Hospital Food Service Systems in the United Kingdom

With Special Reference to Patient Satisfaction

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〈목 차〉

〈Abstract〉

본 연구는 영국의 병원 급식체계를 분석하고 그에 대한 객관적, 주관적 평가를 시도하는데 목표를 두고있다. 영국 보건성의 지원하에 12개 병원에 대한 급식체계를 비용편익 분석과 생산성 측정이라는 객관적 기법, 그리고 Indepth-interview 및 Self-Administered Qestionnaire라는 주관적 방법을 통해 분석하였다. 이 중 본 논문에서 다루는 것은 환자 만족도와 이에 영향을 미치는 병원 급식 체계의 결정요인 부분이다. 제1단계 연구에서는 급식대상 환자들에 대한 표본추출을 통해 설문조사를 실시하였다. 분석결과 환자의 인구통계학적, 정서적 변수가 환자의 만족도에 가장 큰 영향을 미치는 요소로 나타났다. 각 병원에 대한 객관적 자료를 이용한 2차 회귀분석 결과 인적자원 요소와 시스템 요소로 대별된 독립변수 요인군중 어느 변수도 0.05 (p) 수준에서 유의미하지 않은 것으로 밝혀졌다. 환자의 만족도는 병원 급식 체계에 기준한 객관적인 결정요인에 의해 설명되어지지 않고 오히려 환자 자신의 변수에 의해 결정되어짐을 알 수 있다. 본 논문이 시사하는 바는 급식체계에 대한 평가에 있어 이론적 모형과 변수의 선정이 수정될 필요가 있다는 점과, 방법론적 차원에서 평가대상 급식시스템의 유형상 특성이 고려되어야 한다는 점이다.

Ⅰ. INTRODUCTION

Results of work in area of patient satisfaction show a complex picture. Questionnaires have been used extensively to measure consumer acceptance and evaluation of food quality in hospitals (Feldman, 1962 ; Frank, 1955 ; Maller *et al.*, 1980 ; Post, 1957). After completing a questionnaire survey at an urban hospital (n=292) and a rural facility (n=120) in U. S.A., Haglund (1990) reported that satisfaction with food was most significantly linked with general satisfaction with the hospital. This food acceptance quality, however, has always been given only cursory attention due to its subjective nature.

The primary problem in such subjective evaluation of food quality is reliability, an individual's evaluation being subject to other influences which consciously or subconsciously may introduce bias into the evaluation process (Christensen, 1969). Although the patients' acceptance may lack objectivity, it does not mean that perception does not exist or that it cannot be measured (Cardello, 1982).

One obvious reason for conflicting opinions about the quality of hospital food arises from the discrepancy between patients' and dietitians' opinions on what constitutes high quality food. Dietitians largely emphasize nutritional criteria, whereas patients largely emphasize sensory criteria (McCune, 1962).

A comprehensive review of the available survey evidence by Feldman (1962) showed overall patient satisfaction with hospital food was high. Consistently, whatever survey method was used, and regardless of the precise wording of the questions, the majority of patients questioned rated hospital food as good or very good. Personal interviews with 1315 patients discharged from 50 short term hospitals in Massachusetts generally confirm Feldman's findings (Sheatsley, 1965). Glew(1968) administered questionnaires two days after discharge to 600 patients at an 800 bed teaching hospital in Leeds, England. Forty-eight per cent of patients responding indicated that they were satisfied with food quality. A questionnaire survey of patients, ambulatory patients and hospital staff was conducted by Maller *et al.*, in 1980. A total of 1, 597 individuals were surveyed at hospitals in Texas, Georgia, California, and South Carolina. Ward patients were found to be more satisfied with appearance of food, aroma of food, cleanliness of dishes and silverware, and attractiveness of dishes, silverware, and tray than ambulatory patients or staff who were eating at the dining room. In 1990, DeLuco and Cremer reported consumers' perceptions of the quality of hospital food, and food-related services through telephone interviews with 223 adults randomly selected from an urban county in Ohio in USA. More than 65% of respondents said that hospital food was good for the characteristics of taste, aroma, appearance, tenderness, cold temperature, freshness, and nutrient value.

Numerous papers regarding the patients' satisfaction of food quality prepared by either conventional cook serve, cook-chill, cook-freeze, or convenience system have been reported (Bakst, 1962 ; Brown *et al.*, 1969; DeLuco and Cremer, 1990 ; Feldman, 1962 ; Haywood *et al.*, 1961 ; Maller *et al.*, 1980 ; McCune, 1960 ; Sheatsley, 1965). However, considerably fewer reports have actually been conducted in the U.K. (Glew, 1968 ; Millross *et al.*, 1974). To date, few multi-hospital surveys concerned with these problems have been published. Of those reports, most relate to research done in the 1950s or 1960s (Bakst, 1962 ; Brown *et al.*, 1969 ; Feldman, 1962 ; Haywood *et al.*, 1961 ; McCune, 1960 ; Sheatsley, 1965).

It is difficult to refer to the data of those early surveys in any meaningful way because of substantial changes in patients' attitudes and expectations, particularly since the 1980s, owing to media exposure, foreign travel, and the growth of higher education (Kipps and Middleton, 1990).

The purposes of the research are

1) to evaluate patient satisfaction in selected hospitals in the Trent Regional Health Authority and the West Midland Regional Health Authority in the United Kingdom and

2) to identify the influencing variables which offer the highest level of explanation of patient satisfaction within the conventional hospital food service system.

Ⅱ. METHOD

1. Patient Satisfaction Level

Patient satisfaction can be measured by questionnaire survey. In hospitals questionnaires have been used extensively to measure consumer acceptance (Feldman, 1962 ; Frank, 1955 ; Maller *et al.*, 1980 ; Post, 1957) because of their practicality and sensitivity.

In this study patient satisfaction with the quality of hospital food and food-related service was determined through patient questionnaires. A questionnaire was developed specifically to suit the aims of this research. The questionnaire was designed for patients eating their meals in their wards. It consisted primarily of multiple-choice questions, although some open-ended questions were included to get information on attitudes not easily obtained by a multiple-choice format. An index called 'Overall Satisfaction of Food Quality' score was defined as the sum of the respondent's ratings on fourteen items related to the meals and food-related service. Assuming equal weights for all items, these items reflected the 'Overall Satisfaction of Food Quality'.

The survey questionnaire consisted of 21 questions which could be categorized into three parts; 1) variables of overall satisfaction of the meal, 2) food habits of patients, and 3) others, including gender and age. Patients were asked to assess each variable on a seven point scale ranging from positive to negative in most survey questions.

2. The Selection of Hospitals

Because of the number of hospitals scattered in different parts in the U.K., it would have been virtually impossible to choose a random sample of hospitals. In order to obtain a suitable sample size for this research, within practical travelling distance, the hospitals were selected on the basis of the criteria. Thus the total population of 12 hospitals selected for this study were all National Health Service (NHS) hospitals, all medium sized, all had short term admission patients, all used conventional catering systems and all were located within the Trent and West Midland Regional Health Authorities of England.

3. The Selection of Patients

It is important that the sample selected from the relevant population is representative in all respects.

About 30 per cent of all of patients in each of the 12 hospitals were surveyed. This was considered a large enough sample to give representative and reliable results. Obviously a larger sample would elicit more precise results, but due to the complexity of the survey, this was impractical.

The population selected for this survey consists of patients who were:

- hospitalized during survey periods
- on normal diets
- short-term patients
- not having impending testing, medical examination, surgical procedures, or laboratory tests
- received their meals for at least one full day.

The questionnaire survey was conducted with patients during hospitalization in order to maximize

the collection of data and accuracy of results. It has been reported that most former patients are so grateful after discharge that the entire hospital experience takes on a positive bias. Retrospectively they tend to consider that their meals were 'highly good' or good', although they may not have been satisfied with the quality of food or the way in which it was served while they were in hospital (Feldman, 1962).

Patients on special diets were not included since it was felt that dietary modifications would affect their feelings about the food. The results obtained from them would therefore not be representative. It was necessary to include more than one ward from each hospital in the survey to avoid bias resulting from unanticipated problems with food service, eg when the trolley for that ward arrives late, when the distribution of trays is delayed, or when other sudden events occur which might affect one particular ward. Within those wards surveyed, patients were chosen at random. Almost the same number of male and female patients were selected. Patients of various age groups were chosen to prevent age-related errors. Anonymity of responses was guaranteed to all respondents to encourage valid judgements and candid comments.

Lunch time was chosen for the survey to maximize participation in the survey. It was reported that patients do not like to participate in the late afternoon and evening due to anticipation of visitors and fatigue from the day's activity (Cash and Khan, 1983). Questionnaires were distributed at lunch time and collected some 45 minutes later. Each patient participated only once in this survey.

4. Measures of Influencing Variables

The influencing variables, eg key factors thought to influence the food production service process, include human resources and system resources. These were derived because food quality in hospital food service systems can be easily influenced by the catering staff and the operating food service system. The human resource parameters selected include full-time catering staff ratio, supervisor ratio, and satisfaction with pay. The system resource parameter is food and consumables costs.

Human Resources

Full-Time Staff Ratio

For this research, a full-time member of staff was considered to be any employee who is working an average of 35 hours per week on a year-round basis. The full-time staff ratio (FT) was calculated with the following formula:

$$FT = \frac{\text{Total number of full-time staff}}{\text{Total number of catering staff}} \quad (1.1)$$

Supervisor Ratio

The supervisory staff ratio (SR) was calculated with the following formula:

$$SR = \frac{\text{Total number of supervisors}}{\text{Total number of catering staff}} \quad (1.2)$$

Satisfaction with Pay

The scores of satisfaction with pay (SP) in the Job Description Index (JDI) (Smith et al., 1969) were used.

$$SP = \text{JDI Satisfaction Scores with Pay} \quad (1.3)$$

System Resources

Food and Consumables Costs

Average food and consumables costs for a month were obtained from the general information questionnaire. Food plus consumables cost per meal equivalent (FC) was calculated using this formula:

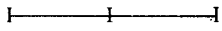
$$FC = t/30^{*} \times 7/me \quad (1.4)$$

wherein:

FC = food plus consumables cost (£) per meal equivalent
t = total monthly cost of food and consumables
7 = days per week
me = total weekly meal equivalents
* = 30 or 31 according to month

5. A 7-point scale

A 7-point scale was used, with a score of 7 representing 'very good', a score of 1 representing 'very poor' and a score of 4 representing 'neutral'.



1 4 7
Very Poor Neutral Very Good

6. Statistical Analysis

In this research, the influencing variables and patient satisfaction for the 12 hospitals were correlated to find the relationships between patient satisfaction and each of the influencing variables. Pearson correlation is a technique which is typically used to identify the strength of relationships among parametric data (Selkirk, 1979).

Ⅲ. RESULTS AND DISCUSSION

Altogether 933 patients in the 12 hospitals surveyed took part in the survey. The total response rate was 91.9 %. Several respondents remarked that participation in the survey relieved their boredom. The gender, age, and length of stay in hospital are shown in Table 1. There were about 16.4 per cent more women than men in the sample, and their relative proportion was approximately the same in all twelve of the surveyed hospitals.

1. Attitudes of Patients to Hospital Food

Table 2 shows patient satisfaction ratings as described by the various terms used in the patient questionnaire.

1) Selection and Variety of Food

For the entire patient population, the mean score was 5.6 with standard deviation of 1.2, which implies a score between 'Good' to 'Slightly Good'. This positive response may imply that the two weekly or three weekly menu cycles offered were sufficient to combat 'food fatigue'. All but one (Hospital I) of the hospitals surveyed used a set menu, due to the refurbishment of its Catering Department. As expected, the hospital using a set menu gained the lowest mean score of 4.8.

2) Appearance of Meals Served and Cleanliness of Dishes and Tray

The average mean scores for appearance of meals and cleanliness of dishes and trays were 5.6 and 6.0 out of 7.0 respectively. In general patients seemed to be more satisfied with presentation and cleanliness compared with other aspects of quality. The higher rating by ward patients for cleanliness of dishes and trays reflects the emphasis placed on hygiene in this area.

The favorable rating by patients for appearance of food was probably due to the fact that patients are served a pre-loaded tray on which all food items are carefully and neatly arranged by kitchen personnel.

3) Smell of Meals

Patients ratings for smell and flavor of meals are favorable (Mean 5.4 and 5.3). Wards are characterized by antiseptic and medicinal odors. When the foods are

〈Table 1〉 Demographic Description of Patients

Characteristics	Percent (%)	
SEX		
Female	58.2	
Male	41.8	
AGE	Female (%)	Male (%)
Under 25 years	10.1	3.0
26-35 years	12.9	3.3
36-45 years	7.4	4.6
46-55 years	5.6	5.7
56-65 years	6.2	8.7
Over 65 years	16.0	16.5
LENGTH OF STAY (DAYS)	Female (%)	Male (%)
1 - 2 days	15.3	9.3
3 - 7 days	22.8	17.9
8 - 14 days	10.3	7.2
15 -30 days	5.5	5.4
Over 30 days	4.3	2.0

〈Table 2〉 Overall Mean and Standard Deviation for Patients' Satisfaction Scores

Variables of Food	Mean	S.D.
Selection	5.6	1.2
Appearance	5.6	1.2
Cleanliness	6.0	1.1
Smell	5.4	1.2
Hot Temperature	5.6	1.3
Cold Temperature	5.5	1.2
Portion Size	5.6	1.2
Seasoning	4.9	1.5
Cooking	5.5	1.3
Flavor	5.3	1.4
Meal Time	5.7	1.2
Overall Quality	5.7	1.2
Food Service Personnel	6.0	0.9
Overall Service	6.0	1.0
Total Score	78.6	12.4

brought to the patients' room, food odors released from the dishes are easily noticed by patients, and are in sharp contrast to the prevailing room odors.

4) Temperature of Food Served Hot and Cold

Although there were no significant differences between satisfaction with the temperature of the hot foods (Mean 5.6) and the temperature of the cold foods (Mean 5.5), the rating of temperature of the hot foods was higher than that of temperature of the cold foods. Most of the hospitals used insulated dishes for hot foods, which keep the food hot during delivery. On open ended questioning, a few patients complained about melting ice cream. The greater the time lapse between the loading of the trays and the consumption of the food the greater likelihood of chilled items warming.

5) Size of Food Portions

Patients rated the size of food portions as being 'good' or 'slightly good', however, many patients

indicated portion size to be 'big' on open-ended questioning.

6) Seasoning of Meals

The mean score for seasoning of meals was 4.9, with a standard deviation of 1.5, which implies between 'Slightly Good' and 'Neutral'. This rather unfavorable response is probably due to the fact that most hospitals are using minimum seasoning for patients. Currently patients are not given salt and pepper on their trays except by request. Patients would like to be given individual salt and pepper on their trays.

7) Summary

The aspect of the meals which received the lowest ratings by patients was 'seasoning of meals' (indicated to be too bland on open-ended questioning). The highest rated items were: (a) attitude of personnel serving food (Mean 6.0), (b) overall quality of service (Mean 6.0), and (c) cleanliness of dishes and tray (Mean 6.0).

2. Effect of Demographic Variables and Food Habits on Total Satisfaction

An index called 'Satisfaction' was defined as the sum of the respondent's ratings on all 14 of the questionnaire items related to the meals eaten in hospital. Assuming equal weighting for all items, this variable reflected the 'overall satisfaction' with the meal. The variables included are selection, appearance, cleanliness, smell, temperature of hot food, temperature of cold food, portion size, seasoning, cooking, flavor, meal time, overall quality of food and drinks, quality of food service personnel and overall quality of service. The total possible score was 98.

Least squares analyses of variance were computed to compare the means of the 'Satisfaction' scores with demographic variables and food habits. The effect of: appetite, patient satisfaction with overall quality of service, length of stay in hospital on patient 'Satisfaction' scores were assessed using Pearson correlation analysis. The results are shown in Table 3 and 4. Patients' appetite was assessed by patient questionnaires.

1) Effect of Gender of Patients

The female patients tend to be less satisfied with the food than males, although the difference is not statistically significant in this analysis (See Table 3).

2) Effect of Age of Patients

The types of response to the questionnaire varied considerably with the age of the patient. Patients under 25 are significantly less satisfied with the food than are patients over 65 ($p<0.05$) (See Table 3). Glew (1968) has shown that the older patients are more satisfied with the food, suggesting that older people are generally tolerant and less critical of the quality of hospital food. It can be suggested that this is due to diminished taste and olfactory sensitivity which can decrease the ability to distinguish the sensory quality of foods (Schiffman, 1977).

3) Effect of Food Habits

A significantly higher rating for overall satisfaction was given by those patients who do not usually leave any food and by those patients who did not leave any hospital food at the time of survey. T-tests on both the total 'Satisfaction' scores and 'size' scores showed that patients who either usually leave hospital food or who left their meal at the time of survey gave significantly lower ratings for both 'satisfaction' and 'size' scores in comparison with those who did not. This was probably due to the fact that patients who are less satisfied with the meals served tend to leave their food. It confirms that the index of food waste is useful in finding out whether patients are satisfied with

〈Table 3〉 Comparison of Patients' satisfaction Scores with Demographic Variables and Food Habits

Gender	Male	Female	Probability (t-test)
Total Satisfaction	79.2	78.1	.213
Age	Under 25	Over 65	Probability
Total Satisfaction	72.7	82.3	0.03*
Food Habits	Food Left	No Food Left	Probability
Total Satisfaction	75.5	84.5	0.0001***

* P<.05 *** P<.001

〈Table 4〉 Pearson Correlations between patient satisfaction and patient characteristics

Variable	Total Satisfaction
Length of Stay	.1174
Appetite	.7989***
Overall quality of service	.7460***

*** P < .001

the food or not (See Table 3).

4) Effect of Length of Stay in Hospital

Since the length of time in a hospital may affect satisfaction with food quality, patients were asked to indicate the length of their hospitalization since admission. The majority had been hospitalized for less than a week, only 6.3 % patients had been there longer than one month.

The effect of length of stay on 'Satisfaction' scores was assessed by Pearson correlational analysis. Pearson correlation between both the reported length of stay at the hospital and the ratings of 'Satisfaction' score were not statistically significant for patients. However, small positive correlations were found between length of stay and ratings for 'Satisfaction' score (See Table 4). Thus this finding confirmed the fact cited by Sheatsley (1965) that familiarity with hospital food resulted in a slight positive effect on satisfaction with hospital food.

5) Effect of Appetite and Hospital Service

'Satisfaction' score was significantly correlated with the patients' appetite at the time ($r=0.7989$, $P<0.001$) (See Table 4). Also significantly correlated with the patients' opinion of the hospital food was their satisfaction with hospital service ($r = 0.7460$, $P<0.001$) (See Table 6.4). This confirms the findings of Sheatsley (1965) that the quality of food served in a hospital actually does correlate with the quality of its staff and other services.

3. Overall Satisfaction Scores for 12 Hospitals

The range in scores for the 12 hospitals was 72.6 to 82.9 with a mean of 78.6, and a standard deviation

of 12.4. This standard deviation indicated extensive variance in patient satisfaction among patients in the 12 hospitals in this study.

4. Patient Satisfaction and Influencing Variables

Significant correlation coefficients with patient satisfaction are presented in Table 5. Positive correlations indicated that as the score for the specific variable increased, the patient satisfaction index increased. A negative correlation indicated that as the specific variable score increased, the patient satisfaction decreased.

Human resource variables correlating significantly with satisfaction of patient included the full-time staff ratio, supervisory staff ratio and staff satisfaction with pay. Both the ratios of supervisory staff and full-time staff had negative correlation with the patient satisfaction index, which would not necessarily have been predicted. It is possible that job boredom of full-time and supervisory staff might lead to a deterioration of patient satisfaction.

〈Table 5〉 Significant Correlation Coefficients of Patient Satisfaction and Influencing Variables in 12 Hospital Food Service Systems

Variables	Correlation Coefficient
Full-time staff ratio	-0.5024*
Supervisory staff ratio	-0.4783*
Staff satisfaction with pay	0.4598*
Food & consumable cost	-0.5715*

* P< .05

As catering staff perceived more satisfaction with their pay, patient satisfaction increased.

An unexpected correlation was noted with food costs in that as food costs increased, patients satisfaction decreased. One possible cause for this reported by Ruf (1975) is that increases in food costs result from an increased use of ready-to-serve foods which might have poorer quality than fresh or from inappropriate methods of food reconstitution.

Ⅳ. CONCLUSIONS

Patient satisfaction with the quality of hospital food and food-related service was evaluated by patient questionnaires. A multiple choice questionnaire was developed specifically to suit the aims of this research. In the regression analysis none of the influencing variables explained the component of patient satisfaction at the level P<0.05. The 'patient satisfaction' appears to be explained by patients' own demographic and emotional variables rather than by objective catering system factors.

Patients seem to be generally satisfied with the food served, although seasoning of food received the lowest score. Currently salt and pepper are not given to patients on their tray. Patients want to be given individual salt and pepper with every meal.

Human resource variables significantly influencing patient satisfaction were the full-time staff ratio, supervisory staff ratio, and staff satisfaction with pay. A negative significant relationship existed between the ratios of full-time and supervisory staff and patient satisfaction, whereas a significant positive relationship was evidenced between patient satisfaction and staff satisfaction with pay. A system variable correlating significantly with patient satisfaction was the food and

consumables costs. As food costs increased, the satisfaction of patients decreased. This is not what would be predicted, and warrants further investigation.

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