% were satisfied with

the overall foodservice.<sup>12</sup> Data analysis regarding foodservice satisfaction revealed scores for each foodservice category. Serving hot foods being the highest rated (score 4.99). The least rated categories included food quality (score 2.77), in between meal and quantity of food, meal size (score 3.90), physical environment (score 3.94) which was seen in terms of staining of crockery and cutlery, hospital smell and noise of finished meal tray. Meal service quality (score 4.83) and staff service issues (score 4.96) which was seen in terms of cleanliness and behaviour of food serving staff and overall foodservice satisfaction was scored at 3.13 out of 5. A cross sectional study also found that food quality and food quantity was the least scored category in her study which is similar to the present study.<sup>15</sup> Another study carried out by Gabriele et al also found out staff/ service issues were the mostly rated and food quality was the least rated.<sup>16</sup>

### Conclusion

Overall patient satisfaction were related to quality dietary standards maintained by the hospital. Variety of factors responsible for providing quality services like food taste, appearance, way of cooking curry and vegetables. Quality dietary services has a stronger association with patients satisfaction. The items regarding the role of hospital staff on overall quality were found to be the most positively rated but not the most determining. We highlight this aspect as it has a positive influence on patients' experience of hospital food.

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