Determining the complexity of patient satisfaction with foodservices

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ABSTRACT

Objectives (a) To identify the psychological dimensions representing how patients perceive the quality of foodservice; (b) to identify which dimensions best explain variation in the satisfaction ratings of patients; and (c) to identify subgroups based on individual characteristics of patients and contextual factors.
Design Survey questionnaire.
Setting Patients of a specialized acute-care urban hospital in Canada.
Subjects One hundred thirty-two hospitalized patients (minimum stay of 5 days) who had not received nutrition counseling. Subjects excluded from the study were patients with notable physical, cognitive, or emotional limitations; patients receiving enteral or parenteral nutrition; and patients from long-term-care units.
Main outcome measure Overall satisfaction with meals and with foodservices, and satisfaction with 26 specific foodservice attributes.
Statistical analysis Factor analysis followed by orthogonal rotation (varimax), stepwise multiple regression analysis, and one-way analysis of variance.
Results Seven dimensions represented patients' perceptions of foodservice: food quality, service timeliness, service reliability, food temperature, attitude of the staff who deliver menus, attitude of the staff who serve meals, and customization. Food quality was the best predictor of patient satisfaction with meals and foodservice, followed by customization and attitude of the staff who deliver menus. Individual characteristics (gender, age, education, perception of degree of control over health, and belief that food influences one's health status) and contextual factors (normal or therapeutic diet, time spent at rest, and appetite) influenced patient satisfaction.
Implications The results emphasize the need for a comprehensive and differentiated approach in measuring and monitoring patient satisfaction with foodservices. *J Am Diet Assoc. 1994; 94:394-398,401.*

To survive in the competitive jungle of the health care industry of the 1990s, administrative dietitians have been forced to focus their concern on patient satisfaction. During the past decade, pressures to control costs and improve the quality of hospital foodservice have increased simultaneously and somewhat impetuously. As a result, management has called on the creativity of dietitians to improve patient satisfaction, often with limited resources. The only way to meet this challenge is by pinpointing aspects of foodservice that are in most urgent need of improved satisfaction and by identifying precisely which effort will present the best payoff.

In this article, we report results of a field study conducted among hospitalized patients of an acute-care urban hospital in Canada. The goal of the research was threefold: first, to identify the psychological dimensions representing how patients perceive the quality of foodservice; second, to identify which dimensions best explain variation in satisfaction ratings for meals and foodservice; and third, to identify subgroups based on individual characteristics of patients and contextual factors.

CURRENT PRACTICE AND PAST RESEARCH

For many years, health care managers have recognized patient satisfaction as an important objective (1-6). In most institutions, patient-oriented quality-control programs have been implemented and comment cards, or patient satisfaction surveys, have been routinely administered. In general, these satisfaction surveys included only a few questions concerning foodservice. Patients were asked about their satisfaction with menu variety, food quality, food temperature, and portion size (7,8).

Obviously, food is not all that matters to a client of a foodservice, be it a fine-dining restaurant, a fast-food outlet, or a hospital. In evaluating a foodservice, the satisfaction of basic human needs such as recognition, reassurance, and status may be crucial. Yet, inquiries about patient satisfaction with interpersonal aspects of foodservice or with the professional component of dietetics services are often absent on such surveys. These "soft" attributes are difficult to quantify and, as a result, they are ignored or not specified in detail in general satisfaction surveys. Administrative dietitians who do not have such information cannot, of course, take it into account in their attempts to improve patient satisfaction.

Most research related specifically to patient satisfaction with dietetics services has focused on sociodemographic variables (9-12). In general, women are more satisfied with foodservices than men (10,12), and older respondents are more satisfied than their younger counterparts (9,10,12). Income, education, and occupation influence satisfaction with foodservices, but the effects reported in the literature are not consistent (9-12).

A limited number of contextual factors are mentioned in the literature. The effect of a patient's emotional state, such as anxiety

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and depression, on satisfaction with foodservices has been addressed by Deluco and Cremer (10). The influence of past experience with the hospital (10), the length of stay (9,10), and the type of diet (9) have also been investigated. Deluco and Cremer (10) reported no effects or weak effects of past experience and length of stay on patient satisfaction. Somewhat surprisingly, patients consuming a therapeutic diet did not express different satisfaction judgments compared with those consuming a normal diet (9). However, these studies focused almost exclusively on the tangible aspects of meals.

A few studies (12,13) have tried to identify other dimensions of foodservice and dietetics services. For example, Schwartz (13) developed a measurement tool designed to tap the various dimensions of ambulatory nutrition care, and Johnston and Upton (12) used a similar approach with clients and cafeteria personnel in a hospital.

MATERIALS AND METHODS

Description of the Sample

A study was conducted among patients of a specialized acute-care urban hospital in Canada for a 6-week period. After a minimum stay of 5 days, all eligible patients were invited to participate in the study. A screening procedure was applied to exclude patients who had notable physical, cognitive, or emotional limitations and those receiving liquid diets or enteral or parenteral nutrition during most of their hospital stay. Patients from long-term-care units were also excluded. Of 506 eligible patients, 248 (49%) agreed to participate in the study, and 208 questionnaires were completed.

Patients who had received nutrition counseling during their hospital stay were excluded from the analysis, because professional services could have had an influence on their satisfaction with foodservices. χ^2 Tests were conducted on 17 control variables to compare the group of patients who had received nutrition counseling with the group of patients who had not. Three significant differences were found between the two groups: type of diet, perceived influence of food on health status, and self-reported appetite during hospitalization. (Nonsignificant differences included variables such as age, gender, education, diagnosis, admission procedure, and number of days spent at rest.) Consequently, this study is about 132 respondents who had not received nutrition counseling from a dietitian during their hospital stay. Sociodemographic and medical characteristics of the 132 respondents are presented in Table 1.

Table 1
Sociodemographic and medical characteristics of the patient sample (n = 132)

Characteristics	No.	%
Language		
French	116	87.9
English	2	1.5
Other	5	3.8
Missing data	9	6.8
Gender		
Men	53	40.2
Women	71	53.8
Missing data	8	6.0
Age (y)		
16-30	16	12.1
31-50	39	29.5
51-70	52	39.4
71 and older	17	12.9
Missing data	8	6.1
Education		
University	43	32.6
High school	55	41.7
Primary school	21	15.9
Other	3	2.3
Missing data	10	7.6
Medical department at admission (according to diagnosis)		
Surgery	20	15.2
Cardiology	17	12.9
Gynecology	17	12.9
Internal medicine	16	12.1
Pneumology and hematology	13	9.8
Urology, gastrology, and endocrinology	12	9.1
Neurology	10	7.6
Other	27	20.4
Type of diet		
Normal	88	66.7
Fat controlled	11	25.0
Sodium restricted	9	20.4
Carbohydrate restricted and diabetic	8	18.2
Fiber restricted	7	15.9
Hyperenergetic, liquid restricted	6	18.2
Bland	3	2.3
Occupation		
Unemployed	7	5.3
Homemaker	7	5.3
Blue-collar	21	15.9
White-collar	41	31.1
Retired	20	15.1
Not provided by patient	36	27.3

Measures

Pretest The questionnaire was pretested among patients of the hospital surveyed. Respondents were chosen according to the same eligibility criteria as those of the main study. Modifications in the wording of questions and in the instrument format were made as a result of the respondents' comments. Four versions were tested to develop a questionnaire that was adequate in terms of research and easy for the hospitalized patient to complete.

Main study After giving informed consent, patients were allowed 24 hours to complete the questionnaire, which took, on average, 15 minutes to fill out. Respondents were asked to indicate overall satisfaction (very dissatisfied to very satisfied) and how they felt (delighted to terrible) about the quality of meals. A new variable was created based on the mean of these two highly correlated items (r=.82). Patients were asked to express their overall satisfaction with foodservices (very dissatisfied to very satisfied) so we could identify every aspect patients have in mind when they make a global judgment about the foodservice they receive. Respondents indicated their answers by selecting one of seven faces with

Table 2
Correlations between each foodservice attribute and each dimension of foodservice[a]

Foodservice attributes	Dimensions of foodservice						
	Food quality	Meal service timeliness	Meal service reliability	Cold food temperature	Attitude of the staff who deliver menus	Customization	Attitude of the staff who serve meals
Flavor of meals	0.8314[b]	0.0196	0.1864	−0.0726	0.1099	0.2683	−0.0387
Presentation of meals on tray	0.6961	−0.0261	0.0536	0.0839	0.0066	0.3718	0.3611
Freshness of meals	0.6841	0.3256	0.0890	−0.0481	0.1588	0.4315	0.1528
Temperature of hot meals	0.6482	0.2653	0.2471	0.3751	0.3078	0.0778	−0.0979
Time allowed for eating	0.1056	0.8792	0.0207	0.1146	0.1188	0.1136	0.2540
Time needed to pick up the tray	0.1242	0.8564	0.1211	0.1000	0.1560	0.1529	0.2112
Punctuality of foodservice	0.1078	0.1137	0.8690	0.0430	0.0693	0.8375	0.2077
Service hours	0.2014	0.0097	0.8685	0.1188	−0.0547	0.1113	0.1439
Cold food temperature	0.0334	0.2918	0.3274	0.5604	0.1006	0.0750	−0.1493
Warmth of staff who deliver menus	−0.0232	0.1249	0.0706	−0.1110	0.8693	0.2207	0.0799
Efficiency of staff who deliver menus	0.2365	0.1019	−0.0624	0.2227	0.8492	0.0619	0.1476
Attentiveness of staff who deliver menus	0.0494	−0.1126	−0.0010	0.1038	0.8204	0.1712	0.0131
Help from staff who deliver menus	0.2313	0.1329	−0.0022	0.2716	0.7818	0.0197	0.2661
Knowledge of staff who deliver menus	0.1601	0.1265	−0.0198	0.3371	0.7467	0.1293	0.2978
Courtesy of staff who deliver menus	−0.0428	0.2145	0.1319	−0.2834	0.7456	0.1500	0.1878
Possibility to choose appealing meal	0.3522	−0.0581	0.0517	−0.0217	0.1607	0.8167	−0.0455
Possibility to choose healthful meal	0.3633	0.0358	0.0468	0.0386	0.1015	0.7903	0.0658
Clarity of menu presentation	−0.0558	0.3144	0.0882	0.0788	0.0671	0.7677	0.0631
Portion size	0.2227	−0.0059	0.0348	0.1768	0.0934	0.6738	0.1452
Conformity with menu choices	0.1109	0.2652	0.1106	−0.0215	0.3739	0.6139	−0.2103
Instruction about menu choices	−0.0964	0.1422	−0.0485	0.5422	0.3458	0.4423	0.3417
Flexibility in service hours	0.1776	−0.2586	0.1445	0.4090	0.1342	0.4270	0.4073
Courtesy of staff who serve meals	0.0140	0.1075	0.1677	−0.0432	0.1548	0.0170	0.7958
Warmth of staff who serve meals	0.0986	0.3400	0.2158	−0.0070	0.2639	0.0157	0.6707
Attentiveness of staff who serve meals	0.0358	0.3322	0.0820	0.0257	0.4534	0.0098	0.5326
Information about procedures	0.2544	0.3041	−0.0136	0.2781	0.3204	0.1819	0.4540
Percentage of variance[c]	8.8	5.2	4.7	4.1	34.5	12.0	6.0

[a]Obtained by factor analysis with orthogonal rotation (varimax).
[b]Underlined numbers identify attributes that are highly correlated with a given dimension.
[c]Amount of variance explained by each dimenson (n = 132).

Table 3
Results of two stepwise multiple regression analyses using overall satisfaction with meals and with foodservice as the dependent variable and dimensions of foodservice as the independent variables

Dimensions of foodservice	Satisfaction with meals[a]			Satisfaction with foodservices[b]		
	Standardized β coefficient	Partial *r*	% of R^2[c]	Standardized β coefficient	Partial *r*	% of R^2[c]
Food quality	0.617***	0.771	50.7	0.536***	0.639	49.6
Customization	0.446***	0.659	26.0	0.446***	0.569	34.2
Attitude of the staff who deliver menus	0.266***	0.456	7.4	0.331***	0.431	16.2
Meal service timeliness	0.220***	0.375	10.2	NS	...	...
Meal service reliability	0.214***	0.374	5.7	NS	...	...
Attitude of the staff who serve meals	NS[d]	...	...	NS	...	...
Cold food temperature	NS	...	...	NS	...	...

[a]F value = 49.078, *df* (5,85), constant = 6.050; R^2adjusted = 0.728.
[b]F value = 40.695, *df* (3,87), constant = 6.244; R^2adjusted = 0.570.
[c]Proportion of the explained variance.
[d]NS = not significant.
***$P<.001$ (n = 132).

expressions that ranged from smiling widely to frowning deeply (14).

In addition to this set of overall measures, patients were asked to express their level of satisfaction with 26 specific foodservice attributes. These attributes were measured with seven-point face scales (one = very dissatisfied and seven = very satisfied) and with five-point semantic differential scales. The pool of items was developed from an original selection drawn from current literature and practice, as well as from models originally developed for the area of services marketing (15,16). Such models, which identify generic dimensions that encompass the *technical* and *interpersonal* aspects of a service, have been successfully used for a whole range of services (eg, commodity services, medical clinics, and other professional services) but not for foodservices (3,17,18). Care was taken to ensure that all technical and interpersonal aspects of foodservice were included in the questionnaire.

Individual characteristics of patients consisted of the usual sociodemographic descriptors such as gender, age, occupation, and education. They were complemented by a series of single-item scales measuring (a) respondents' perceptions of their general health status and the degree of control they have over it, (b) the perceived influence of food on health status, and (c) the perceived influence of food on medical treatment.

Contextual factors included type of diet and the presence of single or multiple diet restrictions. They also included medical diagnosis at admission, presence of a single or multiple diagnosis, admission procedure, patients' perception of the time they had spent at rest, and patients' appetite level during hospitalization. Individual characteristics and contextual factors were either self-assessed or taken from medical records. All analyses were done with the Statistical Package for the Social Sciences software for the Macintosh (version 4.01, 1989, SPSS, Chicago, Ill).

RESULTS

Underlying Dimensions of Patient Satisfaction

Data collected on patient satisfaction with 26 foodservice attributes were analyzed by factor analysis followed by orthogonal rotation (varimax). This statistical technique allows the foodservice attributes that are highly correlated to be grouped under a limited number of dimensions. These dimensions represent the underlying psychological dimensions of a concept, in other words, how patients perceive the quality of foodservice.

Table 2 presents the correlations (or factor loadings) between each foodservice attribute and each dimension. Each foodservice attribute is paired with the dimension with which it is the most highly correlated (see the underlined numbers beneath each column). For instance, under the first column of Table 2, four attributes—flavor of meals, presentation of meals on tray, freshness of meals, and temperature of hot meals—belong to the same dimension. A label is given to the dimension according to the interpretation of the foodservice attributes.

In our study, the 26 foodservice attributes grouped under seven dimensions as a result of factor analysis. Four dimensions related to the technical aspect and three dimensions referred to the interpersonal aspect of foodservice.

More precisely, the technical aspect of foodservice was represented by the following dimensions:

- Food quality: flavor of meals, presentation of meals on tray, freshness of meals, and temperature of hot meals;
- Meal service timeliness: time allowed for eating and time needed to pick up the tray;
- Meal service reliability: punctuality of foodservice and service hours;
- Food temperature: cold food temperature emerged on a dimension of its own.

The interpersonal aspect of foodservice was represented by the following dimensions:

- Attitude of the staff who deliver menus: interpersonal qualities (warmth, attentiveness, and courtesy) and task-related qualities (efficiency, help, and knowledge);
- Customization: possibility to choose appealing meals, possibility to choose healthful meals, clarity of menu presentation, portion size, conformity with menu choices, instruction about menu choices, and flexibility in service hours;
- Attitude of the staff who serve meals: interpersonal qualities (warmth, attentiveness, and courtesy) and information about procedures.

The percentage of common variance explained by each dimension is presented in Table 2. Attitude of the staff who deliver menus emerged as the most salient dimension (34.5%), followed by customization (12%), and food quality (8.8%). The seven dimensions represented 75% of the total variance.

Predicting Patient Satisfaction

Patients' perceptions of foodservice encompassed a complex set of dimensions. Did all of these dimensions have a notable impact

Table 4
Effect of individual characteristics and contextual factors on patient satisfaction with meals and foodservices and on dimensions of foodservice[a]

Individual characteristics and contextual factors	Satisfaction		Dimensions of foodservice						
	With meals	With food services	Food quality	Meal service timeliness	Meal service reliability	Temperature of cold food	Attitude of the staff who deliver menus	Customization	Attitude of the staff who serve meals
Individual characteristics									
Gender									
Men (n = 52)	5.96	6.13	5.86	6.37	6.29	5.88	4.94	5.95	4.64
Women (n = 70)	6.06	6.26	6.02	6.31	6.46	6.04	4.94	6.24****	4.64
Age									
<50 y (n = 54)	5.87	5.98	5.83	6.34	6.36	5.59	4.85	5.98	4.56
>50 y (n = 68)	6.15	6.38*	6.07	6.34	6.40	6.28***	5.01	6.21	4.72
Education									
University (n = 43)	5.88	6.05	5.84	6.22	6.23	5.79	4.80	6.04	4.45
High school (n = 54)	6.08	6.26	5.98	6.34	6.45	6.07	5.08	6.15	4.76
Primary school (n = 27)	6.00	6.32	6.02	6.56	6.56****	5.96	5.00	6.18	4.81****
Occupation									
Blue-collar (n = 21)	6.45	6.45	6.26	6.62	6.64	6.35	5.08	6.01	4.84
White-collar (n = 41)	6.08	6.20	5.92	6.36	6.37	5.88	4.90	6.29	4.63
Retired (n = 20)	6.17	6.44	6.22	6.08	6.28	6.00	4.98	6.28	4.51
Other (n = 14)	5.81	6.00	5.86	6.11	6.43	6.23	4.43	6.02	4.71
Degree of control over health status									
Inferior (n = 17)	5.50	5.93	5.40	6.20	6.00	5.94	4.92	5.78	4.32
Average (n = 52)	5.88	6.10	5.96	6.18	6.36	5.87	4.75	6.07	4.57
Superior (n = 51)	6.33*	6.35	6.20*	6.53	6.53**	6.08	5.09	6.24	4.82*
Influence of food on health status									
Inferior (n = 36)	5.89	6.09	5.93	6.55	6.47	6.14	4.89	6.12	4.63
Average (n = 15)	5.43	5.93	5.52	5.62	6.04	5.47	4.83	5.88	4.38
Superior (n = 69)	6.20*	6.31	6.07	6.36**	6.40****	5.99	4.96	6.14	4.69
Influence of food on medical treatment									
Inferior (n = 36)	5.81	5.92	5.79	6.50	6.38	5.84	4.88	6.09	4.63
Average (n = 19)	6.00	6.30	5.95	6.25	6.25	6.19	4.97	6.01	4.62
Superior (n = 60)	6.14	6.33****	6.07	6.27	6.46	5.97	4.95	6.13	4.65
Contextual factors									
Diet									
Normal (n = 88)	6.09	6.23	6.00	6.49	6.44	5.97	4.98	6.20	4.65
Therapeutic (n = 44)	5.84	6.15	5.92	6.06**	6.25****	5.97	4.82	5.96	4.62
Appetite									
Inferior or average (n = 40)	5.57	5.88	5.49	6.35	6.24	5.81	4.79	5.94	4.46
Superior (n = 68)	6.22**	6.34*	6.21***	6.33	6.47****	5.99	4.97	6.19	4.76*
Time spent at rest									
0-50% (n = 67)	5.99	6.14	5.96	6.36	6.36	5.76	4.86	6.09	4.56
51-100% (n = 41)	6.31	6.41****	6.15	6.41	6.49	6.38**	4.94	6.24	4.79
Past experience									
Yes (n = 54)	6.06	6.36	6.01	6.32	6.34	5.94	4.99	6.26	4.71
No (n = 68)	5.94	6.06****	5.90	6.36	6.43	5.96	4.92	5.99****	4.60
Multiple medical diagnosis									
Single (n = 65)	6.01	6.29	6.12	6.35	6.38	5.84	4.91	6.22	4.71
Multi (n = 58)	5.99	6.12	5.80*	6.35	6.40	6.16	4.93	6.00	4.60

[a]The values represent the mean scores obtained by *t* tests and one-way analysis of variance.
[b]Measured on five-point scales. Other dimensions measured on seven-point scales.
*$P<.05$. **$P<.01$. ***$P<.001$. ****$P<.10$.

Continuing education questionnaire for RDs and DTRs

After reading the continuing education article, "Capturing the complexity of patient satisfaction with foodservice," please answer the following questions by indicating your responses on the continuing education questionnaire form located on the next page.

This activity has been approved for 1 hour of continuing education credit for registered dietitians and dietetic technicians, registered, by the Commission on Dietetic Registration. Answers to the continuing education questionnaire can be found on page 479.

ADA members should cut out the completed form and return it, with a check for $12 each (nonmembers $16) to cover processing, to: The American Dietetic Association, PO Box 97215, Chicago, IL 60678-7215.

Questionnaires must be returned within 1 year of their appearance in the *Journal* in order to be eligible for credit. Notification will not be sent if hour is approved.

ITEMS 1 TO 9

For items 1 to 9, select the one *best* answer or completion to each question or incomplete statement.

1. An objective of this study was to identify:
A. Differences in foodservice quality ratings of patients receiving nutrition counseling
B. Psychological dimensions representing patient perception of foodservice quality
C. Individual characteristics of patients in acute-care hospitals in Canada
D. Variation in quality of foodservice satisfaction ratings of long-term-care patients

2. Which of the following was not a description of the subjects?
A. Stayed in an urban, acute-care hospital
B. Lacked nutrition education
C. Received enteral nutrition
D. Had a minimum stay of 5 days

3. Which of the following dimensions was the best predictor of patient satisfaction?
A. Customization
B. Food quality
C. Attitude of staff
D. Service reliability

4. Which of the following variables was significantly different when comparing groups of patients who received nutrition counseling with the group of patients who had no education?
A. Age
B. Education
C. Diagnosis
D. Type of diet

5. Which dimension had the most salient percentage of variance?
A. Customization
B. Food quality
C. Attitude of staff who delivers meals
D. Temperature of cold food

6. Food quality, the most critical dimension in explaining patients' overall satisfaction with meals, accounted for how much of the explained variance?
A. 10.2%
B. 26.0%
C. 49.6%
D. 50.7%

7. How satisfied with foodservice were patients older than 50 years compared with patients who were younger?
A. Less satisfied
B. More satisfied
C. No different
D. Less satisfied, but not significantly

8. The results of this study indicate that patient perception of foodservice and meals was:
A. Interwoven with social, physical, and emotional aspects of the environment
B. Influenced by a mass marketing approach to satisfaction
C. Not differentiated by subgroups of clientele
D. Sensitive to the time of stay and not age

9. Which of the following dimensions related to the interpersonal aspect of foodservice?
A. Customization
B. Reliability
C. Timeliness
D. Food quality

ITEMS 10 TO 13

For items 10 to 13, refer to Table 2. Match a dimension of foodservice with a foodservice attribute. Dimensions may be used more than once.

A. Meal service reliability
B. Attitude to staff
C. Food quality
D. Customization

10. Portion size
11. Courtesy of staff who serves meals
12. Service hours
13. Flexibility in service hours

ITEMS 14 TO 19

For items 14 to 19, mark **A** for statements that are true, and **B** for statements that are false.

14. The 132 respondents had received nutrition counseling.
15. Respondents indicated their overall satisfaction with foodservice quality by selecting one of seven faces.
16. There was a high correlation between overall satisfaction and meal quality.
17. A five-point semantic differential scale was used to measure foodservice attributes.
18. Education was a contextual factor.
19. A model that identifies the generic dimensions that encompass technical and interpersonal aspects of service is commonly used in the foodservice arena.

ITEMS 20 TO 24

For items 20 to 24, match the author(s) with the statement from the literature. There is only one correct answer for each item.

A. Schwartz
B. Johnson and Upton
C. Deluco and Cremer

20. Effect of patient's emotional state on satisfaction with foodservice.
21. Reported weak effects of patient's past experience on satisfaction with foodservice.
22. Developed a measurement tool designed to evaluate various dimensions of ambulatory nutrition care.
23. Patients on a therapeutic diet did not differ in satisfaction judgment compared with patients on a normal diet.
24. Studies focused on the tangible aspects of the meal.

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After reading each statement, please select the *best* answer(s) or completion(s):

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3.	A	B	C	D
4.	A	B	C	D
5.	A	B	C	D
6.	A	B	C	D
7.	A	B	C	D
8.	A	B	C	D
9.	A	B	C	D
10.	A	B	C	D
11.	A	B	C	D
12.	A	B	C	D
13.	A	B	C	D
14.	A	B		
15.	A	B		
16.	A	B		
17.	A	B		
18.	A	B		
19.	A	B		
20.	A	B	C	
21.	A	B	C	
22.	A	B	C	
23.	A	B	C	
24.	A	B	C	

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Order No. _____
Customer No. 33807

on the global satisfaction expressed? To answer this critical question, we conducted two stepwise regression analyses to predict patients' overall satisfaction with meals and with foodservices. The results are presented in Table 3.

As expected, food quality was the most critical dimension in explaining the overall satisfaction of patients with meals; it accounted for 50% of the explained variance in satisfaction ratings. The results demonstrate, however, that satisfaction with meals is more than a matter of food. As shown in Table 3, patient satisfaction with meals is significantly dependent on, in decreasing order, satisfaction with food quality, customization, attitude of the staff who deliver menus, meal service timeliness, and meal service reliability. A similar pattern was found for the overall satisfaction of patients with foodservices.

Effect of Individual Characteristics and Contextual Factors

A series of one-way analyses of variance were conducted to test the effect of individual characteristics and contextual factors on overall satisfaction with meals and foodservice and with the seven dimensions of foodservice. The results are presented in Table 4.

As reported in the literature (7,10,11,13), patients older than 50 years of age tended to be more satisfied with foodservice in general than their younger counterparts. The only significant difference between men and women was that women expressed more favorable ratings for the customization dimension. Lower education was significantly associated with higher satisfaction ratings for meal service reliability and attitude of the staff who serve meals. Occupation did not produce significant differences. Patients who perceived themselves as generally having good control over their health, and those who believed that food plays an important role in their health status, were more satisfied with various dimensions.

In accord with previous findings (7,9), no difference was found between patients who consumed a normal diet and those who consumed a therapeutic diet for overall satisfaction ratings with meals and foodservice. However, patients who consumed a normal diet were more satisfied with meal service timeliness and meal service reliability. Satisfaction ratings did not differ between patients with a single medical diagnosis and those with multiple diagnoses. Patients who spent most of their time at rest expressed higher satisfaction than the more active patients. Most likely this reflected the increased attention these patients received. Significant differences were observed with overall satisfaction with foodservices and with the dimension cold food temperature. Patients who had an appetite "as good as" or "better than usual" during their hospital stay were more satisfied with meals and with foodservices, as well as with the dimension of food quality, meal service reliability, and attitude of the staff who serve meals.

APPLICATIONS

Traditionally, hospital managers and administrative dietitians have applied a mass marketing approach to patient satisfaction. In their concern about maintaining a global score of satisfaction, they may have neglected to collect information that could enable them to fine-tune specific product or service attributes according to the precise needs of different types of patients or of different situations.

The results of this study enhance the multidimensional aspect of patient satisfaction with foodservices. As our results show, patients' perceptions of foodservice and meals are interwoven with social, physical, and emotional aspects of the environment. Our findings also highlight the need to pinpoint the most critical areas for improvement and the subgroups of patients who are in most urgent need of increased satisfaction. Some attributes of foodservice influence satisfaction more than others, and subgroups of patients based on various characteristics or contexts are more sensitive to different aspects of foodservice.

Valid, precise, and reliable data about satisfaction are necessary to provide administrative dietitians with the strategic and tactical information they need to "take the pulse" of patients and to build flexibility and responsiveness into quality management programs (19). A comprehensive and differentiated approach to the management of patient satisfaction is essential. *Comprehensive* management of patient satisfaction encompasses the whole set of dimensions that represent foodservice in a patient's mind. Furthermore, patient satisfaction with each of these dimensions should be translated into operational standards to monitor and improve service quality. A *differentiated* approach requires more than the precise identification of foodservice attributes that would most benefit from investing in improved patient satisfaction. The measurement system must provide information on the level of satisfaction and its determinants for each significant subgroup of patients in a hospital. Only then can effective resource-planning decisions and constructive action plans be made that will maximize the return on investing in patient satisfaction.

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