

A COMPARISON OF THE PERCEPTIONS OF THE DETERMINANTS  
OF QUALITY FOOD BETWEEN  
ADMINISTRATIVE DIETITIANS AND  
FOOD PRODUCTION AND SERVICE MANAGERS  
IN THE VETERANS ADMINISTRATION

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### Dedication

This paper is dedicated to my parents, Mr. and Mrs. Harry Evanoff, and to Mr. and Mrs. Donald F. Dickerson for their support, encouragement, and love.

## TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	vi
LIST OF FIGURES . . . . .	vii
INTRODUCTION . . . . .	1
PROBLEM STATEMENT . . . . .	3
HISTORICAL PERSPECTIVE . . . . .	4
HYPOTHESIS . . . . .	8
METHODS AND PROCEDURES . . . . .	9
DEFINITION OF TERMS . . . . .	12
RESULTS AND DISCUSSION . . . . .	14
SUMMARY AND CONCLUSIONS . . . . .	32
IMPLICATIONS FOR FURTHER STUDY . . . . .	36
APPENDIXES	
A. Questionnaire . . . . .	38
B. Cover Letter . . . . .	43
REFERENCES . . . . .	45

## LIST OF TABLES

Table	Page
1. Identification of Respondents . . . . .	15
2. Factor I: Quality Food Preparation Components . . . . .	18
3. Factor II: Managerial Disciplinary Standards . . . . .	19
4. Factor III: Hygienic Factors, Extrinsic Job Conditions . . . . .	20
5. Factor IV: Motivational Factors, Intrinsic Job Conditions . . . . .	21
6. Factor V: Traditional versus Modern Concepts of Foodservice Operations . . . . .	22
7. Factor VI: Subjective Judgements Concerning Quality Food Determinants . . . . .	23
8. Factor VII: Esthetics of Foodservice . . . . .	24
9. Group Means and Standard Deviations of Factor Scores in Standard Score Format for Administrative Dietitians and for Non-Dietitian Managers . . . . .	25
10. Summary Table of Stepwise Discriminant Analysis . . . . .	27
11. Frequency Distribution of the Rank Ordering of Five Objectives for a Dietetic Service by Administrative Dietitians and Non-Dietitian Foodservice Managers . . . . .	30

## LIST OF FIGURES

Figure	Page
1. Schema of Application of the Scree Test . . . . .	16

## INTRODUCTION

The food production and service function of the Dietetic Service of the nation's Veterans Administration Medical Centers is concentrated in the Program Management and Planning Section. The individuals responsible for the management of the Program Management and Planning Section are the Program Management and Planning Section Chief and the Chief, Food Production and Service. The Program Management and Planning Section Chief is the immediate supervisor of the Chief, Food Production and Service. The primary objective of these two individuals is "to provide nutritionally adequate and acceptable food for all patients, members, restorees, and non-patients within established ration and budget allowances" (Program Guide G-8, 1968, p. 28). The ultimate goal is the preparation and service of quality food at the lowest possible cost.

Although the two chiefs typically have different backgrounds in education and experience, the position descriptions require both individuals to assume a management role in the Program Management and Planning Section of the Dietetic Service. The term "management" in this context is defined as: "the process of achieving desired results by the effective use of human efforts and facilitating resources" (Committee, 1974).

The Chief, Program Management and Planning is responsible for the control of food and supply costs and for development and enforcement of section program policies and departmental procedures. This position

is occupied by a dietitian. The supervision exercised in this position is that which is necessary to insure consistency with overall departmental policies and objectives.

The Chief, Food Production and Service is required to have experience as a cook and to be knowledgeable in food preparation and handling. Specifically, the position requires knowledge of institutional food management and two years supervisory experience. Normally, the occupant of this position is not a dietitian.

The purpose of this study was to determine if perceptual differences exist between administrative dietitians and non-dietitian food-service managers in the determinants of quality food preparation and service. The need for the study evolves from the fact that there are two separate management positions, in the Veterans Administration system, intimately involved with the attainment of the common goal of quality food. Success in achieving this goal would be furthered if the occupants of the two positions hold similar perceptions concerning the process for accomplishing the goal. At minimum, it is essential that the two managers are aware of differences in those perceptions.



### Problem Statement

The specific problem investigated in this study was: What perceptual differences exist between Program Management and Planning Section Chiefs (administrative dietitians) and Food Production and Service Chiefs (non-dietitians) of the Veterans Administration Medical Centers with regard to the determinants of quality food production and service? A mailed questionnaire was used as the instrument for measuring these differences.

### Historical Perspective

Few studies have been reported contrasting values of professionals and non-professionals in hospital dietetic services (Calbeck, Vaden, & Vaden, 1979). Foodservice managers and educators have accepted findings from studies in the field of general personnel management and industrial psychology, reporting on mass production studies. Limited behavioral research has been done in the foodservice industry (Hopkins, Vaden, & Vaden, 1979). No study comparing the perceptual differences of administrative dietitians and non-dietitian foodservice managers has been reported.

The management and supervision of dietary personnel is a major determinant of the quality of the food produced and served in a dietetic service. Employee performance essentially determines the success or failure of a foodservice operation (Hopkins et al., 1979).

The quality and duration of management training of administrative dietitians and non-dietitian foodservice managers has been a primary influence in how effective the individual will be as a manager. The existence of problems in the management training of administrative dietitians and non-dietitian foodservice managers has been suggested in the literature (Myrtle, 1978; Montag, 1974; Smith, 1975; Powers, 1975; Scott, 1978).

The administrative dietitian has been defined as a professional person with expertise to utilize effectively the human and facilitating resources of a foodservice system to provide nutritionally

adequate, quality food (Position Paper on the Administrative Dietitian, 1975). The traditional pattern for the preparation of the professional dietitian has been the attainment of a baccalaureate degree in foods and nutrition plus an internship at an accredited hospital, or a combination of clinical and didactic experiences through a Coordinated Undergraduate Program which culminates in a baccalaureate degree (Directory of Dietetic Programs, 1980).

Need for strengthening the behavioral sciences content of the curriculum of dietetic education has been noted in the last decade (Montag, 1974). A lack of competence and interest in management exhibited by administrative dietitians was cited in a study conducted by Myrtle (1978). In that study, job satisfactions of administrative dietitians were surveyed. The management of dietetic personnel was most frequently mentioned by administrative dietitians as something dietitians disliked about their jobs and one of the most difficult problems to be faced. Myrtle concluded that management may be an uncomfortable and possibly undesirable role for most administrative dietitians. Myrtle questioned whether administrative dietitians are properly prepared for administrative roles. Montag (1974) noted that dietitians need to know more about people. Training and education in the behavioral sciences were suggested by that author as required to improve the effectiveness of an administrative dietitian as a manager.

The traditional pattern for the preparation of the foodservice manager has usually been by the advancement through the ranks, starting in positions as cooks or dietary aids or even lower ranks (Powers, 1974). Some foodservice managers are the product of agricultural, community,

or technical colleges (Clemence, 1978).

Smith (1975) stated that most foodservice managers possess the technical knowledge needed to perform their jobs because they have moved up from rank and file positions. Smith noted that managers' administrative competence was a skill needing to be developed. Human relations, communications, and personnel functions were identified by Smith (1975) to be the most critical areas of the foodservice manager's job; yet, Smith noted, few are properly trained in those areas.

Powers (1975) stressed the need for further education of the non-dietitian foodservice manager, stating:

While those individuals (foodservice managers) have great ability, they commonly lack academic preparation which limits their ability to develop fully the supervisory and middle management roles they fulfill . . . . This requires that foodservice supervisors understand human relations and develop their own interpersonal skills. (p. 239)

Powers (1975) emphasized that:

Food production and planning can no longer be viewed as some high level extension of cooking skill. The food production work force should maintain quality standards within increasingly stringent cost, legal and social parameters. (p. 238)

Current literature has suggested that administrative dietitians are competing for top level administrative positions which are presently going to non-dietitian foodservice managers who possess experience and practical knowledge in management, but not necessarily the academic training (Scott, 1978). In the instance where the management duties are made the responsibility of the non-dietitian foodservice manager, rather than the administrative dietitian, there is a tendency for the non-dietitian foodservice manager to have also the final responsibility

for assuring the quality of the dietetic services (Clemence, 1978).

As the literature indicates, there is a need for further education of both the dietitian and foodservice manager in the area of personnel management and the behavioral sciences. This is seen to be required for improvement in foodservice system management skills.

### Hypothesis

The null hypothesis tested in this study was: There is no significant difference between administrative dietitians compared to non-dietitian foodservice managers in perceptions of the determinants of quality food production.

## Methods and Procedures

### Questionnaire

A questionnaire was developed by the investigator to assess the perceptions of administrative dietitians and non-dietitian foodservice managers with regard to the determinants of quality food preparation and service. The questionnaire was designed to cover six dimensions which affect or are components of quality food production. These six dimensions are: (1) perceptions of the major objectives of the dietetic service; (2) perceptions of what constitutes quality food; (3) perceptions of the technical determinants of quality food; (4) perceptions of behavioral factors which influence the production of quality food; (5) perceptions of relationships of managerial competency; (6) perceptions of modernization versus traditional methods of foodservice operations.

The thirty-item questionnaire was comprised of: (1) twenty-five Likert-type questions with a response mode of five points ranging from a rating of "Strongly Agree (5)" to "Strongly Disagree (1);" and (2) five rank order values regarding the objectives of a dietetic service also were included in the instrument. The questionnaire additionally included a Biographical Data Section, designed to provide demographic information on each of the respondents (see Appendix A).

### Sampling

The intended subjects of the study were the population of Chiefs, Program Management and Planning Section (administrative dietitians) and

Chiefs, Food Production and Service (non-dietitian foodservice managers) from 162 Veterans Administration Medical Centers. Location of the hospitals was obtained from the Consolidated Address and Territorial Bulletin 1-A, 1979, of the Veterans Administration, Washington, D.C.

### Collection of the Data

The questionnaire was mailed to 162 Program Management and Planning Section Chiefs and 162 Food Production and Service Chiefs of Veterans Administration Hospitals designated as Medical Center locations of the United States. A cover letter was enclosed, addressed to the Dietetic Service Chief of each hospital (see Appendix B). The letter explained the purpose of the study and instructed the Dietetic Service Chief to distribute the questionnaire to respectively the Chief, Program Management and Planning and the Chief, Food Production and Service. Two stamped, self-addressed envelopes also were provided for the return of the questionnaires.

### Statistical Analysis

The initial statistical procedure used to analyze the data was factor analysis. Kerlinger (1973) defines factor analysis as:

. . . A method for determining the number and nature of the underlying variables among larger numbers of measures. It is a method for extracting common factor variances from sets of measures. It tells what tests or measures measure the same thing and how much they do so. It also helps locate and identify unities or fundamental properties underlying tests and measures. (p. 659)

The factor analytic procedure was applied to the combined responses of both groups (administrative dietitians and non-dietitian foodservice managers). The initial factor matrix was rotated according to the varimax criterion to simplify the factor structure. The solution was



constrained to seven dimensions (factors), which were determined to encompass substantive data. These dimensions identified both the dietitians' and the non-dietitian foodservice managers' perceptions of the components of quality food production.

The statistical technique of discriminant analysis was performed on each dimension (factor), comparing the responses of the dietitians with the non-dietitian foodservice managers. The purpose of the discriminant analysis procedure was to determine if significant differences existed between the perceptions of the dietitians versus the non-dietitian foodservice managers, within each dimension, at the  $p < 0.01$  level of significance. Wilk's Lambda was the statistic used for the test of significance. Computer facilities at Texas Woman's University Houston Center were employed for the data analysis.

### Definitions of Terms

**Dimensions:** "measures of the amount of ordered or pattern variation in the data. The degree to which such regularity or interdependency exists can be gauged by the number and strength of the dimensions" (Rummel, 1970, p. 16).

**Discriminant Analysis:** "statistical analysis used to distinguish between two or more groups of cases. The mathematical objective of discriminant analysis is to weigh and linearly combine the discriminating variables in some fashion so that the groups are forced to be as statistically distinct as possible" (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975, p. 435).

**Stepwise Procedure of Discriminant Analysis:** "a mathematical procedure which selects the single best discriminating variables according to a user-determined criterion. A second discriminating variable is selected as the variable best able to improve the value of the discrimination criterion in combination with the first variable. The third and subsequent variables are similarly selected according to their ability to contribute to further discrimination. At each step, variables already selected may be removed if they are found to reduce discrimination. Eventually, either all variables will have been selected or it will be found that the remaining variables are no longer able to contribute to further discrimination. When this point has been reached, the stepwise procedure halts and further analysis is performed using only the selected variables" (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975, p. 436).

**Eigenvalue:** "a special measure computed in the process of deriving the discriminant function. It is a measure of relative importance of the function. The sum of the eigenvalues is a measure of the total variance existing in the discriminating variables. Single eigenvalues can be expressed as a percentage of the total sum of eigenvalues providing a reference to the relative importance of the associated function" (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975, p. 442).

**Factor Analysis:** a general scientific method for analyzing data. Factor analysis is dependent on the meaningfulness of the variability of the data and uncovers the independent sources of data variation. Its aim is to summarize the interrelationships among the variables of the data in a concise, but accurate manner as an aid in conceptualization (Rummel, 1970).

**Factor Loading:** a measure of the degree of generalizability found between each variable in which each factor is calculated, reflecting quantitative relationships. The farther the factor loading is from zero, the more the factor can be generalized to the variable. Comparing loadings of the same variable on several factors provides

information concerning how easy it is to generalize to that variable from each factor. The calculated values of the factor loadings are referred to as factor scores (Gorsuch, 1974).

Rotating Factor Matrix: "technique of factor analysis which involves adjusting the factor results to a best fit with the separate patterns of interrelationship in the data" (Rummel, 1970, p. 18).

## Results and Discussion

### Response

A four week time period was allowed for the participants of the survey to complete and mail the questionnaires. Questionnaires received after the four week period were not incorporated in the study.

One hundred thirty-two (81.5% response rate) administrative dietitians and one hundred twenty-nine (79.6% response rate) non-dietitian foodservice managers responded to the study. The number of responses exceeded the investigator's predetermined minimum acceptable response rate of 40%.

At some of the Veterans Administration Hospitals included in this survey, a Program Management and Planning Section Chief or a Food Production and Service Chief was either not authorized or occupied. In those instances other administrative dietitians and non-dietitian foodservice managers, closest in hierarchical level to the specified positions, chose to respond. Table 1 shows the position title and number of members of each title who responded to the questionnaire.

Table 1  
Identification of Respondents

<u>Position Title</u>	<u>Number</u>
Chief, Dietetic Service	40
Assistant Chief, Dietetic Service	9
Chief, Program Management and Planning	74
Administrative Dietitian	9
Chief, Food Production and Service	112
Assistant Chief, Food Production and Service	5
Cook Foreman	12

#### Extraction of Optimal Number of Factors

In order to extract the optimal number of substantive factors, the data file was initially analyzed with no restrictions on the number of factors. The analysis produced an output of eight factors. A scree test was then performed on the output to determine the optimal number of factors to extract. Catell (1966) describes the characteristics of the scree plot and the method used to distinguish the optimal number of factors produced by a factor analysis:

. . . Such a plot falls first in a steep curve but then straightens out in a line which runs with only trivial and irregular deviations from the straightness to the nth factor. This straight end portion we begin calling the "scree." (p. 249)

Catell further explains:

There is no such thing as "the true number of factors to extract." Thus provided we agree to aim at the inclusion of the two or even three largest specifics-plus-error common factors, in order to be sure of containing the substantives down, to say, a conception of

non-trivial fixed at 95%, the best rule is evidently to cut at the uppermost point actually on the scree. (p. 252)

The method used for the scree test was to chart the eigenvalues of each factor which were produced by the unrestricted factor analysis procedure. The "scree" are the plotted factors which break outside the relatively vertical line created by those plotted factors with high eigenvalues. The factors in the "scree" portion of the plot reflect random error rather than substantive data.

The scree test plot is depicted in Figure 1. The factor number noted by the arrow in this figure was determined to be the optimal cut-off point. As Catell explains, the cutoff point contains approximately 95% of the nontrivial (substantive) factors.

The vertical axis represents the eigenvalues of each factor extracted. The horizontal axis represents the number of factors extracted. The arrow indicates the cutoff point determined to be the optimal number of extracted factors.

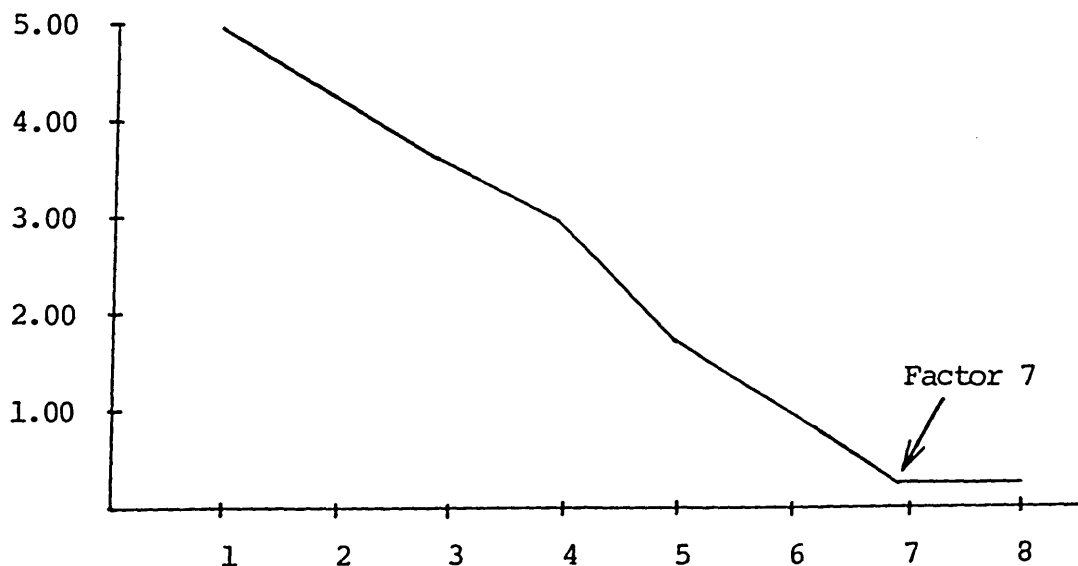


Figure 1 Schema of application of the scree test.

### Description of the Factors

A second factor analysis was performed on the data again using the rotated varimax criterion. This analysis was constrained to seven factors which was determined by the scree test to be the optimal number of substantive factors.

These seven dimensions were derived from the responses of both the administrative dietitians and non-dietitian foodservice managers to the twenty-five Likert-type questionnaire statements, and the manner in which each questionnaire statement loaded on the respective factors. The majority of the questionnaire statements were univocal, i.e., statements that appeared in only one factor. Only one statement appeared in two factors. The seven dimensions were named according to the collective essence of the statements constituting each factor.

The statements forming Factor I are listed in Table 2. The corresponding factor structure coefficient (factor loading) is shown for each statement, and the statements are presented in descending order according to that coefficient value. Factor I was labeled, Quality Food Preparation Components, reflecting the nature of the statements clustering in this factor.

Factor I consisted of the five parts of question twelve of the questionnaire. This result could have been influenced by the format of the questionnaire itself.

The statements associated with Factor II are listed below in Table 3. Also shown are the corresponding factor structure coefficients. The statements comprising Factor II referred to managerial disciplinary standards.

Table 2

## Factor I: Quality Food Preparation Components

Factor Structure Coefficient	Questionnaire Statement
*.9581	12(b). Those individuals directly responsible for the preparation of food should judge the correctness of: Texture
*.9564	12(c). Those individuals directly responsible for the preparation of food should judge the correctness of: Color
*.9420	12(d). Those individuals directly responsible for the preparation of food should judge the correctness of: Consistency
*.9317	12(a). Those individuals directly responsible for the preparation of food should judge the correctness of: Taste
*.5529	12(e). Those individuals directly responsible for the preparation of food should judge the correctness of: Nutrient value of the food prepared

\*Indicates univocal statements



Table 3

## Factor II: Managerial Disciplinary Standards

Factor Structure Coefficient	Questionnaire Statement
*.9299	11(b). Formal disciplinary action should be instituted in the case where a food preparation employee consistently does the following: Prepares food too far in advance of service
*.8986	11(a). Formal disciplinary action should be instituted in the case where a food preparation employee consistently does the following: Overcooks the food
*.8844	11(d). Formal disciplinary action should be instituted in the case where a food preparation employee consistently does the following: Does not maintain salad materials at appropriate temperatures
*.8484	11(c). Formal disciplinary action should be instituted in the case where a food preparation employee consistently does the following: Does not follow departmental "standardized" recipes

\*Indicates univocal statements

The statements of Factor II were the four parts of statement eleven of the questionnaire. As in the case of Factor I, this occurrence could be related to the design of the questionnaire.

The statements comprising Factor III are presented in Table 4, along with their respective factor structure coefficients. The statements of Factor III are related to Herzberg's Motivation-Hygiene Theory (Herzberg,

Mausner, & Snyderman, 1959). In the theory, Herzberg defines elements such as salary and working conditions as "hygiene factors" and "extrinsic job conditions." Herzberg theorized that the hygiene factors are not those factors which motivate employees, but rather, they are factors which dissatisfy employees when they are not up to the standards the employees expect. The terminology of Herzberg was used in naming this factor.

The statements comprising Factor III were the three parts of statement seven of the questionnaire. Again, this occurrence, as in the case of Factors I and II, may be the function of the design of the questionnaire.

Table 4

## Factor III: Hygienic Factors, Extrinsic Job Conditions

Factor Structure Coefficient	Questionnaire Statement
*.9197	7(b). Salary and working conditions are major determinants of job satisfaction for: Top level non-dietitian supervisors in a foodservice system
*.8868	7(a). Salary and working conditions are major determinants of job satisfaction for: Cooks
*.8314	7(c). Salary and working conditions are major determinants of job satisfaction for: Administrative Dietitians

\*Indicates univocal statements

The statements of Factor IV and the corresponding factor structure coefficients are shown in Table 5. Factor IV refers to Herzberg's Motivational Factors, Intrinsic Job Condition Theory (Herzberg et al., 1959). The theory defines elements of work, such as, achievement of completing a job and the actual work itself, as major motivators of employees. Such elements of the job are termed "motivators/intrinsic job conditions."

Table 5

Factor IV: Motivational Factors, Intrinsic Job Conditions

Factor Structure Coefficient	Questionnaire Statement
*.9092	10(b). Achievement and the nature of the work itself are major determinants of motivation for: Top level non-dietitian supervisors in a foodservice system
*.8906	10(a). Achievement and the nature of the work itself are major determinants of motivation for: Cooks
*.7571	10(c). Achievement and the nature of the work itself are major determinants of motivation for: Administrative Dietitians

\*Indicates univocal statements

The statements of Factor IV were the three parts of statement 10 of the questionnaire. As with the previous factors, this occurrence may have been influenced by the design of the questionnaire.

The statements comprising Factor V are listed in Table 6, along with their factor structure coefficients. The statements of Factor V relate to traditional and modern concepts of foodservice operations.

Table 6

Factor V: Traditional versus Modern Concepts of Foodservice Operations

Factor Structure Coefficient	Questionnaire Statement
*.8002	6(b). Abolishment of onsite bakeries within foodservice systems can be expected to: Enable the delivery of a food-service at a more reasonable cost
*.6534	2(b). The use of "convenience/ ready food" entrees: Is recommended to operate a food-service at a more reasonable cost
*.4489	4. Computerization of food production operations could be expected to ultimately improve the quality of food produced

\*Indicates univocal statements

The statements constituting Factor VI are listed in Table 7 along with their factor structure coefficients. Factor VI relates essentially to subjective judgements concerning quality food determinants.

All statements in Factor VI were univocal status in factor, except for statement number nine of the questionnaire. This statement also appears in Factor VII. Statement nine was the only statement of the study to appear in more than one factor.

Table 7

Factor VI: Subjective Judgements Concerning Quality Food Determinants

Factor Structure Coefficient	Questionnaire Statement
*.6599	5. Administrative dietitians in actual practice are not apt to devote much consideration for the preservation of the nutrient content of food
*.5744	8. As a general rule, "book theories" about foodservice operations management are very different from that required in the actual situation
.5024	9. The portion sizes of menu items are best left to the judgement of the persons who are portioning the item. For example, servers can make the best estimate for making the total amount prepared "go around" to their estimate of number of servings required
*.4740	2(a). The use of conventional "ready food" entrees: Reduces the quality of food served
*.4317	1. The use of standarized recipes reduces the need for highly experienced cooks

\*Indicates univocal statements

The statements comprising Factor VII are listed below in Table 8. Also presented are the respective factor structure coefficients. The context of the statements of Factor VII were judged to be those esthetic elements of foodservice.

Table 8

## Factor VII: Esthetics of Foodservice

Factor Structure Coefficient	Questionnaire Statement
*.8549	3. Garnishing the foods on a dining room serving line is not essential
.4630	9. The portion sizes of menu items are best left to the judgment of the persons who are portioning the item. For example, servers can make the best estimate for making the total amount prepared "go around" to their estimated number of servings required

\*Indicates univocal statements

### Discriminant Analysis

The purpose of the study was to investigate the research question: What perceptual differences, as measured by the questionnaire, exist between Program Management and Section Chiefs (administrative dietitians) and Food Production and Service Chiefs (non-dietitians) of the Veterans Administration Medical Centers with regard to the determinants of quality food production and service?

Discriminant analysis was the statistical procedure used to determine whether significant differences existed between the responses of the non-dietitian foodservice managers. The analysis revealed that significant differences did exist between the responses of both groups in three factors.

The groups differed in their responses to the statements which comprised Factor VI (Subjective Judgements Concerning Quality Food Determinants), Factor I (Quality Food Preparation Components), and Factor V (Traditional versus Modern Concepts of Foodservice operations).

The stepwise method of discriminant analysis was performed on the seven factor scores which were produced through the factor analytic procedure. The factor scores of the administrative dietitians were compared with the factor scores of the non-dietitian foodservice managers. The Wilk's Lambda statistic was used as the test of significance at the  $p < .01$  level.

The group means and standard deviations were produced for each factor score for the respective groups. These statistics are shown in Table 9. The means and standard deviations are reported in the standard score format,  $Z$ , where the mean of the standard scores is equal to zero and the standard deviation is equal to one.

Table 9

Group Means and Standard Deviations of Factor Scores  
in Standard Score Format for Administrative  
Dietitians and for Non-Dietitian Managers

Factor	<u>Administrative Dietitians</u>		<u>Non-Dietitian Managers</u>	
	Mean	Standard Deviation	Mean	Standard Deviation
* I: Quality Food Preparation Components	-0.0783	1.0651	0.0801	0.9620
II: Managerial Disciplinary Standards	0.0191	0.9776	-0.0195	1.0259

Table 9 -- continued

Group Means and Standard Deviations of Factor Scores  
in Standard Score Format for Administrative  
Dietitians and for Non-Dietitian Managers

Factor	<u>Administrative Dietitians</u>		<u>Non-Dietitian Managers</u>	
	Mean	Standard Deviation	Mean	Standard Deviation
III: Hygienic Factors Extrinsic Job Conditions	-0.0041	1.0177	0.0042	0.9856
IV: Motivational Factors Intrinsic Job Conditions	-0.0221	0.9982	0.0226	1.0052
* V: Traditional versus Modern Concepts of Foodservice Operations	0.0679	1.0039	-0.0695	0.9951
* VI: Subjective Judgements Concerning Quality Food Determinants	-0.2906	0.7605	0.2974	1.1239
VII: Esthetics of Foodservice	-0.0164	0.7576	0.0168	1.2014

\*Indicates significant differences between the two groups at  $p < .01$  level

The stepwise discriminant analysis tested each of the group's factor scores at the  $p < .01$  level of significance. Of the seven factors, scores for Factors I, V, and VI were found to differ significantly between the administrative dietitian group and the non-dietitian foodservice manager group. Of the three, as reflected in Table 10, Factor VI (Subjective



Judgements Concerning Quality Food Determinants) was found to be the most discriminating between the two groups. Factor I (Quality Food Preparation Components) became significant when Factor VI was removed from the analysis via the stepwise procedure. Factor V (Traditional versus Modern Concepts of Foodservice Operations) became significant when Factor VI and Factor I were removed from the analysis.

Table 10  
Summary Table of Stepwise Discriminant Analysis

Step	Action Entered Factor	Wilk's Lambda	Level of Significance
1	6	.9132	0.0001
2	1	.9069	0.0001
3	5	.9022	0.0001

The statements comprising Factor VI (Subjective Judgements Concerning Quality Food Determinants), the most discriminating factor, may be considered controversial in nature. In this study, as noted in Table 9, the non-dietitian foodservice manager group agreed, but the administrative dietitian group disagreed with those statements. The questionnaire statements which constituted Factor VI are:

1. (Statement No. 5) Administrative dietitians in actual practice are not apt to devote much consideration for the preservation of nutrient content of food.
2. (Statement No. 8) As a general rule, "book theories" about foodservice operations management are very different from that

required in the actual situation.

3. (Statement No. 9) The portion sizes of menu items are best left to the judgement of the persons who are portioning the item.
4. (Statement No. 2a) The use of "convenience/ready food" entrees: Reduces the quality of food served.
5. (Statement No. 1) The use of standardized recipes reduces the need for highly experienced cooks.

The next most discriminating factor was Factor I (Quality Food Preparation Components). Factor I is composed of the five parts of Statement 12 of the questionnaire:

(Statement No. 12) Those individuals directly responsible for the preparation of food should judge the correctness of:

- (1) Taste
- (2) Texture
- (3) Color
- (4) Consistency
- (5) Nutrient value of food prepared

The non-dietitian foodservice managers responded positively, thus agreeing with the five parts of Statement 12. In contrast, the administrative dietitian group did not agree with these statements.

Factor V was the third most discriminating dimension (Traditional versus Modern Concepts of Foodservice Operations). The administrative dietitian group responded positively, whereas, the non-dietitian foodservice managers did not agree with the statements. These questionnaire statements comprising Factor V are:

1. (Statement No. 6b) Abolishment of on-site bakeries within food-service systems can be expected to: Enable the delivery of a foodservice at a more reasonable cost.
2. (Statement No. 2a) The use of "convenience/ready food" entrees: Is recommended to operate a foodservice at a more reasonable cost.
3. (Statement No. 4) Computerization of food production operations could be expected to ultimately improve the quality of food produced.

The discriminant analysis stepwise procedure did not distinguish significant differences in factor scores between the two groups in this study for Factor II (Managerial Disciplinary Standards), Factor III (Hygienic Factors, Extrinsic Job Conditions), Factor IV (Motivational Factors, Intrinsic Job Conditions), and Factor VII (Esthetics of Foodservice). This indicates that the administrative dietitians and the non-dietitian foodservice managers responded in similar manner to the statements comprising these factors.

#### Analysis of the Rank Order of Objectives

The final section of the questionnaire contained five objectives of a dietetic service which were to be ranked, in order of importance, according to the respondent. The frequency distribution of responses for the two groups are presented in Table 11.

Table 11

Frequency Distribution of the Rank Ordering of Five  
Objectives for a Dietetic Service by Administrative  
Dietitians and Non-Dietitian Foodservice Managers

<u>Dietetic Service Objectives</u>	<u>Rank Order</u>				
	1	2	3	4	5
A. Nutrient Needs of Clients					
Response:					
Administrative Dietitians	61%	27%	8%	3%	2%
Non-Dietitian Managers	69%	20%	8%	2%	2%
B. High Quality Food					
Response:					
Administrative Dietitians	35%	52%	8%	5%	0%
Non-Dietitian Managers	26%	51%	17%	4%	2%
C. Attractive Service in a Pleasant Environment					
Response:					
Administrative Dietitians	0%	8%	36%	23%	33%
Non-Dietitian Managers	1%	9%	37%	29%	23%
D. Operational Costs-Maintain Costs Within Budget, As Low as Possible					
Response:					
Administrative Dietitians	2%	8%	33%	28%	29%
Non-Dietitian Managers	2%	16%	26%	27%	30%
E. Operation Within Labor And Equipment Constraints-Balance Labor/Equipment Workloads					
Response:					
Administrative Dietitians	2%	7%	14%	40%	37%
Non-Dietitian Managers	3%	4%	12%	38%	43%
<u>Overall Rank Order of Objectives</u>					

The administrative dietitians and non-dietitian foodservice managers responded to each rank order objective in a similar manner. However,

some notable difference may be detected in the rankings of Objective B (High Quality Food); more administrative dietitians than non-dietitian foodservice managers ranked this objective as number one, whereas more non-dietitian foodservice managers than administrative dietitians ranked this objective as number three. Overall, visual inspection of Table 11 reveal that both groups ranked the objectives in the following order:

(1) Nutrient needs of the clients; (2) High quality food; and  
(3) Attractive service in a pleasant environment. The remaining two objectives, operational costs and labor/equipment constraints, were ranked approximately equal as either rank four or five.

### Summary and Conclusions

Responses to a mailed questionnaire concerning determinants of quality food production and service were received from 132 administrative dietitians and 129 non-dietitian foodservice managers in 162 Veterans Administration Medical Centers. The data were factor analyzed to identify the dimensions (factors) of the perceptions of the respondents. Discriminant analysis was used to test for differences in the perceptions of the two groups.

The results of the study indicated that the administrative dietitians and the non-dietitian foodservice managers perceived the twenty-five Likert-type statements on the survey instrument as constituting seven distinct dimensions. These factors are: (1) Quality food preparation; (2) Managerial disciplinary standards; (3) Hygienic factors, extrinsic job conditions; (5) Traditional versus modern concepts of foodservice operations; (6) Subjective judgements concerning quality food determinants; and (7) Esthetics of foodservice.

Discriminant analysis of the data revealed significant differences between the two groups in three of the seven dimensions. These three factors, in descending order of discrimination, were: Factor VI, Subjective Judgements Concerning Quality Food Determinants; Factor I, Quality Food Preparation Components; and Factor V, Traditional versus Modern Concepts of Foodservice Operations.

In regard to Factor VI (Subjective Judgements Concerning Quality Food Determinants), in essence the non-dietitian foodservice managers agreed and the administrative dietitians disagreed with the following statements,

which constituted Factor VI:

- Practicing administrative dietitians do not devote much consideration in preserving food nutrient quality.
- "Book theories" and actual experience in foodservice management differ significantly.
- Portion sizes are best to the judgement to those portioning the food item.
- The use of convenience foods tends to lower the quality of the food served.
- The use of standardized recipes reduces the need for experienced cooks.

Concerning Factor I (Quality Food Preparation Components), the non-dietitian foodservice manager group agreed and the administrative dietitian group disagreed with the following concepts, which comprised Factor I:

- Those individuals directly responsible for the preparation of food should judge the correctness of:
  - Taste
  - Texture
  - Color
  - Consistency
  - Nutrient value of food prepared

Relevant to Factor V (Traditional versus Modern concepts of Foodservice Operations) the administrative dietitians agreed and the non-dietitian foodservice managers disagreed with the following statements, which constituted Factor V:

- The abolishment of on-site bakeries for cost purposes.
- The use of convenience foods for cost purposes.
- Computerization of food production operations for food quality improvement.

The survey instrument used in this study also included a listing of five objectives of a dietetic service which the respondents were to rank in order of importance. The administrative dietitian group and the non-dietitian foodservice manager group both ranked these objectives in similar order. The top three objectives delineated in this process were, in descending order: (1) Nutrient needs of clients; (2) High quality food; and (3) Attractive service in a pleasant environment.

The results of the study indicate that significant differences exist in the perceptions of administrative dietitians as compared with those of non-dietitian foodservice managers, concerning the determinants of quality food production. It seems reasonable to expect that the differences between the administrative dietitian group and the non-dietitian foodservice manager group in training, education, and nature of work experience influences how each group perceives the determinants of quality food. Historically, the administrative dietitian is prepared for the position via a formal and extensive education program. In contrast, the non-dietitian foodservice manager generally possesses less formal education. For example, the management training of the potential non-dietitian foodservice manager is primarily via "on-hand" experience.

The significant differences found in this study between the administrative dietitians and the non-dietitian foodservice managers in their perceptions of determinants of quality food suggest that there are



obstacles, either being overcome or needing to be overcome, in the process of achieving quality foodservice in the Veterans Administration Medical Centers. To achieve a common goal of quality foodservice it is important, or at minimum more efficient, if the two managers most directly involved share similar perceptions concerning the process for attaining this goal. The results of the study suggest that the goal of quality foodservice is not being achieved or that supplementary methods are being used to compensate for the differences in the perceptions concerning the determinants of quality food.

Both groups, however, perceived the objectives of a dietetic service in a similar order of importance. This indicates that both groups essentially strive for the same objectives in a similar order of priority, although the manner in which the two groups choose to reach the same objective may vary.

### Implications for Further Study

The sample selected for this study was the population of Chiefs, Program Management and Planning Section (administrative dietitians) and Food Production and Service Chiefs (non-dietitian foodservice managers of the Veterans Administration Medical Centers of the United States. The fact that both groups are employed by the same agency may act as an influence on both groups, making them more homogenous, as compared to a random sample of administrative dietitians and non-dietitian foodservice managers in other hospital settings. Therefore, a similar study, surveying administrative dietitians and non-dietitian foodservice managers of voluntary hospitals may produce different results. Such a study might also incorporate other factors such as sex, years at present job, current degree held, etc., in order to determine if such factors have significant influences on the manner in which the two groups respond to the questionnaire statements.

The investigator recommends a change in the format of the questionnaire. Each concept should be presented as a single, complete statement rather than as a stem statement with a series of related concepts. This would reduce the possibility of a participant responding to the statements in a "response set" manner.

The investigator also recommends a change in the design of the rank order section, regarding the objectives of a dietetic service. An expanded listing of objectives would allow for greater discrimination among respondents.

A substantial number of comments were made concerning statement eleven of the questionnaire. This question referred to the disciplinary action of an employee which an administrative dietitian or foodservice manager may deem appropriate under varied circumstances. Those who commented expressed confusion on what the term "disciplinary action" meant. The code of conduct and disciplinary policies designed by the Veterans Administration follow a course of action which is explicitly defined. Thus, for this type of institution, substituting such explicit terminology would clarify the statements.

Further research on the differences between the two types of food-service management personnel is needed. Revising the questionnaire used in this study, as suggested above, and surveying hospital populations other than the Veterans Administration Medical Centers is recommended in further study.

## APPENDIX A

To the Participant: THE RETURN OF THIS QUESTIONNAIRE CONSTITUTES YOUR INFORMED CONSENT TO ACT AS A SUBJECT IN THIS RESEARCH. "NO MEDICAL SERVICE OR COMPENSATION IS PROVIDED TO SUBJECTS BY THE UNIVERSITY AS A RESULT OF INJURY FROM PARTICIPATION IN THIS RESEARCH".

Your name is not requested in this study, thus not associated with the questionnaire data. No direct benefits of this study will accrue to you personally, however, the results of this study should add significant information to the body of knowledge.

#### BIOGRAPHICAL DATA SECTION

Please supply the following information:

Position Title \_\_\_\_\_

Number of beds in hospital where employed \_\_\_\_\_

Current degree held (if applicable) \_\_\_\_\_

Years at present job \_\_\_\_\_

-----

#### SURVEY QUESTIONNAIRE

##### Instructions:

This questionnaire is rated on a scale from five (strongly agree - SA) to one (strongly disagree - SD) with the number three signifying a no-opinion response. Please circle the number that best expresses your belief on the statement below the rating numbers. Please remember, there are no right or wrong answers to these statements.

1. The use of standardized recipes reduces the need for highly experienced cooks.

SA					SD
5	4	3	2	1	

2. The use of "convenience/ready food" entrees:

- (a) Reduces the quality of food served.

SA					SD
5	4	3	2	1	

- (b) Is recommended to operate a food service at reasonable cost.

SA					SD
5	4	3	2	1	

3. Garnishing the foods on a dining room serving line is not essential.

SA					SD
5	4	3	2	1	

4. Computerization of food production operations could be expected to ultimately improve the quality of food produced.

SA SD

5 4 3 2 1

5. Administrative dietitians in actual practice are not apt to devote much consideration for the preservation of nutrient content of food.

SA SD

5 4 3 2 1

6. Abolishment of on-site bakeries within foodservice systems can be expected to:

(a) Reduce the quality food service

SA SD

5 4 3 2 1

(b) Enable the delivery of a foodservice at a more reasonable cost.

SA SD

5 4 3 2 1

7. Salary and working conditions are major determinants of job satisfaction for:

(a) Cooks

SA SD

5 4 3 2 1

(b) Top level non-dietitian supervisors in a food service system.

SA SD

5 4 3 2 1

(c) Administrative dietitians

SA SD

5 4 3 2 1

8. As a general rule, "book theories" about food service operations management are very different from that required in the actual situation.

SA SD

5 4 3 2 1

9. The portion sizes of menu items are best left to the judgement of the persons who are portioning the item. For example, servers can make the best estimate for making the total amount prepared "go around" to their estimate of number of servings required.

SA SD

5 4 3 2 1

10. Achievement and the nature of the work itself are major determinants of motivation for:

(a) Cooks	SA				SD
	5	4	3	2	1
(b) Top level non-dietitian supervisors in a food service system.	SA				SD
	5	4	3	2	1
(c) Administrative dietitians	SA				SD
	5	4	3	2	1

11. Formal disciplinary action should be instituted in the case where a food preparation employee consistently does the following:

(a) Overcooks the food	SA				SD
	5	4	3	2	1
(b) Prepares the food too far in advance of service.	SA				SD
	5	4	3	2	1
(c) Does not follow departmental "standardized" recipes.	SA				SD
	5	4	3	2	1
(d) Does not maintain salads and salad materials at appropriate temperatures.	SA				SD
	5	4	3	2	1

12. Those individuals directly responsible for the preparation of food should judge the correctness of:

(a) Taste	SA				SD
	5	4	3	2	1
(b) Texture	SA				SD
	5	4	3	2	1
(c) Color	SA				SD
	5	4	3	2	1
(d) Consistency	SA				SD
	5	4	3	2	1
(e) Nutrient value of food prepared	SA				SD
	5	4	3	2	1

Rank Order Values of the Objectives  
of the Dietetic Service

Listed below are five objectives of a dietary department food service system. You are to mark these objectives in order of the priority that you believe are most important to least important, to the dietary department. A score of one (1) is to be assigned to the objective you believe is most important, rating the other objectives to a score of five (5) (what you believe is the least important objective). Please note, there is no right or wrong answer. The ratings are based on your own beliefs.

Objectives of a Dietetic Service:

\_\_\_\_\_ Nutrient needs of the Clients.

\_\_\_\_\_ High quality food.

\_\_\_\_\_ Attractive service in a pleasant environment.

\_\_\_\_\_ Operational costs - maintain costs within budget, as low as possible.

\_\_\_\_\_ Operation within labor and equipment constraints - balance labor and equipment work loads.



## APPENDIX B



Veterans  
Administration

MEDICAL CENTER

2002 Holcombe Boulevard  
Houston, TX 77211



Dear

I am a Dietetic Intern in the Coordinated Dietetic Internship Master's Degree Program at the Veterans Administration Medical Center and Texas Woman's University in Houston, Texas. For my Master's Degree thesis, I am studying the perceptions of the determinants of quality food preparation and service by the VA Administrative Dietitians and Chiefs, Food Production and Service.

To accomplish such a study, I am requesting the participation of administrative dietitians, particularly Program Management and Planning Section Chiefs, and Chiefs, Food Production and Service of all Veterans Administration Medical Centers.

I would appreciate your cooperation in providing your Program Management and Planning Section Chief and Chief, Food Production and Service with the enclosed questionnaires and consent forms. I will need approximately fifteen minutes of their time to complete the enclosed questionnaire and biographical data section. Upon completion of the questionnaire and biographical data section, I am asking the individual participants to enclose it in the self-addressed envelope provided and mail it to me no later than November 15, 1980.

I thank you and your staff members for your time and cooperation with my study. I will be glad to answer any questions you may have concerning my study. I can be contacted, here, at the VA Medical Center, Houston, Texas (713) 795-4411, Extension 3721.

Dissertation/Theses signature page is here.

To protect individuals we have covered their signatures.

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