To the Graduate Council:

I am submitting herewith a dissertation written by Lynne Maria Roberson entitled "Clinical Dietetic Practice in Hospitals and Public Health Agencies in Tennessee: Implications for Educational Development." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Home Economics.

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CLINICAL DIETETIC PRACTICE IN HOSPITALS AND PUBLIC HEALTH AGENCIES IN TENNESSEE: IMPLICATIONS FOR EDUCATIONAL DEVELOPMENT

A Dissertation

Presented for the

Doctor of Philosophy

Degree

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Lynne Maria Roberson

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TO ANDY HOLT

WHO--LIKE THE MOUNTAINS--

PROVIDES CONTINUITY IN MY EXISTENCE

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ABSTRACT

This research focused on a comparison of clinical dietetic practice in hospitals and in public health agencies, and a comparison of clients' needs and problems in high-priority performance situations in actual practice with those anticipated for the future in Tennessee. Information about clinical practice was explored using role theory and systems methodology to relate concepts and processes in development.

Two surveys were conducted to obtain information about current practice and expectations for future events in Tennessee. Generally, the nature of clinical dietetic practice in short-term care hospitals and in public health agencies could not be differentiated by considering the nature of practitioners--their demographic characteristics, credentials, and roles in practice. However, a distinction between groups was made based on a comparison of highest-priority performance situations in practice. Most of the 20 highest-priority clients' needs and problems anticipated for counseling intervention in the future were being addressed at some level in actual dietetic practice.

The implications of the results for educational development in the Department of Nutrition and Food Sciences (NFS), The University of Tennessee, Knoxville, were considered. The explication of generic processes within a framework of common educational goals may facilitate the articulation of programs within NFS as well as the articulation of NFS programs with those of other disciplines

and professions. The use of creative approaches to educational development, which focus on the relationship between the practitioner and the client system, will enhance the ability of the university to address societal needs and expectations. In this manner, the education, service, and client systems may be linked to facilitate human development and to improve the human condition.

PREFACE

This research, which relates to understanding behavior in human activity systems, was undertaken at a time when the value of such an endeavor was of questionable significance. Indeed, I shall not soon forget the early judgment: It's an ounce of meat and a plate of gravy; nor the comfort associated with Alan Lasater's words: Two things that are not the same are different. The work was completed through persistence and reason in light of my own vision of social justice in human affairs. I hope that I have done more than demonstrate the courage to view reality and to act with accordant intellectual honesty. This research was designed to promote educational development and to strengthen the relationship between educators and practitioners in the process, thus emphasizing the social purposes of the research enterprise.

L. M. R.

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CHAPTER I

INTRODUCTION

Since the scientific curriculum-building era of the 1920s, educators have looked to the real world of practice to study the nature of work as a basis for decision-making about curriculum (1). Today a definition of competence needed to practice often is used as a basis for educational development in the health professions (2,3). At The University of Tennessee, Knoxville, two programs for practitioners in dietetics and public health nutrition used a competency-based approach to educational development. The Coordinated Undergraduate Program (CUP), which prepared generalist dietitians to practice in both food service and clinical dietetics, operated under a mandate from the American Dietetic Association (ADA) to use a competency-based approach in curriculum development (4). The Public Health Nutrition Program, which prepared nutritionists at the graduate level, operated under similar guidelines promulgated by the Association of Faculties of Graduate Programs in Public Health Nutrition (AFGPPHN) (5).

Although faculty in the Department of Nutrition and Food Sciences (NFS) prepared graduates for a variety of options in the field, use of the competency-based approach to educational development was limited to the two programs for practitioners. There was a need to select an approach to educational development which would address the broad commitment of the faculty and accommodate the

competency-based education mandates. Deliberation of this issue surfaced questions about the generic needs of students in various program options in NFS.

This research focused on the generic nature of clinical dietetic practice and its implications for the education of practitioners. The definition of competence of practitioners in hospitals and public health agencies proved to be a puzzle. Studies of the nature of practice have not answered the question: Is the competence needed to practice clinical dietetics in hospitals the same as that needed in public health agencies? To explore this question in a comprehensive manner was beyond the scope of this dissertation. A more limited inquiry was posited to study the nature of clinical dietetic practice and the impact of the contextualization of health care services on practitioners' roles and performance situations.

An exploratory study, which included two surveys, was designed to compare the actual clinical roles and high-priority performance situations of practitioners who counseled clients in hospitals and in public health agencies in Tennessee; and to determine the clients' needs and problems in high-priority performance situations anticipated for the future as a basis for a comparison of actual and expected events. Specific questions which guided the research included the following:

1. What are the demographic characteristics of practitioners who counsel clients in large hospitals and in public health agencies in Tennessee?

2. Do the major clinical roles of practitioners reflect the setting for clinical practice?
3. What are the actual high-priority performance situations of practitioners in the counselor role?
4. What high-priority performance situations are anticipated for practitioners who counsel clients in the future?
5. What are the implications of the results for selection of an approach to educational development in the Department of Nutrition and Food Sciences?

The population of interest in this study was the dietetic practitioners who counseled clients in large, short-term care hospitals and in public health agencies in Tennessee. A two-group comparison of practitioners' clinical roles and clients' needs and problems in high-priority performance situations was used to determine whether there were differences between groups. A Delphi probe was conducted among educators and practitioners in Tennessee to obtain consensus on the priorities among clients' needs and problems in high-priority performance situations for the future.

The outcome of this research includes a characterization of the nature of clinical dietetic practice in large, short-term care hospitals and in public health agencies in Tennessee. Competency-based education is viewed as an alternative approach in educational development. The implications of the results of the study of practice are discussed in terms of the value of social theory and systems methodology in the development of human activity systems.

CHAPTER II

REVIEW OF LITERATURE

The purpose of the review of literature is to analyze the historical development of practice and education in dietetics and public health nutrition; to characterize the state of the art in educational development of practitioners; and to explicate a view of the development of clinical competence which relates the practitioner in roles to the client in a problem situation. Recent role delineation studies are summarized to highlight the dilemma for educators posed by conflicts in role expectations for practitioners entering dietetic and public health nutrition practice.

Historical Development

Origin of dietetic and public health nutrition practice. In the United States, organized efforts to improve the quality of life through the application of scientific principles to nutrition and dietary problems in the home and the community predated the establishment of professional organizations. Historical accounts begin around the middle of the nineteenth century when women emerged as scientists and as teachers in home economics. This was a period of rapid development of the nation. Organizations to improve the human condition emerged in response to the needs of the people during a period of active settlement; evolved with the industrialization of the country; and persisted with an ecological focus as the nation moved into a post-industrial era (6,7).

Around the turn of the twentieth century, Ellen Swallow Richards initiated a movement to strengthen family life and to improve the environment, particularly the environment of the home. Mrs. Richards and other pioneering women (who often consulted with prominent men of the times) formalized the movement leading to the founding of the American Home Economics Association (AHEA) in 1908 (6,7). Some women were particularly interested in cookery and the use of scientific principles to determine the nature of proper diet and nutrition for people. In 1917, these women organized the American Dietetic Association (ADA) to focus work on the food shortage created during World War I, the improvement of institutional food service, and other food and nutrition-related problems of the times (8).

The term dietitian first appeared in usage in 1899. Historians are divided on whether the first dietitian was a chemist or a cook (8-10). The division may reflect the dilemma of whether to acknowledge her for what she knew or what she did. Recently, Sarah Tyson Rorer was recognized as the first dietitian based on her work in the late 1800s in Philadelphia. Her work included the practice of dietetics and teaching dietetics and cookery to physicians, nurses, and women who were to become dietitians (11).

Early home economists and dietitians adopted a variety of roles and settings for their work; however, most dietitians worked in hospitals to improve food service operations. As early as 1906, home economists and dietitians began to work in private health and welfare agencies (12-13). Their primary role in these settings was

to provide education for immigrant mothers who were unfamiliar with the food supply and lived on limited incomes (5). These early workers became known as nutritionists in the 1920s to distinguish them from practitioners who worked in institutions and to recognize their advanced education (10). During the 1920s, nutritionists emerged as educators and consultants who worked through other health workers in local and state health departments. The expansion of public health nutrition services was supported by the enactment of federal legislation during the years of the Great Depression (5).

Contextualization of roles. In 1937, the ADA formally distinguished between a dietitian and a nutritionist based on their roles in practice, the settings in which they worked, and the state of health of the people served. The dietitian administered food service in an institution and had special responsibility for therapeutic dietetics among people who were ill or in disease. The nutritionist worked in the community to educate people about diet and nutrition for the promotion of health and prevention of disease. By this time, role expectations for the dietitian and the nutritionist were firmly contextualized by the nature of the work in the settings in which they were employed. However, practitioners in both settings served people who were well and in disease (10).

As public health nutrition evolved, direct participation in the delivery of health services was limited because of the small number of public health nutritionists available. However, in the 1970s, the number of positions available in local and state health

departments expanded to accommodate the development of health services for the Supplemental Feeding Program for Women, Infants, and Children (WIC). This increase in the number of positions was accompanied by a shift in role priorities of nutritionists at the local level. More emphasis was placed on the education of clients, and middle management roles were created to support this change in priorities (14).

Over time, the growth in the scope, focus, and complexity of health services was accompanied by specialization and by concrete efforts to contextualize the roles of practitioners. In recent times, the term clinical dietitian was adopted by institution-based practitioners to distinguish the dietitian who provides services directly to patients from the dietitian who administers the food service (15). Terms such as community nutritionist or community dietitian are used to identify practitioners who do not work in institutions. The title public health nutritionist is reserved for the practitioner who works in a public health agency (5, 16). In reality, the relationship among public and private health care organizations and the practitioners' freedom to work in any setting precludes the permanent contextualization of roles and contributes to the on-going debate about the generic nature of practice.

Development of educational programs for practitioners. The development of dietetic and public health nutrition education followed the pioneering work of people in the field of education

who elaborated concepts and demonstrated the utilization of processes in curriculum development and evaluation. For example, task analysis and the specification of objectives for learning were first used in curriculum development in the field of education in the 1920s (1). In 1930, Lydia Roberts advocated the use of task analysis to determine the functions of the dietitian in public health and welfare as a basis for curriculum development (17). In the late 1930s, when the functions and educational qualifications were articulated by ADA and AHEA, recommendations were based on a consensus among leaders about tasks (18).

The impact of advancement in the field of education became evident in national curriculum guidelines in dietetics and public health nutrition published in the 1950s. Heretofore, curriculum guidelines in both dietetics and public health nutrition specified the content of required courses and practical experiences (8,19). In 1950, a joint ADA-AHEA committee published suggested objectives for graduate preparation of public health nutritionists based on a survey of practitioners to determine the nature of practice (20,21). In 1958, ADA introduced curriculum guidelines which included objectives to amplify the subject matter requirements for entry into dietetic internships and membership in the association. For the first time, a limited number of options for dietetic study was sanctioned (22).

A significant advancement in dietetic education occurred during the 1960s. The Ohio State University (OSU) initiated a clinical dietetic program in the administrative context of allied

health and medical education. The program emphasized the relationship between content and processes in learning and the development of practitioners. In the curriculum, the didactic content was coordinated with clinical experience, and a post-baccalaureate internship was eliminated (23). The program was established during a time when humanistic views were gaining influence in education; and the individualization of learning experiences was emphasized. The needs of students became the primary criteria used in decision-making about the curriculum (24).

In the late 1960s, other institutions began to follow the OSU precedent; and, in 1972, the ADA Study Commission on Dietetics recommended this approach as an alternative for the future (25). At the same time, ADA mandated that coordinated undergraduate programs and programs that prepared students for internships adopt a competency-based approach to curriculum development and evaluation by 1980 (4). The coordinated undergraduate programs proliferated in the 1970s, primarily in the administrative context of home economics and allied health education. The option to study community nutrition was included in the 1972 ADA curriculum guidelines, and undergraduate programs to prepare practitioners for community service were developed (14).

Progress in educational development in public health nutrition in the 1970s included the use of expert judgement approaches in research. A variety of people were involved in the decision-making process to determine the roles and the competence needed for

practice (5,14,26). The curriculum guidelines used in the early 1980s were published in Personnel in Public Health Nutrition for the 1980s and the Guide for Field Experiences in Community and Public Health Nutrition (5,16). These guidelines delineated the roles, knowledge, and skills of the practitioner, and the objectives for field experiences as well as subject matter content to be included in the curriculum.

Program evaluation in dietetics and public health nutrition education. Historically, the approach to program development in dietetics and public health nutrition education was limited to the distribution of national curriculum guidelines and, in the case of dietetic education, to periodic site visits to review programs for approval. Until recent times, dietetic undergraduate programs were not reviewed; rather, site visits were conducted by ADA to approve post-baccalaureate, hospital-based internships (8). However, because admission to an internship program required the completion of ADA course requirements, educational guidelines indirectly influenced the development of undergraduate education.

With the development of coordinated undergraduate programs in the 1960s and 1970s, ADA began to review undergraduate programs. Educational standards were established for curriculum development and evaluation; and issues which pertained to accreditation surfaced. The ADA Study Commission (1972) recommended that ADA not undertake the accreditation of educational programs (25). However, in the mid-1970s the U. S. Office of Education designated the ADA Commission

on Evaluation of Dietetic Education (CEDE) to accredit coordinated undergraduate programs in dietetics and dietetic internships; and the Council on Post-secondary Accreditation (COPA) also designated CEDE to accredit coordinated undergraduate programs (8).

In 1969, ADA instituted voluntary registration (27). The registration process included an appraisal of an applicant's academic credentials; an examination of knowledge in nutrition and food science as well as dietetic practice; and a requirement for participation in continuing education events to maintain the registration status. The evaluation of the outcomes of education was limited to concern about the readiness of individuals to perform in practice rather than the impact of educational programs on the development of students.

In public health nutrition, efforts to develop and improve graduate programs were limited to the periodic release of national curriculum guidelines promulgated by AFGPPHN, ADA, and other professional organizations (5,28). ADA had no role in the approval of graduate education, but AFGPPHN members were available to provide direction to faculty in the development of these programs. Public health nutrition education programs were visited periodically in conjunction with program review for approval as a condition for receiving federal training-grant monies. Such reviews relied on the judgement of a small number of people about the congruence between national curriculum guidelines and the planned curriculum. In the early 1980s, the conditions for federal funding of these

programs included the requirement that statements describing the competence of the graduate be submitted. Although the national curriculum guidelines recognized the need to adapt development efforts to local circumstances, the attempt to intervene in educational development did not attend to the need to use organizational processes to relate program goals to the overall goals within the institution (5).

In the late 1960s and the 1970s, important approaches to evaluation were developed in the field of education. These approaches went beyond the limited view that characterized the 1920s and 1930s when evaluation was synonymous with the measurement of knowledge (E=M); and beyond the emergent patterns of the 1950s in which evaluation was equated with performance in relation to objectives [(E=(P $\cong$ O)]. Evaluation was viewed as synonymous with professional judgement (E=PJ) to denote consideration of the worth of the performance of an individual or a program (29).

The views of Cronbach, Stake, and Scriven led to important advances in evaluation thinking and practice in the 1970s (30-32). These evaluators and others who followed developed the view that evaluation was an integral part of the educational development process. Gradually, the focus of evaluation changed from just the assessment of the learning of individuals to include a consideration of the influence of contextual factors on learning and development in organizations (29,33-35). Many views were formalized in models to provide direction in curriculum development and evaluation. However, few educators in nutrition and dietetics employed these models in educational development.

State of the Art in Dietetic and Public Health Nutrition Education

The dominate views in educational development which were articulated in the 1970s reflected the influence of humanists and systems thinkers. In clinical dietetics, the advancement of curriculum development with a humanist orientation was hampered by the limited availability of models to accommodate this view. Clair Agriesti-Johnson (24), who provided educational leadership in the development of the coordinated undergraduate program at OSU, published a model which focused on the development of the student in the context of allied health education and clinical dietetic practice. Eileen Peck (36) explored the implications of a general model of self-development for the education of public health nutrition practitioners. However, the model did not relate the personal development perspective to the selection of approaches to curriculum development and evaluation.

The advancement of systems practice in the development of dietetic and public health nutrition education was hampered by the mixed metaphors of mechanistic thinkers. Systems theorists had not yet advanced the notion that human activity systems differed from other classes of systems and that the language, concepts, and approaches did not have to reflect those employed in the development of natural and designed systems (37).

Research and development approaches in dietetic and public health nutrition education were limited to those which logically related the work to competency-based education mandates. Research and

commentary focused on the definition of competence in roles in practice (5,24,38,39). Generally, the competency-based approach helped to focus program development in the context of discipline-oriented curricula, and facilitated the individualization of dietetic education. The variety of educational development models available from the field of education usually were not employed in research and development in dietetics and public health nutrition education. However, some model building did occur, and approaches which focused on the assessment of learning for decisions about the promotion of individual students were employed (3,40,41).

Several limitations of the competency-based approach to educational development surfaced. First, the processes to be employed to relate the goals of educational programs to the overall goals of the institutions in which they were administratively located were not explicated. Second, the approach did not address questions about the organization of processes and content in the curriculum. Third, the approach did not enable curriculum workers to envision the relationship between the student and the educational organization in development.

During the 1970s, the gap narrowed between advances in the field of education and the application of educational theory to the improvement of dietetic education. Faculty in dietetic programs experimented with the technology of education and advanced the application of ideas from the field of education at a rapid pace. The impact of the ADA mandate permeated the field of nutrition because most

competency-based programs were administratively located in home economics along with programs to prepare people in other dimensions of nutrition and food sciences.

Generally, in the field of education, competency-based education was put into the perspective of alternative approaches which enabled curriculum workers to envision the implications of development work for the development of people and organizations. However, in dietetic and public health nutrition education, the important changes in thinking and practice which emerged in the field of education in the 1970s had yet to be discovered.

Development of Clinical Competence

Organizational framework. The organization of clinical education, which by definition occurs in the real-world of practice, establishes an important relationship between service and educational systems. Clinical education is a particularly important dimension of the educational process because of its function in helping students to integrate information in a meaningful way and to develop practice skills.

Role theory explicates a view of the development of competence of the person in relation to the organizational context for practice and learning. A role is a pattern of behavior characteristic of people in a position in a social system. Expectations for behavior are elements of the structure of a social system. The overt behavioral structure of a social system may be described minimally in

terms of the interdependent roles of the people in positions in the system in relation to the purposes for the system. Role expectations frame behavior and organize the behavior of others toward a person in roles (42-45).

A role is a link between the development of a person's internal processes and the processes which relate the person to other people and objects in a problem situation. For the individual, role expectations (e.g., those delineated in job descriptions or articulated by others in the situation) may differ from the roles enacted. The terms role-taking and role-making are used to distinguish between adaptation to the structural, behavioral expectations for performance and the active process of role enactment in problem situations (46). Novel problem situations encountered in clinical dietetic practice may necessitate a redefinition of prescribed roles to effectively support problem-solving.

In clinical dietetics, this view of the relationship between a practitioner and a client in a problem situation assumes the contextualization of roles in terms of the physical setting and other non-behavioral aspects of the environment. Both the behavioral and non-behavioral aspects of the environmental context delimit the opportunites and constraints of the system for practice and for the development of the person (42).

Competence refers to the actual ability of the person to fulfill role expectations or to create and modify roles in relation to novel problem-situations. In education, the term is often used in

reference to performance expectations, particularly the critical knowledge and skills believed to be essential to provide safe, effective practice. An assessment of the gap between the person's demonstrated competence and the stated expectations for performance produces important information about the educational needs of the individual.

Educational evaluation may include a needs assessment procedure to determine whether expectations for learner outcomes (goals) have been met and whether a program supports the development of competence and the achievement of those expectations. Although needs assessment information is used in decision-making to individualize learning experiences and to promote students, isolated judgments about individuals have little intrinsic value in the overall evaluation of educational programs.

Needs assessment information, viewed in relation to expectations for program outcomes, is needed to make valid decisions about the value of a program and to select an approach to improve the program. In evaluation for program improvement, the nature of the problem situation in a system is the focus of decision-making about approaches to educational development. The availability of needs assessment information which reflects the impact of the program on the development of students, collectively, may help to define an organizational problem situation as a basis for program improvement.

Practitioners' roles. A definition of the competence needed to practice is derived from a conception of practitioners' roles.

There have been two recent studies of the nature of the practitioners' roles in clinical dietetics and public health nutrition. The ADA role-delineation study determined the ideal roles of clinical practitioners who provided direct services to clients in a variety of settings (47-55). The public health nutrition role study was limited to identification of role expectations for practitioners who worked in public health agencies (5). The method and results of these two studies are summarized to highlight the debate about the ideal roles of practitioners and the generic nature of practice.

Briefly, the ADA used three major procedures to determine these roles. First, a description of the current responsibilities of clinical practitioners was derived from a content analysis of literature and materials (e.g., position descriptions and accreditation materials) provided by dietetic faculty and practitioners in a variety of settings throughout the United States. Second, a nationwide survey of dietetic association members and other health care providers was conducted to determine the appropriateness of the roles in clinical practice. Appropriateness was defined as safe, effective, and correct. The dietetic population sampled included association members who were in clinical (88%) and community (12%) practice groups. Approximately 70% (326) of the sample group responded. Third, an ADA working committee, consisting of educactors, practitioners, and employers of clinical dietitians, constructed a final list of roles and delineated the knowledge and skills required to fulfill role expectations. Educational consultants directed the nine-member working committee in

the use of a variety of decision-making techniques to arrive at a consensus of opinion. The committee's work was critiqued by a ten-member advisory group which included dietitians, other health professionals, and a public consumer. When consensus was not achieved by members of the working committee, minority reports were accepted.

The identified roles were those which related the practitioner to the client and to other health care providers in a service setting. The role responsibilities in clinical dietetics were organized around the following activities.

1. The nutritional care process in relation to the client.
2. Communication with the health care team in the provision of nutritional care and in the education of team members.
3. Professional and educational activity and development.
4. Food procurement, production, and service.
5. Strategic direction and personnel management.
6. The identification and management of extraneous influences in the development of a system to provide nutritional care.

A number of organizations were represented in the working committee which contributed to the final report of the study of roles in public health nutrition. These organizations included ADA, AFGPPHN, American Public Health Association, Society for Nutrition Education, Association of State and Territorial Public Health Nutrition Directors, American Institute of Nutrition, American Society for Clinical Nutrition, Center for Disease Control, and Office for

Maternal and Child Health, Department of Health and Human Services. The study included a review of literature and a Delphi probe among a national sample of public health nutrition administrators, practitioners, and educators as well as public health administrators and health agency personnel directors (5).

The roles identified in the Delphi probe included the planner/evaluator; coordinator; educator; consultant; standard setter; manager; fiscal manager; counselor; advocate; supervisor, personnel manager; researcher/investigator; teacher; and outreach worker. Major, intermediate, minor, and optional roles were ascribed to various positions in public health including the public health nutritionist, the nutrition care provider, the public health nutrition director/administrator, the researcher in public health nutrition, and the educator of public health nutrition personnel. The major ascribed roles were limited to four to a position.

The public health nutritionist was distinguished from a nutrition care provider. The major roles for the public health nutritionist included the planner/evaluator, coordinator, educator, and consultant. Counseling was identified as a time consuming and labor intensive role for the public health nutritionist. It was recommended that counseling by public health nutritionists be limited to demonstrations in training other health care providers or to carefully selected cases with complex clinical, social, emotional and/or financial needs. The public health nutritionist was expected to limit direct service activities. In contrast, the major roles of the nutrition care provider (nutritionist/dietitian) in public health

were limited to those of the counselor and the educator to the client. It was maintained that advanced education in public health was required to fulfill expectations for performance in public health nutrition practice beyond the provision of direct service to clients.

Historically, the management of a food service delivery system was identified as a role in both clinical dietetics and public health nutrition (5,53). However, in the ADA role-delineation study, it was recommended that this role be eliminated from the ideal roles of the clinical dietitian. In public health nutrition practice, food service management in group care facilities was identified as a specialized role that required preparation at the graduate level to supplement an undergraduate background in this area. These recommendations suggested that a division of roles occurred in both clinical dietetics and public health nutrition. Practitioners were no longer expected to demonstrate competence in the area of food service management though the option continued to be available.

A consideration of the results of the two role studies surfaced a dilemma for educators in the definition of the purposes and planning curricula for practitioners. ADA recommendations promoted the generic nature of competence in practice. AFGPPHN recommendations promoted contextualization of roles by setting for practice. Both positions portrayed ideal expectations untempered by the reality of actual practice in the health care system in Tennessee. Neither study offered a way to resolve conflicts in expectations. This dissertation research compared roles in clinical practice to determine whether the roles were characteristic of practitioners in

both short-term care hospitals and public health agencies in Tennessee; and focused on the counselor role to determine whether priorities in performance situations were comparable in the two settings.

Professional Performance Situation Model. LaDuca et al. (3, 56-59) developed a generic approach to the definition of role competence in the health professions. Competence in the health professions is viewed as the aggregated adaptations of practitioners to the set of special social circumstances that exist within the situation boundaries of the professions. The concept referred to patterns of behavior demonstrated over time in a variety of professional performance situations. LaDuca maintained that in order to understand what competence in the health professions is, one must study both what people do and where they do it. He portrayed the influence of the environment on role performance and the development of competence in the Professional Performance Situation Model (PPSM). (See Figure 1.)

The PPSM is a problem-solving model which depicts the practitioner in relation to a client in a problem situation, and emphasizes the active process involved in the definition of the situation prior to selecting or creating an approach to impact on the situation. Defining the situation refers to the process through which people in the situation, singly or collectively, create the meaning of events (60). People are active in framing their actions in relation to their understanding of what is occurring in the problem situation (61). Thus, a practitioner's behavior may be influenced

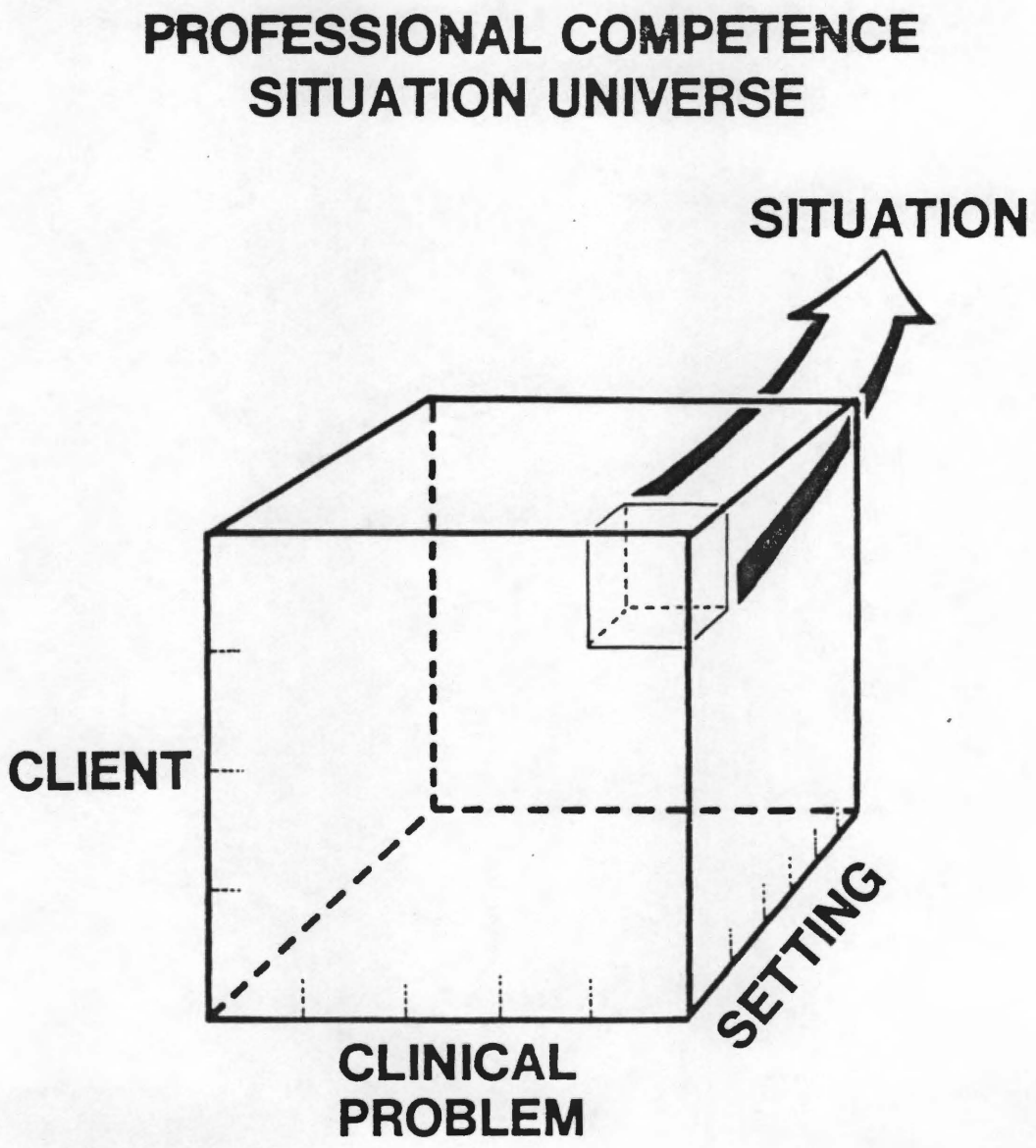


Figure 1. The Professional Performance Situation Model (56).

by the definition of the situation as well as by role expectations associated with the position. This human freedom to attribute meaning to events accounts for the practitioner's independent judgment and self-direction in the modification, creation, and enactment of roles.

In the PPSM, a performance situation was described by three variables--the client, the client's clinical problem, and the setting in which the practitioner encountered the client. (See Figure 1.) Selection of the facet variables was arbitrary and reflected the logic of the profession in the conceptualization of professional practice. Each variable included a set of categorical elements. The variable client included those characteristics that differentiate one individual from another, e.g., age, gender, race, marital status, occupation, and socioeconomic status. Age was believed to be the client's attribute that most influenced the course of action of the dietitian; and the descriptor was divided into five age categories: infant, child, adolescent, adult, and aged. The variable clinical problem included the physical health status of people who were well or in disease. Approximately 250 clinical problems were identified. The variable setting included 12 work sites, e.g., the hospital, outpatient clinic, and community health agency. One cube defined one performance situation in terms of the client, the client's problem, and the setting in which the practitioner encountered the client. The sum of the permutations of these variables was the situation universe.

The model was used to derive a definition of competence for the clinical dietitian in a direct service role as a counselor. To define expectations for the development of competence, it was necessary to identify the universe of professional performance situations and to select those which were representative of those actually encountered in practice. The performance situations representative of clinical dietetic practice were identified by clinical dietetic faculty and practitioners with guidance from an educational research team (58). The performance situations reflected the priorities of clinical dietetic educators in a large, urban medical center.

LaDuca's model was adapted for use in this dissertation research. The age element of the client variable was explicated to include infants, children, adolescents, adults, and older adults. The variable clinical problem was designated as client need or problem to assure recognition of the diverse range of organismic conditions and environmental problems which relate to the health and nutritional status of people. The variable setting was delimited to the large, short-term care hospital and the public health agency. This variable was explored in the study to determine the range of physical contexts in which practitioners employed in these two settings actually counseled patients.

Summary

In the United States, dietetic and public health nutrition practice became systematically contextualized by setting for practice during the first quarter of the twentieth century. Throughout the

nation, people in a variety of professional organizations provided direction to faculty in the development of educational programs to prepare these practitioners. In general, there was a lag between the application of advances in educational methodology to the development of educational programs in dietetics and public health nutrition. In the 1970s, approaches to educational development changed from a focus on knowledge and knowing to the development of competence in practice. However, the competency-based approach did not address important systems development problems which surfaced.

LaDuca's Professional Performance Situation Model is a view of the development of practitioners' clinical competence. The model relates the practitioner in roles to the client in a problem situation. LaDuca assumed that the health care service environment influences the development of competence and that assessment of competence should reflect priorities in performance situations representative of actual practice. A difference in the competence needed to practice in various health care settings reflects differences in practitioners' roles and priorities among performance situations.

This study was undertaken to compare the roles and high-priority performance situations of practitioners in dietetics and public health nutrition. In addition, a Delphi probe was conducted to determine clients' needs and problems in high-priority performance situations anticipated for counseling intervention in the future as a basis for a comparison with those addressed in actual practice. The results are to be used to facilitate debate about the generic nature of practice and the attendant implications for educational development in the Department of Nutrition and Food Sciences.

CHAPTER III

METHODS

Two surveys were conducted to obtain information about dietetic practice in Tennessee. The first survey was designed to characterize dietetic practitioners who practiced in large, short-term care hospitals and in public health agencies and to compare their performance in clinical roles and high-priority performance situations. The second survey was designed to obtain expert judgment regarding what clients' needs and problems in high-priority performance situations are anticipated for the future. The methods of procedure are summarized in the following two sections entitled Survey 1 and Survey 2.

A. SURVEY 1

Method

Design

This survey was an ex-post facto design with a two-group comparison. The measured variables were the practitioners' clinical roles and their priorities among clients' needs and problems in counseling intervention.

Sample

The practitioners were employed in large, short-term care hospitals and public health agencies in Tennessee in 1982. Nineteen

short-term care hospitals with 400 beds or larger were identified through written communications with the presidents of the Tennessee district dietetic associations and the 1981 edition of the American Hospital Association (AHA) Guide to the Health Care Field (62). Two Maternal and Child Health Service (MCHS) projects providing health services to pregnant women and newborn infants were funded through the Tennessee Department of Public Health (TDPH); however, the projects were administratively placed in one medical center and were considered to be part of the hospital complex. Fifteen public health agencies were identified by the Director of Nutrition Services of the TDPH. These agencies included eight regional health offices (including one which had a MCHS project); five county health departments; and two additional MCHS projects which were administratively placed in community health care organizations.

In June 1982, a letter was mailed to the directors of dietetic and nutrition services in these organizations to explain the purpose of the study, to invite organizational participation, and to identify the practitioners who were eligible to participate in the survey. The directors of 30 institutions and agencies agreed to participate in the study. These organizations included 18 large, short-term care hospitals and 12 public health agencies (eight regional health offices and four county health departments). One hospital director declined to participate because of a staff shortage. Three public health agencies did not participate because the nutritionist position was either vacant or had been eliminated. These three agencies

included one county health department and the two community-based MCHS projects. A list of the organizations which participated in the study is included in Appendix A.

All dietetic practitioners who were employed in short-term care hospitals with 400 beds or larger and in public health agencies in Tennessee were eligible to participate if they were employed in the same organizations to counsel clients during the six months prior to the survey. The directors identified a total of 198 practitioners including 129 who worked in hospitals and 69 who worked in public health agencies. Responses were received from 160 of the 198 practitioners (80.8%). One hundred four of the 129 hospital practitioners responded (80.6%); and 56 of the 69 public health nutrition practitioners (81.1%). There were 144 useable questionnaires; 94 were from hospital practitioners (65%) and 50 from those in public health (35%). Sixteen questionnaires were not used, principally because the practitioners had not counseled clients for a period of six months prior to the survey. Thirty-eight of the 198 practitioners surveyed did not respond after a follow-up letter to encourage their participation (19.2%). There was no information available to distinguish these practitioners from those who participated.

Procedures for Data Collection and Analysis

Instrument development. The instrument was designed to obtain demographic information which characterized the practitioners, to

determine their clinical roles in practice, and to obtain information about three dimensions of the performance situations. The dimensions were the age of the client, the client's need or problem, and the setting in which the encounter between the practitioner and client occurred.

The preliminary instrument included a rating of the importance of 11 roles characteristic of actual practice during the previous six months. The 11 roles were delineated by the ADA in 1981 for the entry-level practitioner who practiced clinical dietetics in a variety of settings. A detailed description of the procedures used in the ADA Role-Delineation Study is available (47-55).

To determine the clients' needs and problems for inclusion in the instrument, a sorting procedure was developed. A pool of items was compiled using approximately 220 needs and problems identified in the Nutrition Problem Classification for Children and Youth (Minnesota Systems Research, 1979) and the Dietetic Problem Sort (University of Illinois, 1980).

The Nutrition Problem Classification for Children and Youth was empirically derived through research between 1966 and 1975 (63). In 1975, the system for classification of nutrition problems was field tested among clients with diverse backgrounds in Children and Youth projects throughout the United States. A modification of this classification system provided a structure for the survey instrument used in this study. Both health and well-being as well as illness and disease were emphasized in the list of needs and problems.

In addition, problems external to the person (e.g., problems in the home and community environment) which affected nutritional and health status were included.

Additional physical-health problems were included from the Dietetic Problem Sort procedure constructed at the University of Illinois, Center for Educational Development. The Dietetic Problem Sort procedure was developed in the process of defining the competence of the clinical practitioner in the counselor role as a basis for the development of proficiency examinations (58). Ninety national reviewers ranked the priority of approximately 250 problems. The reviewers were either dietitians or dietetic educators and included people who attended the regional meeting of the Section on Educational Preparation of ADA in Spring 1975. The following criteria were used to determine the priority of each clinical problem: (a) the frequency of occurrence of a problem in the specified age category, (b) the degree to which dietary intervention affects the outcome, and (c) the degree to which the clinical problem causes disruption to an individual's life. Each reviewer ranked the priority of approximately 50 clinical problems associated with various age groups, using a forced choice procedure. The data were used by the researchers and faculty from the coordinated undergraduate program at the University of Illinois to identify the 20 highest-priority physical health problems.

To aid in decision-making about the needs and problems to be included in the survey instrument for this research, a preliminary

inquiry was conducted among faculty in NFS and local dietetic practitioners in large hospitals and in public health agencies. Twelve people screened a 220-item pool in order to reduce the needs and problems to a manageable number. The reviewers included four faculty members in NFS (two in Public Health Nutrition and two in the Coordinated Undergraduate Program in Dietetics) and eight practitioners (four in hospitals and four in public health agencies in Knoxville and Knox County, Tennessee).

The screening form was delivered to participants, and written instructions were explained by the investigator. Half the people completed the form at that time; the other half completed forms at a convenient time and returned them by mail. The faculty members and practitioners were asked to rank the priority that each need/problem received in counseling during 1981, considering the frequency with which clients were counseled. The practitioners were directed to base the rank of priority on their own experience in practice. Responses were summarized. All items rated High or Medium priority by those involved in either public health or hospital dietetics were included in the instrument. Only items which were rated Low priority or Did Not Counsel by both groups were excluded.

Results of the preliminary screening were reviewed with two members of the dissertation committee. The structure of the questionnaire was reorganized, and items were clarified. A Likert-type scale was constructed for the 113 needs and problems identified so that practitioners could rate the items (1=HIGH PRIORITY to 5= LOW PRIORITY) taking into consideration the frequency of counseling

clients with the given need/problem during the previous six months. The option to add items was held open; however, the investigator believed that all items needed for consideration in the process of determining the highest-priority needs and problems were included.

Pilot test of the survey. In May and June 1982, a pilot study was conducted to test the survey materials and procedures. Because a census of practitioners in Tennessee was planned, a pilot study was conducted in Georgia. The organizations selected for the pilot study were Grady Memorial Hospital in Atlanta and the Georgia Department of Human Resources public health district in Southwest Georgia. A total of 22 practitioners (16 from Grady Memorial Hospital and 6 from the Department of Human Resources) was mailed the following materials: (a) a cover letter which explained the purpose and procedures of the survey; (b) the instrument; (c) a simple open-ended questionnaire to request an estimate of the time required to complete the instrument and to make recommendations for improvement of the materials and procedures; and (d) an addressed, stamped return envelope.

A total of 18 of the 22 practitioners responded (81%). A general summary of the pilot data and participants' comments was reviewed by the dissertation committee. The major improvement in the instrument was revision of the section designed to characterize the practitioners' clinical roles. Role descriptors were clarified. The task was changed from rating the importance of the role to rating the frequency that participants performed the role during

the previous six months. A 5-point (1=VERY FREQUENTLY to 5=NEVER) Likert-type scale was designed to rate the roles.

Data collection. Approval to conduct the research was obtained from appropriate university personnel, including members of the doctoral dissertation committee and the Committee on Research Participation involving Human Subjects. On June 14, 1982, the directors of dietetic and nutrition services were mailed a letter to explain the purpose of the project and to invite organizational participation. The directors were asked to identify all eligible practitioners in their organizations, including those who worked in different administrative units (e.g., out-patient clinics or child development projects). The directors were provided a form to report the names and addresses of the eligible practitioners and an addressed, stamped return envelope. (These materials are included as Appendix B.)

When directors did not respond to the initial inquiry, a follow-up letter was sent to encourage participation. The few remaining directors who did not respond to the follow-up letter received personal telephone calls. Of the 19 hospitals surveyed, only one director declined to participate. All public health nutrition directors agreed to participate.

On July 27, 1982, each of the practitioners identified by the directors was mailed a letter explaining the purpose and procedures of the survey, as well as the questionnaire, an informed consent form, and an addressed, stamped envelope for the return of the

materials. (See Appendix C.) The survey materials were mailed either directly to the participants or to a person designated by the director to distribute materials provided in a sealed envelope and addressed to the individual participant.

The participants were instructed to complete the questionnaires, independently, within two weeks, and to mail the questionnaires directly to the Department of Nutrition and Food Sciences, The University of Tennessee, Knoxville. Reminder letters were mailed to practitioners who did not return their questionnaires within three weeks. People who did not return the informed consent forms were sent second copies. All participants returned informed consent forms. Upon completion of the study, all directors and participants were sent a summary of the results.

Data reduction and transformation. The questionnaires were coded for computer analysis of the data. Guidelines for coding were developed. All coded data and all data entered on the DECsystem-10 were checked for accuracy.

Data analysis. The unit of analysis was the institution or agency which employed the practitioners. The independent variable was the practitioner, and the two dependent variables were clinical roles and clients' needs and problems. There was a wide range in the number of responding practitioners among organizations within groups, and the sample size differed between groups. SAS PROC T-Test was used to test the assumption of homogeneity of variances on the ratings for each clinical role (64). A one-factor analysis

of variance was used to determine whether there was a difference between groups on the ratings for the clinical roles (65). The alpha level of .05 was used to determine the significance of the F statistic in both procedures.

A simple decision-rule was used to identify the highest-priority clients' needs and problems. An item was included among the highest priority items if more than one-half of the practitioners in either group counseled clients with the need or problem, and the mean rating was less than or equal to 3.0 on the 5-point Likert-type scale. SAS PROC T-Test was used to test the assumption of homogeneity of variances for each high-priority need or problem rated by more than one-half of the practitioners in both groups (64). A one-factor analysis of variance was used to determine whether there was a difference between groups on the ratings for these items (65). The alpha level of .05 was used to determine the significance of the F statistic in both procedures.

B. SURVEY 2

Method

Design

A three-round Delphi probe was conducted to obtain relevant information about the background of participants and about their opinions on one dimension of emergent performance situations--clients' need or problem. The Delphi probe participants were asked to

identify which of the clients' needs and problems should receive priority in counseling intervention by practitioners in the future. They were also asked to set priorities on the needs and problems identified, and to verify their agreement on the rank of priority or to re-rank the priority derived from group responses. The criteria used to determine the priority of each need/problem included the following: (a) the frequency of occurrence of the need/problem, (b) the degree to which the need/problem causes disruption in a person's life, and (c) the degree to which dietary/nutrition intervention affects the outcome.

Rationale for Use of the Delphi Technique

The Delphi technique was selected for use in this survey because it was an inexpensive means to obtain information from people geographically separated. The background and characteristics of the Delphi technique are explored here to demonstrate the relevance of the approach to the goal of obtaining group consensus about future events--the needs and problems in performance situations to be encountered in practice.

In 1948, Helmer and his colleagues at the Rand Corporation initiated the development of the Delphi technique to obtain group opinion about urgent defense problems (66,67). After declassification in the early sixties, the technique was rapidly adopted by corporate, governmental, and academic sponsors for research in business, science, education, medicine, and other areas. Both short and long-range objectives were used in the application of the Delphi

technique. Jantsch (68) considered the Delphi technique to be normative (need-oriented) and, therefore, useful only for short-range operational planning. Normative forecasting included the task of generating new information about needs, problems, desires, values, goals, and expected outcomes (66-68).

Characteristics of the Delphi technique. The Delphi technique was regarded originally as wisdom, expert or genius forecasting (68). Helmer (67) stated

> Delphi . . . operates on the principle that several heads are better than one in making subjective conjectures about the future, and that experts . . . will make conjectures based on rational judgment and share information rather than merely guessing, and will separate hope from likelihood in the process.

As the technique was developed, it was used among both experts and non-experts as a general purpose mechanism to facilitate communication, to obtain group consensus, and to promote group problem-solving (66,69).

The Delphi is a projective technique designed to improve intuitive thinking in the generation of new information (66,68). The technique usually consists of several rounds of questionnaires mailed to people geographically separated. Because there is no communication among the participants during the first round, responses are considered to be independent judgments. However, it is assumed that the feedback of aggregated responses during subsequent rounds produces biased results (66). In this survey, which was qualitative in nature and involved a small number of participants,

it was assumed that the feedback affected the responses received on the second and third rounds.

Sackman (66) recommended that steps be included to support the achievement of authentic consensus to enhance the quality of the results obtained. Authentic consensus refers to group agreement based on the exchange of information which leads to enhanced understanding of the subject matter of the task. There are two Delphi procedures which facilitate the achievement of authentic consensus. These procedures include the provision of anonymity to participants in order to encourage the free expression of opinion and the provision of feedback in iterative polling. The utilization of adversative processes (e.g., the debate) to improve the understanding of the issues and to promote consensus is limited in the Delphi technique; but such processes may be used as the results of the probe are given further consideration.

Representation in the selection of Delphi participants. Sackman (66) cautioned against the promotion of elitism in conducting the Delphi probe. The selection of people recommended by acquaintances is easier, faster, and more productive because there are fewer rejections. The dropout of participants may result in the continued participation of like-minded people with similar backgrounds and interests. The outcome may be the purposeful or the inadvertent formation of an elite group with vested interests in the promotion of the area under investigation, failure to explore new domains, and perpetuation of the status quo.

To include people with diverse attitudes and values toward the subject matter of the task may be the key to avoiding elitism in conducting the probe. Experimental data from a variety of Delphi studies indicated that conjectural responses were influenced more by the participants' attitudes and values toward the subject than by the level of competence of the participants (66). Selection procedures used in this survey were designed to assure representation of the diverse attitudes and values of people in the administration and practice of dietetics in hospitals and public health agencies and in the education of practitioners.

Validity of the Delphi technique. Sackman (66) stated that the Delphi technique does not lend itself to scientifically objective and externally verifiable statements of future events. The probe enables participants to articulate their views of the future (however dimly!). It may be anticipated that as the future evolves, both perception and values change so that responses will be different if assessed at a later time. The relationship of predicted events to future occurrences is of little concern in normative, short-range operational planning.

To understand that validation in relation to actual occurrences of predicted events is not needed, one must view the use of results in the process of development. The Delphi probe is a heuristic device used to facilitate immediate decision-making in a developmental process. The decision-makers themselves weigh results of the probe in relation to their own understandings and values in

the process of making key decisions about curriculum. The recognition of the values which direct action is fundamental in the change process in both individual and organizational behavior (33). Adequate representation of people with diverse values would do more to enhance the validity of the Delphi probe than any other measure; and, if the results are given fair consideration, the exploration of these values should facilitate both individual and organizational change in educational development.

Summary. The procedures employed in this survey were based on the conventional Delphi technique used to obtain group consensus about future events. The conjectural nature of such predictions was acknowledged, and the validity issue was viewed in the perspective of the development process. The role of achieving authentic consensus to enhance the quality of the results was stressed. Emphasis was placed on the inclusion of people with diverse viewpoints to assure that a range of important values was represented in the deliberations. The provision of anonymity to Delphi participants in the feedback of aggregated responses was believed to encourage free expression of opinions and to promote group consensus.

Sample

Selection of the participants. The procedures used in identification and selection of the Delphi probe participants were designed to assure the inclusion of people who work in hospital

dietetics and in public health nutrition as well as people who educate practitioners in other colleges and universities in Tennessee. The general criterion used in the selection of participants was a breadth of understanding of the field, particularly clinical dietetic practice.

Twenty-nine people were recommended for consideration by six NFS faculty members who were involved in the education of dietetic practitioners in hospitals and public health agencies. Eight of the people recommended who participated in Survey 1 were eliminated from consideration in order to avoid the bias of preconditioning to the task by their participation in the first survey. Fifteen people were selected by the investigator and dissertation director from the remaining 21 people who were recommended. In October 1982, the fifteen people were mailed a letter to explain the purpose and procedures of the survey and to invite their participation. Fourteen people agreed to participate.

Characteristics of the participants. The fourteen participants were drawn from all parts of Tennessee. Six of the participants were from East Tennessee (Chattanooga, Signal Mountain, Knoxville, Jefferson City, and Jonesboro); three from Middle Tennessee (Murfreesboro, Charlotte, and Nashville); and five from West Tennessee (Martin and Memphis).

The participants were characterized in terms of their demographic background. All of the participants were women. Thirteen of the women were white, and one was native American. The women

had worked an average of 14.6 years in dietetics and/or nutrition (range 5-27 years). All of the women had a bachelor's degree. Eight of the women held a master's degree, and five a doctoral degree. All participants were registered with the ADA.

Several Delphi probe participants previously had worked in both a hospital and in a public health agency; therefore, a distinction based on this type of affiliation would not be meaningful. At the time of the study, the primary responsibilities of the participants included the education of dietetic practitioners and other health professionals; service in hospitals, public health agencies, and private practice; and clinical research. Three participants were exclusively involved in the education of dietetic practitioners; eight were primarily involved in the delivery of services in institutions or agencies; two in private practice; and one in clinical research. One-half of the 14 participants were involved in the administration of their respective organizations.

The participants were asked whether they would be willing to accept formal recognition for their participation in the Delphi probe. Four of the participants indicated a desire to remain anonymous, so none of the participants will be identified in this report.

Procedures for Data Collection and Analysis

Development of the Round I probe. The Round I questionnaire was a modification of the questionnaire used in Survey 1. A small number of demographic questions was selected for inclusion so that the background of the participants could be portrayed consistently.

The probe into the clients' needs and problems was organized into four categories to assure diversity in participants' responses. The participants were asked to list up to six nutrition-related needs and problems in each of the following categories: anticipatory guidance; physical health problems and illnesses; food, home and family life management; and problems of the physical environment of the home and the community which affect nutritional status.

The instrument was tested among three NFS faculty members to determine whether categories clearly communicated the categories of interest. The final revision of the questionnaire was approved by the investigator's dissertation research director.

On October 8, 1982, the 15 people originally selected for the study were mailed a letter explaining the purpose of the study, an informed consent form, the Round I probe, and an addressed, stamped envelope to return the materials. The participants were asked to return the completed materials as soon as possible to expedite the probe. Materials used by participants in the Round I probe are included in Appendix D.

Data analysis of Round I and development of the Round II probe. The needs and problems identified by the Delphi participants during the Round I probe were typed on small cards for use in a sort procedure to verify the categorical placement of the items. Two colleagues in NFS sorted the items into the four categories. Responses which were duplicates or were vague were eliminated. In addition, items which represented specific dietary recommendations

for the promotion of health and the prevention of disease were assumed to be included in the general categorical statement which pertained to anticipatory guidance about diet and nutrition and were eliminated.

The Round II probe was tested by two NFS faculty members and reviewed by two dissertation research committee members. Final modifications were approved by the dissertation research director. On December 8, 1982, the 14 participants who participated in the Round I probe were mailed a letter explaining the procedures, the Round II probe, and an addressed, stamped return envelope. (See Appendix D.) Participants were requested to return the probe within ten days or as soon as possible thereafter.

Data analysis of Round II and development of the Round III probe. The purpose of the Round II probe was to derive a preliminary rank of priority for the needs and problems identified in the Round I probe. The criteria used to determine the priority for the needs/problems in the forced choice procedure included: (a) the frequency of occurrence of the need/problem, (b) the degree to which the need/problem causes disruption in a person's life, and (c) the degree to which dietary/nutrition intervention affects the outcome. A column was provided for participants to indicate if they had Little or No Experience with the need/problem.

The item ranks of priority were assigned a weighted value (+1=HIGHEST or -1=LOWEST); and the summated mathematical value for the group responses was used to determine a preliminary rank for the

need/problem. The highest ranked two-thirds of the items were selected for verification by the participants in the Round III probe; the lowest ranked one-third of the items was deleted. The materials used and a summary of the responses for all items on the Round II probe are included in Appendix D.

The Round III probe was constructed to provide feedback on the results of the Round II probe and to determine a final rank of priority for the needs and problems. The Round III probe was tested by two nutritionists at the Child Development Center, The University of Tennessee Center for Health Sciences in Memphis. Two dissertation committee members reviewed the probe, and proposed modifications were discussed with the dissertation research director and incorporated into the final instrument.

On February 17, 1983, the Round III probe was mailed along with a cover letter, a form requesting permission to give formal recognition to the participants, and an addressed, stamped envelope. (See Appendix D.) The summated numerical scores for the priority of the needs and problems obtained from the Round II probe were omitted in the materials distributed in the first mailing. A corrected copy of the instrument was mailed on February 21, 1983.

Data analysis of the Round III probe. The purpose of the Round III probe was to obtain a final rank of priority for the needs and problems. Participants were asked to review the results of the Round II probe; to indicate whether they agreed with the preliminary

rank of priority assigned each item; and to re-rank the priority of needs and problems if they did not agree. A weighted value (+1= HIGH, 0=MEDIUM, -1=LOW) was assigned to the rank of priority, and a summated score was used to determine the final rank for each item. The results of the Round III probe are included in Appendix D. The highest-ranked needs and problems are listed in Chapter IV.

CHAPTER IV

RESULTS

Two surveys were conducted to obtain information about current dietetic practice in large, short-term care hospitals and public health agencies in Tennessee and about anticipated high priority clients' needs and problems in performance situations. The results of the surveys are summarized in the following two sections entitled Survey 1 and Survey 2.

A. SURVEY 1

Results

Characteristics of Participating Institutions and Agencies

Geographical location. Practitioners from 18 short-term care hospitals and 12 public health agencies in Tennessee participated in the survey. The geographical location of the institutions and agencies is identified in Table 8 in Appendix A and portrayed in Figure 2. The 18 hospitals are located in the cities of Kingsport, Johnson City, Knoxville, Chattanooga, Nashville, Jackson, and Memphis. Three of the hospitals are located in the less populated cities of Kingsport, Johnson City, and Jackson. Four of the 12 public health agencies are located in the cities of Knoxville, Chattanooga, Nashville, and Memphis. These agencies serve the counties of Knox, Hamilton, Davidson, and Shelby, respectively. Eight of the public

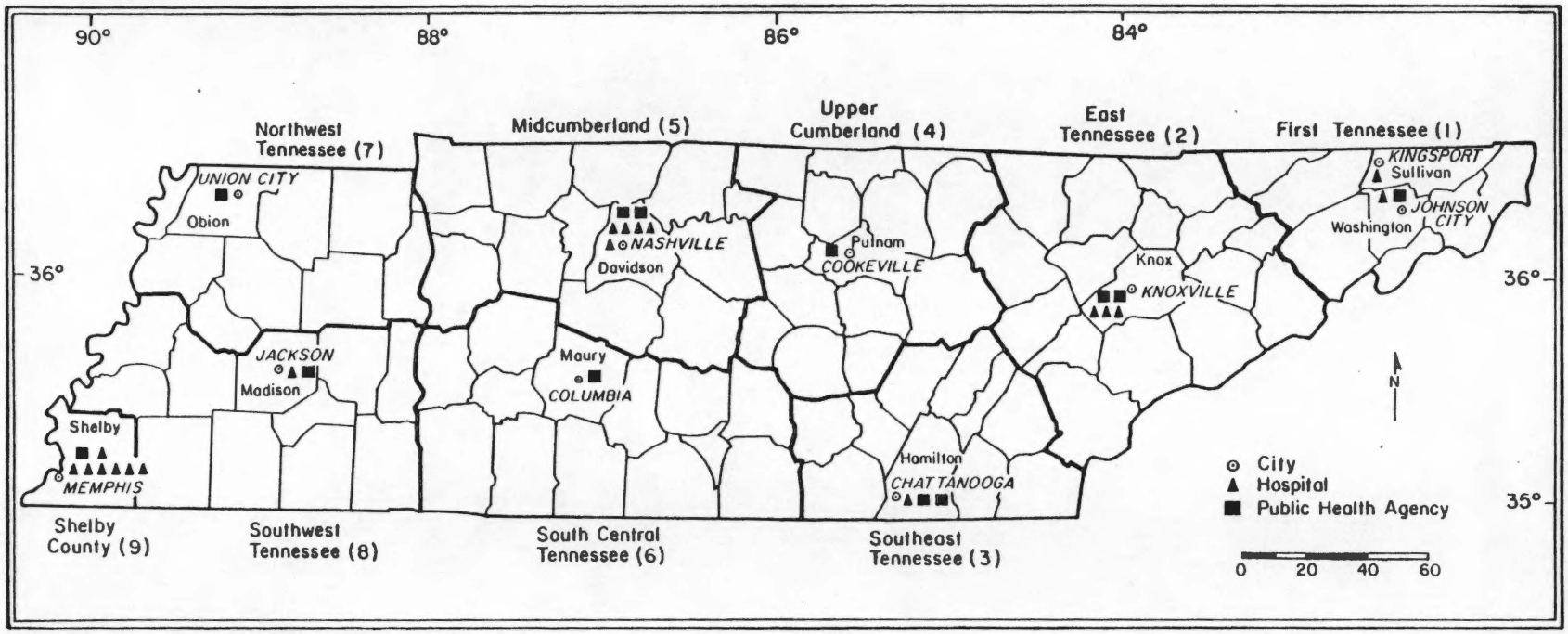


Figure 2. Map of Tennessee Showing the Location of the Institutions and Agencies which Participated in Survey 1 and the Planning and Development Regions of the Tennessee Department of Public Health.

health agencies are regional health offices for districts which serve less densely-populated areas of Tennessee. The TDPH planning and development regions are identified in Figure 2. (During the study, two of the county health departments were given regional status. Shelby County became Region 9 and Davidson County, Region 10.)

Hospitals. Of the 167 hospitals in Tennessee listed in the 1981 edition of the AHA Guide to the Health Care Field (62), 148 (89%) were short-term care institutions and 19 (11%) were other types of facilities such as psychiatric hospitals and long-term care institutions. There were 19 federal and non-federal short-term care institutions with 400 beds or larger. These larger hospitals represented 11% of all hospitals and 38% of the total bed capacity available in Tennessee.

The average capacity of the 18 participating short-term care hospitals was 540 beds (range 409-1914). Thirteen of the 18 institutions (72%) had between 400 and 600 beds. Two institutions had approximately 700 beds; and the other three institutions had approximately 900, 1200, and 1900 beds, respectively. The actual capacity of each institution is given in Appendix A.

Dietetic directors of the 18 hospitals surveyed reported that there was a total of 160 positions for dietitians. The average number of dietitians was 8.9 per hospital (range 4-19 dietitians). There were 1.4 dietitians per 100 beds (range 0.8-3.3 dietitians). Because most of these dietitians worked in both inpatient and outpatient services, it was not possible to derive a reliable estimate of the ratio of the number of practitioners to the population served.

The dietetic directors were asked about the utilization of a food service management company to operate the food service system for inpatient care. Seven hospitals did utilize a food service management company; 11 hospitals did not. It was not possible to discern a relationship between utilization of a food service management company and size of the institution or number of dietitians employed. For example, neither the smallest hospital (i.e., 409 beds and 11 dietitians) nor the largest hospital (i.e., 1914 beds and 19 dietitians) employed a food service management company.

Public health agencies. Public health programs were implemented by public health personnel through regional health districts and county health departments. Tennessee has 95 counties which are divided into eight planning and development regions. Five local health departments served the counties of Sullivan, Knox, Hamilton, Davidson, and Shelby. Most of the nutritionists were placed in regional health districts or county health departments to provide services at the local level. Although there were 13 health agencies, only 12 agencies had nutritionists during this survey. The Sullivan County Health Department had one vacant nutritionist position.

There were a total of 84 positions for nutritionists in the 12 public health agencies included in the survey. The average number of nutritionists in these agencies was 7.0 (range 2-14 nutritionists). Approximately 80% of these practitioners were employed to work with the Special Supplemental Food Program for Women, Infants and Children

(WIC). The purpose of the WIC Program is to provide supplemental food and nutrition education to pregnant and breastfeeding women as well as infants and children under five years of age. Clients are screened by health workers to determine whether they have nutrition-related health problems and meet the income eligibility criterion for participation in the program. Approximately 181,100 people were eligible to participate in the WIC Program in Tennessee. An estimated 44,750 people (9,064 women, 16,053 infants, and 19,633 children) actually were enrolled during July 1982 (70).

The ratio of nutritionists to the population served was estimated for the WIC Program. There were 0.4 nutritionists for each 1,000 people who were eligible to participate; and there were 1.5 nutritionists for each 1,000 people enrolled in the program. These ratios included both administrative personnel and counselors in nutrition services at the regional and local levels (70).

Public health practitioners worked with the Commodity Supplemental Food Program (CSFP) and home care program. An additional 21,000 women, infants, and children received supplemental foods and nutrition education through CSFP in a few of the health agencies. In five of the agencies, nutritionists were involved in home care. In most of these five agencies, only one or two nutritionists provided home care; but in one county health department, 11 of the nutritionists were available to participate in the home care program in addition to their responsibilities in the WIC Program.

Characteristics of Practitioners

Practitioners were characterized in terms of their gender, race, age, educational background, and registration status with the ADA. These characteristics are summarized in Table 1.

Gender. Of the 144 practitioners surveyed, 139 (97%) were women and five (3%) were men. Four of the five men worked in public health agencies.

Race. Eighty-seven percent of the practitioners were white; 8% were black; and 3% were oriental. There was one native American practitioner. The racial distribution of white and black practitioners was similar in hospitals and public health agencies. However, there were no oriental or native American practitioners in public health; and, there were few in hospitals.

Age. The mean age of the 142 practitioners who reported their age was 34 years. The mean age for the 93 hospital practitioners was 35 years (range 23-65 years); and for the 49 public health practitioners, 31 years (range 23-69). There was a larger proportion of younger practitioners working in public health agencies than in hospitals.

Years employed in the field of nutrition and dietetics. Seventy percent of the practitioners surveyed had worked ten years or less; 20% of the practitioners had worked from 11 to 21 years; and 11% of the practitioners, 21 years or more. There was a greater

TABLE 1

Characteristics of the practitioners[1]

Characteristic	Practitioner Group: Hospital (n=94) No.	%	Public Health (n=50) No.	%	Total (n=144) No.	%
GENDER						
Female	93	99	46	92	139	97
Male	1	1	4	8	5	3
RACE						
White	81	87	44	88	125	87
Black	7	8	5	10	12	8
Oriental	4	4	0	0	4	3
Other	1	1	1	2	2	1
AGE IN YEARS						
20-29	40	43	31	63	71	50
30-39	27	29	10	20	37	26
40-49	15	16	5	10	20	14
50-59	6	6	2	4	8	6
60-69	5	5	1	2	6	4
YEARS EMPLOYED IN FIELD						
<1	1	1	3	6	4	3
1-5	37	39	26	52	63	44
6-10	23	24	10	20	33	23
11-15	16	17	4	8	20	14
16-20	6	6	2	4	8	6
21-25	5	5	2	4	7	5
26-30	3	3	2	4	5	3
31-35	2	2	1	2	3	2
36>	1	1	0	0	1	1
YEARS EMPLOYED IN ORGANIZATION						
6 mo. <1 yr.	7	7	8	16	15	10
1-5	55	59	36	72	91	63
6-10	14	15	6	12	20	14
11-15	10	11	0	0	10	7
16-20	4	3	0	0	4	3
21-25	3	3	0	0	3	2
26>	1	1	0	0	1	1
HIGHEST EDUCATIONAL DEGREE						
Bachelor's	65	69	24	48	89	62
Master's	28	30	26	52	54	38
Doctorate	1	1	0	0	1	1
TYPE PROGRAM FOR BASIC DIETETIC EDUCATION						
Bachelor's + on-the-job training	2	2	9	18	11	8
Bachelor's--coordinated undergraduate program	17	18	8	16	25	17
Bachelor's + traineeship	7	8	1	2	8	6
Bachelor's + preplanned experience	3	3	3	6	6	4
Bachelor's + internship	44	47	16	33	60	42
Master's + work experience	17	18	11	22	28	20
Combined master's-internship	4	4	1	2	5	4
REGISTERED WITH A. D. A.						
Yes	92	98	38	76	130	90
No	2	2	12	24	14	10

[1]The sum of percentages may not equal 100 due to rounding of values.

proportion of practitioners who were new to the field working in public health agencies than in hospitals. These data excluded those practitioners not eligible to participate in the survey because they had not worked six months in the field.

Years employed in the present organization. Most practitioners in both groups had been employed with their present organization for five years or less. The length of service by hospital practitioners ranged from 6 months to 30 years. None of the public health practitioners surveyed had worked with their present organization more than nine years.

Educational background. Sixty-two percent of all practitioners held bachelor's degrees; 38% of the practitioners, master's degrees; and one practitioner, the doctoral degree. The percentage of hospital practitioners who held a bachelor's degree (69%) was greater than that of public health practitioners (48%). Conversely, 52% of the public health practitioners and 30% of the hospital practitioners completed master's degrees.

There were numerous options to prepare practitioners with the critical knowledge and skills for clinical practice. Such preparation was traditionally at the undergraduate level. Seventy-seven percent of the practitioners obtained their clinical dietetic education in the traditional manner. Forty-two percent of these practitioners completed an internship; 17%, a coordinated undergraduate program; and 18%, either on-the-job training, a traineeship

or pre-planned experiences approved by the ADA. Twenty-four percent of the practitioners did not develop their clinical skills at the undergraduate level. Most of these practitioners developed their skills through the completion of a master's degree and work experience. A few practitioners completed a combined master's degree-internship program.

Two of the options--the coordinated undergraduate program and the combined master's degree and internship program--required that the responsibility for clinical education be shared between the educational institution and the service agencies. A total of 30 practitioners (21%) received their basic dietetic education in these two options; however, most of these practitioners had completed the coordinated undergraduate program. It is possible that some of the practitioners who completed a master's degree and work experience had clinical training in their field experiences in public health agencies during their master's degree program. However, the focus of field work in public health is usually the development of organizational skills rather than clinical skills.

One hundred thirteen of the practitioners (79%) developed their clinical skills in options which required the service institutions and agencies to bear full responsibility for the organization and financing of the clinical education. These options included on-the-job training, a traineeship, a preplanned experience, an internship, and a work experience combined with a master's degree.

Registration status. Ninety percent of the practitioners were registered with the ADA. Most of the practitioners who were not registered dietitians practiced in public health agencies.

Time employed and time devoted to client counseling. Of the 144 practitioners, 136 (94%) worked full-time during the six months prior to the survey. Seven practitioners (5%) worked part-time, and one practitioner worked both full-time and part-time.

The practitioners estimated the average time spent in client counseling. Full-time practitioners spent approximately 21 hours per week (range 2-40 hours). Of these practitioners the hospital-based practitioners counseled an average of 19 hours per week; and the public health practitioners, 24 hours per week. Six of the part-time practitioners counseled clients an average of 9 hours per week (range 2-15 hours).

Patient education included nutrition education for groups of clients. Seventy percent of the practitioners conducted group education. Group education was provided by 88% of the public health practitioners and 61% of the hospital practitioners.

Titles. The practitioners' titles differed between groups. Most of the hospital practitioners were dietitians or clinical dietitians. Administrative personnel used administrative titles, and two practitioners were entitled nutritionists. One of these nutritionists worked primarily with an oncology unit as a metabolic support nutritionist; the other worked with a hospital-based MCHS

program for pregnant women. All practitioners who worked in public health agencies were designated as nutritionists. However, practitioners with administrative appointments used administrative titles.

Services and programs. Each practitioner identified one primary service or program affiliation. The hospital practitioners included the following inpatient and outpatient services:

Alcoholic rehabilitation	Nutrition clinic
Clinical research	Nutrition/metabolic support
Gastroenterology	Obstretrics and gynocology
Geriatrics	Oncology
Intensive care	Orthopedics
Medicine	Pediatrics
Nephrology and urology	Psychiatry
Neurology and neurosurgery	Surgery
Nursing home care	

Most of the public health practitioners worked with women, infants, and children in the WIC and CSF programs. One nutritionist worked primarily in home health and primary care services, and another worked in chronic disease control.

Roles of Practitioners in Clinical Practice

To determine the nature of clinical activities, participants were asked to identify their major area of responsibility and the roles performed in clinical practice. All practitioners were nutrition counselors. One hundred twenty-eight of the practitioners (90%)

indicated that client care was their major responsibility. Ten of the practitioners (7%) indicated that, although they counseled clients, administration was their major responsibility. Three practitioners indicated that their major responsibility was equally divided between client care and administration. One practitioner identified research as her major responsibility.

To obtain a more in-depth characterization of the roles performed during the six months prior to the survey, practitioners were asked to rate the frequency of performing 11 roles using a 5-point (1=VERY FREQUENTLY to 5=NEVER) Likert-type scale. The mean ratings for each role are given in Table 2. Mean responses and the frequency distribution of responses for each role are included in Table 9 in Appendix E.

Nutritional care. All six role components of the nutritional care process were performed frequently by practitioners in both groups. These role components included nutrition assessment ($\overline{X}$= 1.9); nutrition care planning ($\overline{X}$=2.1); implementation ($\overline{X}$=1.9); evaluation ($\overline{X}$=2.0); nutrition education ($\overline{X}$=1.6); and referral for follow-up care ($\overline{X}$=2.4). The roles were performed frequently by practitioners in both groups. The apparent difference in the mean responses on nutrition assessment could not be confirmed through the performance of an analysis of variance. The assumption of homogeneity of variances was not met (see Table 3). There was a significant difference in the mean responses between groups in a

TABLE 2

Mean ratings of the frequency of role performance by dietetic practitioners in hospitals and public health agencies

How often did you perform each role in your service to patients?	Frequency Role Performed[1] Hospital Practitioners (n=94) $\bar{x}$	Public Health Practitioners (n=50) $\bar{x}$	Total, All Practitioners (n=144) $\bar{x}$
NUTRITION CARE			
1. NUTRITION ASSESSMENT: Assesses the nutrition status of individuals in health and disease throughout the life cycle	2.2 (94)[2]	1.2 (50)	1.9 (144)
2. NUTRITION CARE PLANNING: Constructs and coordinates all aspects of nutrition care plan including identification of goals, delineation of treatment modalities and educational plans, establishment of procedures to implement plan, ongoing information gathering and evaluation	2.3 (93)	1.8 (50)	2.1* (143)
3. NUTRITION CARE IMPLEMENTATION: Communicates and monitors implementation of nutrition care plan; documents all aspects of nutrition care; verifies implementation of care plan.	2.0 (93)	1.7 (50)	1.9 (143)
4. NUTRITION CARE EVALUATION: Evaluates effects of intervention on individual patient nutrition status	2.2 (93)	1.7 (50)	2.0* (143)
5. NUTRITION EDUCATION: Plans, organizes, implements and evaluates nutrition education/counseling for patient.	1.7 (94)	1.3 (50)	1.6* (144)
6. NUTRITION REFERRAL: Arranges for individual patient follow up care as needed.	2.5 (94)	2.0 (50)	2.4* (144)
PROFESSIONAL DEVELOPMENT:			
1. Designs and/or participates in applied research	4.1 (91)	4.1 (50)	4.1 (144)
2. Uses research findings and current knowledge to solve patient's nutritional problem	2.4 (92)	2.4 (50)	2.4 (142)
HEALTH TEAM FUNCTIONS:			
1. Communicates pertinent information to other health care professionals; discusses individual patient nutrition care needs with health team members.	1.7 (94)	2.0 (50)	1.8* (144)
2. Educates health team on nutrition-related topics.	2.5 (92)	2.4 (50)	2.5 (142)
FOOD PROCUREMENT, PRODUCTION AND SERVICE: Plans, reviews, provides consultation for the implementation of nutrition care on the systems level in institutional food service.	4.1 (94)	4.4 (49)	4.2 (143)
FOOD PROCUREMENT, PRODUCTION AND SERVICE: Plans, reviews, provides consultation for the implementation of nutrition care on the systems level for supplemental feeding program (eg. WIC) and/or other food assistance program	4.8 (94)	2.8 (49)	4.1 (143)
FOOD SERVICE MAINTENANCE: Institutional kitchen-based responsibility for implementation of nutrition care	4.5 (93)	4.9 (49)	4.6 (142)
STRATEGIC DIRECTION AND PERSONNEL MANAGEMENT:			
1. Develops short and long range plans for delivering quality nutrition care services while containing costs (including budgeting)	4.3 (94)	3.8 (49)	4.1* (143)
2. Maintains personnel functions for clinical dietetics/nutrition section	4.1 (93)	4.0 (49)	4.1 (142)
3. Maintains orientation and training functions for clinical dietetics/nutrition section	4.0 (94)	3.8 (49)	3.9 (143)
IDENTIFICATION AND MANAGEMENT OF EXTRANEOUS INFLUENCES UPON NUTRITION CARE: Identifies political, fiscal and social factors influencing nutrition care and integrates these factors into system for delivering nutrition care to individual patients.	3.4 (94)	3.0 (47)	3.3 (141)

[1] Response categories: 1 = Very Frequently; 2 = Frequently; 3 = Sometimes; 4 = Seldom; 5 = Never.

[2] Number in parentheses indicates the number of practitioners who rated the role.

TABLE 3

Summary of F tests for homogeneity of variances

Role	Degrees of Freedom	F-Value	P-Value[1]
Nutrition Assessment	93, 49	3.49	0.0001
Nutrition Care Planning	92, 49	1.08	0.7904
Nutrition Care Implementation	92, 49	1.07	0.8043
Nutrition Care Evaluation	92, 49	1.39	0.2202
Nutrition Education	93, 49	1.53	0.1043
Nutrition Referral	93, 49	1.09	0.7537
Applied Research	90, 49	1.08	0.7472
Uses Research in Problem-Solving	91, 49	1.43	0.1410
Communication with Health Care Team	93, 49	1.12	0.6629
Educates Health Care Team	91, 49	1.56	0.0886
Food Procurement, Production, and Service in Institutions	93, 48	1.94	0.0128
Food Procurement, Production, and Service in Food Assistance Program	93, 48	6.34	0.0001
Food Service Maintenance	92, 48	4.82	0.0001
Personnel Functions	92, 48	1.07	0.7706
Plans Nutrition Services	93, 48	1.47	0.1110
Orientation and Training	93, 48	1.09	0.7232
Management of Extraneous Influences	93, 46	1.15	0.5569

[1]An alpha level of .05 was used to determine significance of the F statistic in a test of the null hypothesis: variances are equal.

one-factor analysis of variance (α=.05) on four roles (see Table 4). The public health practitioners performed nutrition care planning, education, evaluation and referral more frequently than did the hospital practitioners. There was no difference in the mean responses between groups for nutrition care implementation.

Professional/educational activity and development. A distinction was made between research and problem-solving to determine whether practitioners engaged in the advancement of knowledge were actively involved in research or were applying the results of research in problem-solving in practice to further their own learning. Relatively few practitioners were actively engaged in research ($\overline{X}$= 4.1). However, most practitioners indicated that they frequently used research findings and current knowledge in problem-solving in the provision of client care ($\overline{X}$=2.4). There was no difference between groups in the frequency with which they engaged in research and problem-solving.

Health care team functions. Practitioners who counseled clients participated in the provision of care as members of a health care team. Practitioners in both groups indicated that they frequently communicated with other health care team members in the process of providing services to clients ($\overline{X}$=1.8). There was a significant difference in the mean responses between groups in a one-factor analysis of variance (α=.05). The hospital practitioners ($\overline{X}$=1.7) communicated more frequently with other health care providers than did the public health practitioners ($\overline{X}$=2.0).

TABLE 4

Analysis of variance summary for ratings of the frequency of role performance by dietetic practitioners in hospitals and public health agencies

Role	Source	Degrees of Freedom	Sum of Squares	F-Value	P-Value[1]
Nutrition Assessment[2]					
Nutrition Care Planning	Group	1	9.5199	6.82	0.0100
Nutrition Care Implementation	Group	1	2.5769	1.90	0.1706
Nutrition Care Evaluation	Group	1	6.0698	6.35	0.0129
Nutrition Education	Group	1	5.5953	8.90	0.0034
Nutrition Referral	Group	1	8.2433	7.35	0.0075
Applied Research	Group	1	0.1196	0.10	0.7510
Uses Research in Problem-Solving	Group	1	0.0507	0.04	0.8364
Communication with Health Care Team	Group	1	2.7168	3.98	0.0481
Educates Health Care Team	Group	1	0.2164	0.19	0.6614
Food Procurement, Production, and Service-institutions[2]					
Food Procurement, Production, and Service-food assistance program[2]					
Food Service Maintenance[2]					
Plans Nutrition Services	Group	1	9.4890	6.35	0.0129
Personnel Functions	Group	1	0.4490	0.23	0.6325
Orientation and Training	Group	1	1.0662	0.55	0.4604
Management of Extraneous Influences	Group	1	5.3936	2.93	0.0893

[1] $p<.05$.

[2] The analysis of variance was not performed because the assumption of homogeneity of variances was not met.

Practitioners in both groups sometimes used educational programs to structure communication with other health care team members ($\bar{X}$=2.5). There was no difference in the mean responses between groups.

Food production, procurement, service and systems maintenance. Performance in three roles the area of food delivery systems was assessed. Hospital-based practitioners seldom participated in the process of developing the system ($\bar{X}$=4.1) or in the kitchen-based implementation of nutritional care ($\bar{X}$=4.5). Public health practitioners sometimes participated in the development of the food delivery system for food assistance programs ($\bar{X}$=2.8). However, they almost never assumed responsibility for the implementation of nutritional care in the kitchen of institutions ($\bar{X}$=4.9). It was not possible to demonstrate a significant difference between groups on the mean ratings for these roles. The assumption of homogeneity of variances was not met, and the analysis of variance was not performed (see Table 3).

Strategic direction and personnel management. Practitioners seldom participated in the management of an administrative unit in clinical dietetics or nutrition. The role components which were seldom performed included planning nutrition services including budgeting ($\bar{X}$=4.1), personnel management ($\bar{X}$=4.1), and orientation and training of dietetic personnel ($\bar{X}$=3.9). There was a significant difference in the mean responses between groups in a one-

factor analysis of variance in the area of planning (α=.05). The public health practitioners ($\bar{X}$=3.8) were involved in management more frequently than the hospital practitioners ($\bar{X}$=4.3).

Identification and management of extraneous influences on nutritional care. Practitioners in both groups indicated that they were sometimes involved in the identification of political, fiscal, and social factors which influenced nutritional care and the integration of the information into the development of a system for the delivery of nutritional services to clients ($\bar{X}$=3.3). There was no difference in the mean responses between groups (α=.05).

Summary. The most frequently performed roles for practitioners in both groups were those of the nutrition care process, problem-solving using research findings, communications with other health team members in the delivery of client services and inservice education, and the development of the system to relate political, fiscal, and social factors which influenced nutritional care to the needs of clients. Roles which were seldom performed included research, development of a food service system and implementation of the system at the level of an institutional kitchen, and strategic direction and personnel management including orientation and training in a clinical dietetic or nutrition unit. Only public health practitioners indicated that they sometimes participated in the development of a system to deliver food through food assistance programs for the free-living population.

Professional Performance Situation Variables

The variables of the professional performance situation included client's age, client's need or problem, and the setting in which the encounter occurred. These variables were assessed to discern the pattern of practice and to provide a basis for the two-group comparison of the high-priority performance situations.

Situation variable--client's age. Practitioners in both groups counseled clients (or their parents/caretakers) of all ages. The age groups of clients counseled are identified in Table 5. Over 90% of the public health practitioners served infants, children, adolescents, and adults (primarily pregnant women) ranging in age from 19 through 64 years. Sixty-eight percent of these practitioners also counseled adults who were age 65 years or older. In contrast, only 15% of the hospital practitioners served infants; and 25% of these practitioners, children. Forty-one percent of the hospital practitioners counseled adolescents; 98%, adults; and 88%, older adults. The greatest proportion of hospital practitioners counseled adults and older adults rather than infants and children.

Situation variable--client's needs and problems. To determine the high-priority clients' needs and problems which were the focus of counseling intervention, the practitioners were asked to rate 113 needs and problems on a 5-point (1=HIGH to 5=LOW) Likert-type scale, based on the frequency with which they counseled clients.

TABLE 5

Age group of people counseled by dietetic practitioners in hospitals and public health agencies

Age Group	Practitioner Group					
	Hospital (n=94)		Public Health (n=50)		Total (n=144)	
	No.	%	No.	%	No.	%
Infants (birth through 12 mo.)	14	15	50	100	64	45
Children (1 through 10 yr.)	23	25	49	98	72	50
Adolescents (11 through 18 yr.)	38	41	45	90	83	58
Adults (19 through 64 yr.)	91	98	47	94	138	96
Older Adults (65> yr.)	82	88	34	68	116	81

A column was provided for the practitioners to indicate if they Did Not Counsel clients with the need or problem. The need/problem was designated as high priority if more than one-half of the practitioners counseled clients and rated the item less than or equal to 3.0.

All 113 needs and problems are listed in Table 10 in Appendix G. The 46 needs and problems identified as highest priority are listed in Table 6. The decision rule produced 19 items for the hospital-based practitioners and 36 items for the public health practitioners.

Generally, among public health practitioners, many needs and problems were related to health promotion and primary prevention of disease among well persons. Most of the physical health problems were related to the achievement of an energy balance and an adequate intake of food and nutrients to support normal growth and development (e.g., underweight, overweight/obesity, prematurity). Some problems were, in part, a consequence of an inadequate intake of food or nutrients (e.g., failure-to-thrive, stunted growth, and iron deficiency anemia). Other problems rated high priority included constipation, food allergies, hypertension, and the discomforts of pregnancy (e.g., nausea and vomiting). Treatment of only one chronic disease, diabetes mellitus, was included among the highest-priority needs and problems.

Generally, most problems identified by hospital practitioners were related to the prevention, control, and treatment of chronic diseases and the achievement of an energy balance. The achievement

TABLE 6

Clients' needs and problems which were the highest priority for counseling intervention by dietetic practitioners in hospitals and public health agencies in Tennessee

Category	Client's Need/Problem[1]	
	Hospital Practitioners	Public Health Practitioners
Anticipatory guidance about diet and nutrition for growth, development and maintenance of health of well persons		Infants (birth through 12 mo.) Children (1 through 10 yr.) Adolescents (11 through 18 yr.) Girls--pregnant Girls--lactation Adults (19 through 64 yr.) Women--pregnant Women--lactation
Anticipatory guidance about diet and nutrition for well persons with special focus on prevention of disease and disability	Atherosclerosis Diabetes mellitus Hypertensive cardiovascular disease Overweight/obesity	Dental health Iron deficiency anemia Hypertensive cardiovascular disease Overweight/obesity Underweight
Short-term acute and long-term physical health problems or illnesses	Acute cardiovascular disease Chronic cardiovascular disease Arteriosclerosis Carcinoma (all kinds) Congestive heart failure Diabetes mellitus Hyperlipidemias Hypertensive cardiovascular disease Overweight/obesity Protein-calorie malnutrition	Constipation Diabetes mellitus Failure-to-thrive Food allergy Iron deficiency anemia Overweight/obesity Pregnancy--discomforts Prematurity and other poor physiological development Stunted growth Underweight
Food, home, family life and community problems which affected the nutrition status of clients	Lacked appropriate self direction and/or self control in food selection and consumption Lacked understanding and skills in the following areas of normal and/or modified diets: Food selection and purchasing Meal planning Food preparation Utilization of nutrient supplements	Lacked appropriate self direction and/or self control in food selection and consumption Lacked understanding and skills in the following areas of normal and/or modified diets: Food selection and purchasing Food storage and sanitation Meal planning Food preparation Utilization of income extenders Utilization of low cost foods Insufficient income to meet needs Inability to allocate income to meet needs Inability to manage time and energy resources Misinformation by health professionals and/or other nutrition educators about diet/nutrition Relies on unsound sources of information (e.g., media, myths, fads) Disruption of the home and/or food management due to loss of income/economic crisis Lack of nutrition and consumer education programs in the community

[1]The need/problem was designated high priority if more than one-half of the practitioners counseled clients and rated the item less than approximately 3.0 on a 5-point (1 = high priority to 5 = low priority) Likert-type scale. The criterion for rating the priority was the frequency of counseling in actual practice during the previous six months.

of an energy balance, prevention of hypertension, and the treatment of diabetes mellitus were common to both groups.

The need for client self-direction and/or self control and the need for basic understanding and skills in the area of food management were of concern to practitioners in both groups. However, counseling about the management of time and energy resources, misinformation, and the availability and management of financial and educational resources were among the highest-priority needs and problems only for the public health practitioners.

There was a difference between groups in the counseling frequency on 35 of the 46 high-priority needs and problems. It was assumed that there was a difference between groups on the ratings for 17 problems rated high-priority by one group but rated by fewer than one-half of the practitioners in the other group. The remaining 29 high-priority problems were the focus of counseling intervention by more than one-half of the practitioners in both groups. A one-factor analysis of variance was performed on 26 of the problems for which the assumption of homogeneity of variances was met. (See Tables 11 and 12 in Appendix G.) There was a difference between groups for 18 of the 26 problems (α=.05). A few items were designated high-priority for one group but not for the other based on the decision rule, but these ratings were not different based on the statistical analysis. Flexibility in interpretation of the results should help overcome the limitations of these techniques.

Situation variable--setting for practice. Although they were employed by either hospitals or public health agencies, practitioners worked in other settings as well. Of the hospital-based practitioners, 29 (31%) worked only in inpatient care; 57 (61%) worked in both inpatient and outpatient services; and two practitioners, only in outpatient services. Five practitioners worked in inpatient care and some other setting. Other settings mentioned by a few practitioners who worked in both inpatient or outpatient services included long-term care, day care, private practice, and the client's home.

All of the 50 public health practitioners worked in public health clinics which were located in the main health department facilities and/or in other sites in the service delivery areas. The public health clinic was the most frequently used site for client counseling. Fourteen of the practitioners (28%) worked only in public health clinics; and 36 practitioners (72%) worked in public health clinics and in some other setting(s). A total of 29 practitioners (58%) worked both in public health clinics and in the homes of clients. Other sites in which practitioners counseling clients included schools (11 practitioners); day care centers (10 practitioners); outpatient clinics (6 practitioners); hospitals (2 practitioners); and residential institutions for adults (2 practitioners). Sites mentioned only once included a veteran day treatment center, health fair, primary care center, and center for people who were mentally and physically disabled.

Situation variables--summary. Generally, the high-priority performance situations in actual practice included people of all ages served in a variety of settings. In public health practice, counseling emphasis was on the promotion of health and prevention of disease and disability among infants, pre-adolescent children, and pregnant and lactating adolescent girls and women. Financial problems received greater emphasis in public health practice. The most frequently-used practice settings were the public health clinic and the client's home. In hospital practice, the emphasis was on prevention and control of chronic disease in the well population and the treatment of disease among adults and older adults. The most frequently-used practice settings were inpatient and outpatient facilities.

B. SURVEY 2

Results

The purpose of the three-round Delphi probe was to identify the highest-priority needs and problems in performance situations for counseling intervention in the future. The results are summarized in the following section, and a detailed summary of group responses is included in Appendix D.

Analysis of Data in the Three-round Probe

In the Round I Delphi probe, four categories were provided to assure diversity in the nature of the needs and problems identified by the participants. Participants identified needs and problems in

relation to all four of the categories. However, similar responses often appeared in different categories. A sorting procedure was used in data analysis to verify categorical placement of these items.

The language used to describe needs and problems in Survey 1 was employed for similar items identified in the first round of the Delphi probe. It was believed that this language communicated the concepts well and that the consistent use of similar language when appropriate would enhance a comparison of the results of the two surveys.

The most interesting dilemma which occurred in Round I pertained to data analysis of the first category of needs and problems--anticipatory guidance about diet and nutrition for growth, development, and maintenance of the health of well persons. It was assumed that the participants would separate the concept diet from nutrition; however, responses indicated that the instructions did not provide sufficient direction to enable the participants to achieve this expectation. The responses include specific dietary recommendations to be promulgated (e.g., the U. S. Dietary Goals and the Basic Five Food Groups), along with the identification of groups of people who should receive anticipatory guidance in the future. It was decided to focus on the priority among population groups and to eliminate those items which pertained to specific dietary changes. The same problem occurred to some extent in the other sections of the Round I probe. Most items which pertained to dietary concepts were incorporated into generalized statements. Items which were

vague or too specific were eliminated in the analysis of the results and construction of the Round II probe.

There were no significant problems in the analysis of the results of the Round II probe. Several participants indicated discomfort with the process of setting priorities among so many important needs and problems. However, all participants completed the task. It should be noted that few needs and problems were rated LITTLE or NO EXPERIENCE. This may reflect the strong experiential background of the participants. In any event, data analysis was simplified by the decisive responses of the participants.

The Round III probe was completed by 12 of the 14 participants. The loss of two of the participants in the third round was not believed to be critical to the outcome of the study. Although participants re-ranked the priority of a number of needs and problems, the number of responses which differed from the preliminary rank assigned after Round II was not great enough to change the rank of priority for any item in the Round III probe.

High-Priority Needs and Problems

The outcome of the three-round Delphi probe was the identification of 20 high-priority clients' needs and problems for counseling intervention by dietetic practitioners in the future. These needs and problems are listed in Table 7. Anticipatory guidance needs and problems included those of infants, children, pregnant adolescents, and pregnant women as well as the maintenance of an energy balance.

TABLE 7

Clients' needs and problems identified as highest priority for counseling intervention in the future

Category	Client's Need/Problem
Anticipatory guidance about diet and nutrition for growth, development and maintenance of health of well persons	Infants (birth through 12 months) Children (1 through 10 years) Pregnant adolescents Pregnant women
Anticipatory guidance about diet/nutrition for growth, development, and maintenance of health for well persons with special focus on prevention	Family members with one or both parents markedly obese Weight management
Nutrition management related to short-term, acute, or long-term physical problems or illness	Cancer Diabetes mellitus Heart disease Hypertension Malnutrition--infants Malnutrition--pregnant women Obesity
Problems in the management of the self, family, and home which affect nutrition status	Lack of understanding, skills and/or motivation to organize, manage, and perform the following tasks in relation to the provision of a normal and/or modified diet for self and/or family: Meal planning and evaluation Food selection and purchasing Develop family food practices which foster good nutritional status Insufficient income to meet needs Relies on unsound sources of information
Problems of the physical environment of the home and community which affect nutrition status	Availability of transportation to health care Utilization of reimbursable nutrition services in home health care

Intervention priorities for those with short-term acute and long-term physical health problems included malnutrition among infants and pregnant women, cancer, diabetes mellitus and heart disease, hypertension, and obesity. Knowledge and skills deficits in the area of food, home, and family life management included meal planning/evaluation, food selection/purchasing, and the development of family food practices. The availability of income to meet needs and reliance on unsound sources of information were among the personal-management problems identified. Two community problems were identified--the lack of availability of transportation to health care and reimbursable nutrition services in home health care. Reimbursable nutrition services do not presently exist in most communities in Tennessee.

The results of the two surveys provide a basis for comparing the nature of clinical dietetic practice in large, short-term care hospitals and public health agencies in Tennessee; and for comparing actual priorities in performance situations with those anticipated for the future. These comparisons are discussed in Chapter V.

CHAPTER V

DISCUSSION

This research was designed to explore the nature of clinical dietetic practice as a basis for decision-making in the education of practitioners in hospitals and public health agencies. In this chapter, demographic characteristics of practitioners are portrayed. The nature of practice including the context of roles, roles, and priorities among performance situations are amplified in discussion. The implications of the inquiry for understanding human development are discussed in light of social theory. The need to promote educational development in a manner which accommodates societal expectations is emphasized. Approaches to educational development which promote interdependence among educators, practitioners, and the people are viewed as a means of facilitating the development and self-renewal of people, organizations, and society.

1. PRACTITIONERS' DEMOGRAPHIC CHARACTERISTICS AND IMPLICATIONS FOR HUMAN DEVELOPMENT

Practitioners' Demographic Characteristics

Of the 144 practitioners surveyed, 97% were women; 87% were white; and the average age was 34 years. Fifty percent of the practitioners were under 30 years of age; 26% between 30 and 40 years; and 24%, 40 years and older. Most of the practitioners had worked in the field less than 10 years. As a referent point, 97% of registered ADA members are women. Thirty-eight percent of the members are under 30 years of age; 27%, between 30 and 40 years; and 35%,

over 40 years of age (71). The greater proportion of young practitioners in Tennessee may relate to sample selection, and to an influx of practitioners to fill newly created entry-level positions in the WIC Program.

Over 60% of the practitioners held the baccalaureate degree as the terminal degree; most of the remainder, the master's degree. The percentage of public health practitioners who held a master's degree was almost double that of hospital practitioners. However, the degree programs were not limited to graduate programs in public health nutrition. In addition, people who completed a master's degree in public health nutrition were employed in both public health agencies and in hospitals. Practitioners demonstrated their autonomy in career choice. Degrees and majors did not reflect actual choices in practice.

Seventy-six percent of the practitioners obtained their clinical education with a bachelor's degree. Most of these practitioners completed a coordinated undergraduate program or post-baccalaureate internship program. The remainder of the practitioners developed clinical skills after completing a master's degree, primarily through work experience.

Seventy-nine percent of the practitioners developed their clinical competence in a manner that required health care organizations to bear full responsibility for the organization and finance

share the responsibility. The addition of the cost of clinical education to the cost of health care and the failure to provide academic credit for clinical education are among the issues that need to be addressed in educational development.

Approximately 90% of the practitioners were registered with ADA. Most hospital practitioners were registered; however, one-fourth of the public health nutritionists were not. Generally, public health nutrition graduate programs do not require completion of ADA educational requirements for membership as a prerequisite to graduate study. In a survey of faculty in 22 public health and community nutrition graduate programs, it was found that graduates were prepared to meet ADA academic requirements in only 12 programs; and clinical requirements, in only 7 programs (72). Forty-five percent of the students enrolled in 17 public health nutrition graduate programs sought membership in ADA (73). There was no clear route for these students to develop the clinical competence needed for practice in direct service roles.

The Nature of Practice

Context of roles. Analysis of the use of professional titles confirmed the historical differentiation in practice by setting for health care delivery. Most hospital practitioners were dietitians;

and public health practitioners, nutritionists. The geographical contextualization of health care services was not distinct because of regionalization of hospital services, state-wide distribution of public health services, and relationship among these organizations in the delivery of health care services.

Large, short-term care hospitals with a capacity of 400 beds or larger represented 11% of all hospitals and 38% of total bed capacity available in Tennessee. The mean inpatient capacity of the 18 participating institutions was 540 beds (range 409-1914). The mean number of dietitians was 8.9 per hospital (range 4-19); and 1.4 dietitians per 100 beds (range 0.8-3.3). As a referent point, Calvert et al. (74) reported that there was no discernible relationship between staff size and hospital capacity in a sample of 106 acute-care hospitals in the United States. The actual ratio of the number of dietitians to hospital size in hospitals with 400 to 499 beds was 1.6:100; and in hospitals with 500 to 1200 beds, the ratio was 1.8:100. There was a wide variation among hospitals.

The utility of the ratio which expresses the relationship between the staff size and inpatient capacity of a hospital should be questioned. Hospital-based practitioners provide both in and outpatient services. Only 31% of the practitioners in short-term care hospitals in Tennessee worked exclusively in inpatient care. Most practitioners counseled clients in both settings. The number of

clients counseled by dietitians in outpatient care was not available to establish a new denominator which reflects the substantive commitment of hospital dietetic practitioners to ambulatory care.

There are no approved national standards for staff size in hospitals. In 1981, the ADA Council on Practice rejected studies used to establish standards because investigators focused on the time required to perform tasks using available staff and actual responsibilities. The Council on Practice recommended that staff size reflect an ideal level of performance based on service objectives and standards of care (75).

The mean number of nutritionists in 12 public health agencies was 7.0 (range 2-14). Approximately 80% of the practitioners were employed in the WIC Program. In this program, there were 0.4 nutritionists for each 1000 people eligible to participate; and 1.5 nutritionists for each 1000 actually enrolled. As a referent point, the Association of State and Territorial Public Health Nutrition Directors recommended one nutritionist/dietitian supervising two dietetic technicians for each 1000 clients enrolled in direct service programs (5).

An approach to estimating a desirable staff size was published in Personnel in Public Health Nutrition for the 1980s (5). It was recommended that staff size be based on an assessment of needs and size of the client population; time required per encounter; number

of follow-up encounters; and type of services provided. Travel time required to accommodate service delivery constraints imposed by geographical barriers, rigorous climate, or sparse distribution of the population also need to be considered. The number of staff needed to provide services depends on program goals, practitioners' roles, and the opportunities and constraints of the organization and environment for health care delivery--the context of practice.

Roles. The practitioners' performance in roles was assessed in the comparison of clinical dietetic practice. All practitioners were nutrition counselors; and a small proportion also had administrative responsibility. As might be expected of nutrition counselors, the most frequently performed roles were those which related the practitioner to the client in the nutritional care process.

Both groups of practitioners communicated regularly with other health care team members in providing services and continuing education. Hospital practitioners communicated a little more frequently with other team members than did public health nutrition practitioners. The difference between groups may reflect the geographical separation of team members in public health service. Public health service teams, which usually do not include physicians, are comprised of a small number of staff, some of whom travel from place to place to provide services. Communication among team members is more difficult to achieve under these circumstances.

Relatively few practitioners in hospitals and public health agencies were actively engaged in research. The use of current research findings in problem-solving in practice was characteristic of practitioners in both groups. Individual responses which indicated that current information was not used in problem-solving raises questions about the approaches used in counseling practice and the availability of resources to support organizational goals and self-directed learning in practice. Individualized-nutrition counseling demands active problem-solving and an organizational commitment to provide the resources needed to support that approach.

The separation of clinical roles from those of food service management was evident. Practitioners indicated they seldom participated in development of a food service delivery system or kitchen-based implementation of nutritional care. Public health practitioners sometimes participated in development of a system to deliver food to clients through food-assistance programs. It may be assumed that most practitioners left the kitchen and were positioned in clinical service areas. However, individual responses indicated that some hospital practitioners continued to carry responsibility for dual roles. These results may reflect the generalist approach to the delivery of dietetic service. However, the instrument was not sensitive enough to differentiate generalist activities from those activities needed to interface clinical dietetic and food service operations.

Practitioners indicated they seldom participated in the management of a clinical dietetic/nutrition unit. The selection of nutrition counselors and the exclusion of administrative dietitians who did not counsel clients accounts, in part, for these results. Individual responses indicated that there were practitioners in both groups who participated in planning services, personnel management, orientation and training, and integration of extraneous influences in development of a system to deliver nutrition care services to clients.

In summary, practitioner's roles assessed in this survey included those which relate the practitioner to the client and the health care team in the provision of clinical services and the development of organizational support for those services. The results suggest that ADA role expectations reflected actual practice in both settings. The commitment of clinical dietetic practitioners in hospitals to nutrition counseling is consistent with the ADA recommendations (53). However, the time investment of public health nutrition practitioners in direct service to clients is contrary to recommendations published in Personnel in Public Health Nutrition for the 1980s (5). The direct service roles seem appropriate given the large number of entry-level practitioners and the substantive commitment to the WIC Program in Tennessee. The infrequency that research, management, and systems development roles were performed suggests that these were not high priority for most nutrition counselors. The exception was participation of public health nutrition practitioners in development of a system to deliver food to

the free-living population. There was evidence that differentiation of food service from clinical care roles occurred in both groups.

High-priority performance situations. Three variables in a counseling performance situation were assessed to provide a basis for comparison of the high-priority performance situations of practitioners in short-term care hospitals and public health agencies in Tennessee. The three variables included the client's attribute--age, the client's need or problem, and the setting in which the encounter between the practitioner and the client occurred. The ratings of priority of clients' needs and problems were based on the frequency that practitioners intervened to provide nutrition counseling. For this reason, clients' needs and problems that were infrequently encountered were not likely to be included among the highest-priority needs and problems even though the consequences were severe and nutrition counseling, an effective intervention measure.

The historical assumption that there is a clear distinction between the roles of dietitians and nutritionists by the state of health of the clients and the setting for practice was not confirmed in this research. Collectively, practitioners in both hospitals and public health agencies counseled clients of all ages with a wide variety of needs and problems. However, a distinction was made between groups based on a comparison of the high-priority performance situations.

Over 90% of the public health nutritionists served infants, children, adolescents, and adults (primarily pregnant women) ranging in age from 19 through 64 years. Sixty-eight percent of these practitioners also counseled adults who were age 65 or older. In contrast, only 15% of the hospital practitioners served infants; and 25% of the practitioners, children. Forty-one percent of the hospital practitioners counseled adolescents; 98%, adults; and 88%, older adults. The greatest proportion of hospital practitioners counseled adults and older adults rather than infants and children.

Of the 113 clients' needs and problems, a total of 46 were designated as high-priority for the two groups of practitioners. Among public health nutritionists, most of the problems were related to the achievement of an energy balance and an adequate intake of food and nutrients to support normal growth and development (e.g., underweight, overweight/obesity, prematurity). Some problems were, in part, a consequence of an inadequate intake of food and nutrients (e.g., failure-to-thrive, stunted growth, and iron deficiency anemia). Other problems rated high priority included constipation, food allergies, hypertension, and the discomforts of pregnancy (e.g., nausea and vomiting). Treatment of only one chronic disease, diabetes mellitus, was included among the highest-priority needs and problems.

Generally, most problems identified by hospital practitioners were related to the prevention, control, and treatment of chronic diseases and the achievement of an energy balance. The achievement

of an energy balance, prevention of hypertension, and the treatment of diabetes mellitus were common to both groups.

The need for client self-direction and/or self control and the need for basic understanding and skills in the area of food management were of concern to practitioners in both groups. However, counseling about the management of time and energy resources, misinformation, and the availability and management of financial and educational resources were among the highest-priority needs and problems only for the public health practitioners.

Although they were employed by either hospitals or public health agencies, practitioners worked in other settings as well. Of the public health agency nutritionists, 28% worked only in public health clinics; and 58%, in both public health clinics and the homes of clients. Other sites occasionally used for counseling intervention included schools, day care centers, and outpatient clinics. Of the hospital-based practitioners, 31% worked only in inpatient care; 61% worked in both inpatient and outpatient services; and two practitioners, only in outpatient services. A few practitioners also worked in other settings.

Because of the substantive commitment of public health nutrition practitioners to the WIC and CSF Programs, it was assumed that the needs and problems identified were primarily those of women, infants, children, and their families. The high-priority needs and problems identified did reflect the commitment of public health agencies to health promotion and preventive intervention among

low-income women and children through clinic services and home visits. In addition, a number of public health practitioners counseled clients with serious acute and chronic health problems. The responses of practitioners involved in home care programs, which usually serve adults and older adults, contributed also to these results.

However, prevention was not the sole perogative of public health agency practitioners. The clients' needs and problems identified by hospital practitioners reflected their long-standing commitment to treatment of adults with acute and chronic disease in both in- and outpatient facilities, and also indicated a commitment to disease prevention by these practitioners.

A Delphi probe was conducted to determine anticipated priorities among clients' needs and problems in high-priority performance situations in the future as a basis for comparison with actual practice in Tennessee. In identifying the needs and problems, Delphi probe participants were unencumbered by consideration of the organization of the health care system in the delivery of services. In addition, the prevalence of a need or problem, its severity, and the effectiveness of nutrition counseling intervention were all criteria used in selecting the high-priority needs and problems.

Delphi probe participants identified the 20 highest-priority needs and problems in counseling performance situations

anticipated for the future in Tennessee. The need for anticipatory guidance for pregnant women, infants, and children as well as counseling intervention for those people who are overtly malnourished was identified. Anticipatory guidance to support the achievement of an energy balance and nutrition counseling in the treatment of cancer, diabetes mellitus, heart disease, hypertension, and obesity were included. Personal development and social organization needs and problems included the development of food practices, learning about food management, and the lack of availability of resources to support development. Finally, improved availability of transportation to health care facilities and financial support for home health care were included among the 20 highest-priority needs and problems for the future.

Most high-priority needs and problems identified by Delphi probe participants are being addressed at some level in current practice. The lack of availability of transportation to obtain health care and financial support for home health care were two problems which were not included among the high-priority performance situations in current practice. Inclusion of these two problems, which relate to the organization and finance of health care, may necessitate approaches to intervention other than nutrition counseling.

The results of the two surveys demonstrate the complex configuration of needs and problems in clients' problem situations. This

multivariate view of clients' problem situations was developed to overcome the reductionist view of health care problems which focuses on physical health conditions and diseases alone. The scope of clients' needs and problems went beyond the physical health of individuals to include the development of the person, organization of the family, and availability of resources in client and service systems to support development.

Social organization and environmental conditions which affect the nutritional status of clients were the focus of intervention by both hospital and public health nutrition practitioners. In contrast, in a study of health service providers' roles in 59 Children and Youth Projects throughout the United States, there was no consensus among providers that home management and family living needs were appropriate domains for intervention by nutritionists (76). Nineteen types of providers were responsible for assessment of these needs in the Children and Youth Projects. Public health nurses, social workers, and home economists assessed these needs in only 65% of the projects. The inclusion of this responsibility occurred more often in projects that employed home economists. The survey of practice in Tennessee confirms that these needs and problems continue to be regarded as appropriate domains for counseling intervention by dietitians and nutritionists.

The scope of human needs addressed in practice has important implications for practice, learning, and development. A holistic view of the person is needed in planning intervention to help a

client improve a problem situation. These results indicate that concern about clients goes beyond a physical health problem to include a web of factors in a problem situation that are attendant to an identifiable problem. For example, a multivariate view of obesity goes beyond the identification of a physical health condition based on a measurement of weight for height or fatfold thickness to include an understanding of the client's social organization and learning needs as well as other factors contributing to the situation that must be addressed to improve the condition. To identify a problem is not to define a problem situation.

In a performance situation, the focus is on the development of a relationship between the practitioner and the client in decision-making and problem-solving. Each performance situation requires that the learner integrate the web of factors using a process which involves the client in the definition of the situation as well as in the creation of an approach to improve the situation. Educational goals may address the development of the learner's perception, cognition, and values in relation to the client as well as communication skills which enable the practitioner to intervene effectively. In this manner, the development of the practitioner's competence is related to the development of the client's competence. The difference between groups in the high-priority performance situations suggests that there are differences in the knowledge needed to address the needs of people in the current health care system. However, the underlying processes in clinical practice may be the

same for clinical practitioners in both hospitals and public health agencies.

Implications for Human Development

The process of development. Information contrasting practitioners' attributes, roles, and high-priority performance situations does not offer a direct answer to the question: Is the competence needed to practice in hospitals and in public health agencies the same? The development of competence relates the person to the system and its environment in an interactive, learning process. From this phenomenological perspective, another question arises: Is the process of development of the person the same in hospital and public health organizations? In this research, competence in roles is viewed as an attribute of the person. It is necessary to separate competence as an attribute from the behavioral expectations associated with the person in a position to understand the process of development in an organizational context. The emphasis changes from a consideration of the person's attributes in relation to organizational performance expectations to a consideration of the problem-solving process which relates the person in roles to the client in a problem situation in the delivery of health care services.

Many theories and models are available to explain human development in organizations (77). Checkland's view of systems methodology and role theory were selected in this research to provide a way to view development as a process. Checkland (37) spent many years using models to develop a view of systems thinking and

practice in human activity systems. In the process of developing a systems methodology, Checkland asked: What model of social reality is implied by the successful methodology? He then related his research experience to the main thrusts in social science thinking. Although Checkland's systems methodology was not used to design this research, an embryonic form of systems thinking lead to an appreciation of Checkland's treatise. Checkland's approach to recapitulation of the research experience in light of social theory is employed in the following discussion of the implications of the results of this research for the development of practitioners.

Views of social reality. The nature of debate about social theory centers around a dicotomy between two views of social reality. The two views are referred to as functionalism and interactionism. The functionalist view portrays social reality in terms of social structures (e.g., positions and roles) which transcend the individuals in the system. The interactionist view emphasizes the ability of individuals to create social reality as a process. The functionalist view is reflected in organizational endeavors to regulate human behavior. The delineation of roles, competence, standards, and other definitions of behavioral expectations are functionalist activities which aid in structuring a social system. The interactionist view is reflected in the self-directed behavior of individuals in organizations. Individuals interact with other people in an organization, defining their own purposes and creating social reality in the process (37,42,60).

Both views of social reality are evident in dietetics and public health nutrition. Professional associations and the federal government actively regulated dietetic and public health nutrition practice and education. The specification of roles and competence needed to practice and the mandate to use a competency-based approach in curriculum development are functionalist enterprises. These structural expectations represent constraints intended to regulate the behavior of people working in local development (5, 15,53).

The extent to which Tennessee's practitioners and educators accommodated the extraneous influence of professional and governmental organizations was not assessed. However, the unique pattern of roles performed in clinical practice by practitioners in this research study reflects the operation of interactionism. Individual variation in role performance and the infrequent performance of roles such as systems development and research indicates that practitioners were active in selecting roles in relation to the actual opportunities and constraints within their organizations.

The articulation of expectations in structuring social systems is important communication. However, use of functionalist approaches at the local level among people involved in the development process would enable leaders to employ democratic processes to facilitate the articulation of expectations (30,33,35). In this manner, the dicotomy between functionalism and interactionism can be reduced to a manageable inquiry process. Checkland (37) refers to this view

as soft-systems thinking and indicates that the approach does not appeal to determinists, dictators, or demagogues. Rather, the view appeals to people who are knowledgeable enough to know that there is much they do not know, and that learning and re-learning is worthwhile. Soft-systems methodology is a learning system which enables people in organizations to relate themselves to their own reality in the process of development and self-renewal.

A merger of systems and role theories produces a view of the relationship between the person and the organization in development. Both systems and role theories emphasize understanding structure, process, and the relationship between the two in the development of human activity systems. Systems theory provides the methodology for social organization; role theory, the language to understand decision-making behavior in organizations. Among role theorists, symbolic interactionists emphasize communication and the freedom of individuals to define their own purposes, attribute meaning to events, choose actions, and accommodate the consequences of their actions. Systems methodology explicates the properties of systems: emergence, hierarchy, communication, and control. Role theory explicates these concepts from the point of view of the person in the organization (37,42,43,78).

The identification of generic processes in practice. In 1980, ADA asserted that the roles of the clinical dietetic practitioner applied to practitioners in any setting (53). However, the roles

of the dietitian/nutritionist in public health were restricted to those of the counselor and educator, precluding the dietitian's involvement in program administration, consultation, research, and other roles in the practice of public health nutrition (5). A dilemma was posited for educators. Practitioners in both clinical dietetics and public health nutrition were to be prepared for similar roles, but expectations tempered by tradition precluded recognition of the generic nature of practice processes.

The experience of the profession of social work may suggest an approach to the reconceptualization of the dilemma which may facilitate the debate about the generic nature of practice. Pincus and Minahan (79) indicated that early social workers specialized in case work, group work, and community organization. They did not believe that specialization which reflected the methods and techniques of practice was satisfactory. Rather, it was suggested that a systems approach be developed to give the practitioner an opportunity to select the appropriate methodology for problem situations encountered in practice.

Pincus and Minahan believed that the relationship of the practitioner to the client system was the important focal point in both education and practice. It is important that the practitioner understand the life tasks of the people as well as the resources and conditions which facilitate coping with those tasks; and be able to help people to realize their own values and aspirations as well as to alleviate their distress. The education of practitioners

involves the development of the professional as a person; and all practitioners need to develop competence in certain basic concepts, skills, tasks, and activities regardless of the many forms of practice. In this view, the development of generic practice process skills (e.g., planning, organizing, communicating, decision-making, evaluating) are the focus of education for practitioners. Each individual client and problem situation are regarded as unique, and the roles and the methods of practice are selected with an understanding of the problem situation in mind. In social work, the client includes a person or an organization.

In dietetic education, Schiller (80) identified several generic process skills for the clinical dietitian. These generic skills include personal, technical, and managerial skills. Personal skills included cognitive skills and relational skills. Relational skills address the affective qualities of human encounters. These personal skills are differentiated from technical skills in the use of techniques, methods, procedures in activities which are done on a routine basis; and from managerial skills in which the practitioner draws on cognitive, relational, and technical skills to organize nutrition services. The development of generic process skills needs to be viewed in a systems framework.

Educational development. It is possible to envision the preparation of practitioners for a variety of organizations in the health care system. Priority is placed on development of generic process skills and development of skill in the use of variety of methods

and techniques for problem-solving in a representative sample of problem situations. Assessment of a practitioner's competence involves consideration of the effective use of human relationships in communication and decision-making, and the practitioner's use of self and other resources in those relationships (81). Decisions regarding the effectiveness of the individual take into consideration the organizational context in which the performance is played out. Judgment about the value of an educational program which prepares these practitioners is based on an evaluation which reflects consideration of the development of the person in the context of the development of the organization.

The client is the focus of concern in structuring both clinical practice and education (3,80,81). LaDuca's model of a professional performance situation explicates a view of the relationship between the practitioner in roles and the client in a problem situation. The view links three systems in development--the service, education, and client systems. Any of these systems represent valid focal points in selecting an approach of inquiry to improve the organization of practice and education.

If the educational system is selected in an educational development inquiry, the focus must necessarily be on the development of the person in relation to the defined purposes of the educational organization. The development of competence goes beyond the development of cognition to the development of social competence

(2,3,25). The development of social competence includes the development of the self in the relationship between the person and the organization (61,82,83). Roles are the link between the internal processes of the person and organizational process which relate the person to other people and objects in the system and environment (43).

The individual's characteristic pattern of behavior and self-concept change in the process of role enactment (61,83). Social development depends on the achievement of self-role congruence which is characterized by a match between the competence developed and the competence needed to effectively impact on the problem situation. Furthermore, self-role congruence is characterized by internal control and self-direction in learning, development, and self-renewal.

Social development is mediated by cognitive processes and occurs in the context of the individual's unique personal history, present events, and vision of the future (83). The development of the self depends on the successful articulation of the person's ideals with an external social reality. The individual's ability to define a problem situation encountered in practice; to adopt, modify, or create roles; and to maintain self-role congruence in the process is essential in creating that future seen only dimly by those concerned about the education of students in the health professions today. The educator's task is not to teach knowledge as facts nor to instill a particular set of values, but to challenge

and facilitate the natural development of the individual in the articulation of the person's ideals with the reality of the world as it exists (84).

In educational development at the organizational level, a number of approaches have been elaborated to improve programs. These approaches usually begin with an exploration of educational philosophy and values operational in decision-making about curriculum. The process of exploring standards in program development facilitates changes in behavior of individuals in organizations (35). Feedback on the discrepancy between program expectations and performance provides a basis for changing the values underlying the internal standards that regulate behavior. In this manner, self-directed reform within organizations may be achieved.

In systems methodology, models and frameworks represent alternative views of reality for consideration in selecting an approach to structure an inquiry to improve an organization. Scriven and his colleague recommended that in the 1980s emphasis be placed on the synthesis and application of existing evaluation models and frameworks. Bellon and Handler (31) offered an approach to educational development which involves synthesis of relevant elements of a variety of available models and frameworks in creation of an approach to improve a problem situation in an organization. Structuring communication and decision-making processes to support development and self-renewal of people in organizations is a key feature of systems methodology.

Educational evaluators made a significant contribution to the development of systems thinking and practice. In soft-systems methodology, evaluation is one kind of learning system; and the outcome of the inquiry includes information for consideration in debate by those who must take action to improve the situation. A completed evaluation study represents a case study which theorists use to develop insight about systems methodology in the evaluation process.

Accommodating societal expectations. Historically, the development of educational programs in dietetics and public health nutrition was regulated by people in organizations external to the university system. Professional associations, accreditation agencies, and government programs are among the organizations which have established an external role in the development of educational programs. Organizations such as these have demonstrated a persistent presence in recent years (85). This situation may have been tolerable when the direction sought pertained to the selection of curriculum content, for certainly professional colleagues were more knowledgeable about such matters than anyone else. However, the organization of the curriculum is now the focus in educational development. Discipline-oriented people in external organizations are no longer the logical choice to provide substantive direction in educational development.

Strengthening internal organization through development and renewal activities enhances the effectiveness of faculty in relating

to people in external organizations which seek to influence the direction of program development. Faculty need to establish control in the definition of programs, explication of standards, and the development process itself. Utilization of a sound approach to educational development at the local level lessens the impact of arbitrary actions of people in external organizations who are not well acquainted with educational development processes and local circumstances which must be taken into consideration in pioneering creative approaches to systems development.

A shift from external to internal direction and control of program development needs to be accompanied by a redefinition of roles of societal groups seeking to promote excellence in education and practice and to protect society. Educational development at the local level does include the accommodation of societal expectations articulated by people in external organizations. However, the university is the institution to direct this development process. The expertise of people in external organizations can but support the university in its mission.

Interdependence in educational development. The focal point in the relationship between dietetic and public health nutrition education is the common commitment to the improvement of education for practitioners who share responsibility for the promotion of health and the alleviation of distress among people served by the health care system. This commitment is shared with other health professionals as well. The state of the art in health professions

education indicates that the interdisciplinary nature of education and practice has not been addressed adequately nor the client's central position in the delivery of health care recognized. George E. Miller (86), who focused educational research on the improvement of medical education, set the stage for the improvement of education in the health professions.

Miller (86) noted that emphasis in American universities on individual scholarly study which values expansion of knowledge without reference to its social value is a century-old legacy of British and German education. In medicine, that legacy is associated with professional insularity, and there is no expectation that the work of one discipline will affect the work of another. Miller offered a familiar example:

> Thus professors of medicine, surgery, and psychiatry can all study the problem of peptic ulcer, and can in the same university hospital treat the patients chance assigns to them by smoothing the ragged crater with antacids, soothing the frayed psyche with insight, or cutting the evil out. Although they may privately (and sometimes publicly) berate one another for such behavior, there is no expectation that the studies by one group will perforce influence the practices of another.

In Miller's anecdote, medical educators had no obligation to listen to each other, to other health professionals, nor to the client.

Miller speculated that the climate of professional insularity may have tempered the acceptance of educational research and development in medical schools. The notion that educational research and evaluation should influence the practice of educators in medical schools was not easily accepted in a system dominated by basic and

clinical scientists whose first loyalty was to advancement of their own discipline, despite their entitlement as educators.

Stephen Abrahamson, an educational researcher who devoted his career to the development of medical education, was a Miller consort. Abrahamson (87) projected to the year 2000 when students being educated today will be at the peak of their careers. He believed that more of the health care delivery would be provided by health care personnel other than the physician. However, the nature of the problems, roles of the professions, and the system cannot be predicted at this time; therefore, it is necessary to develop the educational system to prepare health professions students for an unknown future.

The selection of approaches to educational development which accommodate local circumstances and create relationships among people in a variety of academic units is needed to overcome the insular, disciplinary approach to educational development. Educational programs for practitioners in dietetics and public health nutrition are usually administratively located in home economics, allied health, medicine, and public health. The potential to structure interdisciplinary education is greater for students enrolled in health science units by virture of the proximity of the students, faculty, and clinical facilities. Relationships among health professions programs are more difficult to establish for students enrolled in home economics. However, often students in both health sciences and home economics do not have an opportunity to encounter other health professions students and practitioners until

the clinical or field work phases of the programs or after completion of the programs. This does not suggest that the answer is to be found in the relocation of academic programs. It suggests that novel approaches to educational development are needed to structure relationships among faculty in various academic units to support interdisciplinary education.

The health care system can no longer accommodate the insular approach evident in health professions practice and education. The support of sound approaches to educational development is one means to improve the state of the art in health professions education; and the restructuring of relationships in pursuit of common goals, one means to facilitate that development. The development and self-renewal of people, organizations, and society depends on the intensive support of approaches to educational development which promote interdependence among educators, practitioners, and the people in the development process (33,88).

CHAPTER VI

SUMMARY

In a search for an approach to educational development that would accommodate the needs of students in a variety of programs in the Department of Nutrition and Food Sciences, The University of Tennessee, Knoxville, questions about the generic nature of competence in human development surfaced. Two NFS programs prepared dietitians and public health nutritionists for practice in the health care system using a competency-based approach to curriculum development and evaluation. The development of the clinical competence of these practitioners occurs in the process of role enactment in problem-solving in the context of the health care system and its environment. Therefore, if there is a difference in the competence needed to practice in various health care settings, it reflects differences in practitioners' roles and priorities among performance situations.

A survey was conducted to characterize the nature of clinical dietetic practice in large, short-term care hospitals and in public health agencies in Tennessee as a basis for a comparison of practitioners' roles and high-priority performance situations. In addition, a Delphi probe was conducted among practitioners and educators in Tennessee to identify the clients' needs and problems in high-priority performance situations anticipated for the future to compare with those addressed in actual practice. Information about the

real world of practice was explored using role theory and systems methodology to relate concepts and processes in development. The results of the inquiry were discussed in terms of the implications for educational development in NFS.

The results of the first survey demonstrated that the nature of clinical dietetic practice in hospitals and in public health agencies could not be differentiated by considering the nature of practitioners--their demographic characteristics, credentials, and roles in clinical practice. However, a distinction between groups was made based on the highest-priority performance situations in practice during the six months prior to the study.

The demographic characteristics and other attributes of practitioners in hospitals and public health agencies were compared. Practitioners maintained the historical distinction by setting for practice in the use of position titles. Most hospital practitioners were dietitians; and public health practitioners, nutritionists. However, both hospital and public health practitioners had a substantive commitment to clinical dietetic practice in ambulatory care. There was a greater proportion of young practitioners in public health, but there were only minor differences between groups in gender, race, and other demographic variables.

Practitioners demonstrated autonomy in career choice. Actual choices often did not relate to the purposes of their educational programs and major areas of study. Most practitioners in both groups developed clinical competence in a manner that required that the service organization organize and finance the education rather than

an institution of higher education. Public health practitioners were more highly credentialed in terms of educational degrees, but they had a greater proportion of practitioners who had not acquired registration credentials with the ADA.

Practitioners in the two groups had a similar pattern of performance in roles in clinical practice. The most frequently performed roles were those which related the practitioner to the client (e.g., the nutritional care process) and to the health care team in the delivery of health care services. Generally, systems development, management, and research roles were not frequently performed. However, some practitioners had administrative responsibility and participated in planning service; personnel management; orientation and training; and accommodation of societal factors in the development of systems to deliver nutrition care. More public health practitioners were involved in systems development than were hospital practitioners. The separation of clinical from food service roles was evident among practitioners in both groups. Few practitioners were directly involved in food service systems maintenance in institutional kitchens.

There was a difference between groups in a comparison of the high-priority performance situations in clinical practice. Most of the 46 high-priority clients' needs and problems differed between groups; only eight were common to practitioners in both settings. Collectively, practitioners in both types of organizations counseled clients of all ages with a wide variety of needs and problems. In public health, priorities in nutrition counseling emphasized health

promotion and disease prevention for infants, pre-adolescent children, and pregnant and lactating adolescent girls and women. Public health nutritionists also provided nutrition counseling as a component of the treatment of acute and chronic disease. Practice settings most frequently used were public health clinics and clients' homes. Nutrition counseling by hospital-based practitioners emphasized prevention, control, and treatment of disease among adults and older adults. Practice settings most frequently used were in- and outpatient facilities.

In the second survey, Delphi probe participants identified 20 high-priority clients' needs and problems for counseling intervention by dietetic practitions in the future. Most high-priority needs and problems identified were being addressed at some level in actual practice. Two problems--lack of availability of transportation to obtain service and financial support for home health care--were not included among the high-priority performance situations in actual practice. These problems, which relate to the organization and finance of health care, may require a different approach to intervention.

A dilemma faced by decision-makers in both practice and education was explored in terms of conflicting role expectations communicated by professional associations. In the ADA role delineation study, a variety of roles in clinical dietetic practice which applied to practitioners in a variety of settings was identified. However, the AFGPPHN did not recognize this background as sufficient

preparation for the advanced practice of public health nutrition. In public health nutrition practice, clinical dietetic practitioners were limited to direct service roles. Public health nutrition graduate programs, which emphasized organizational skills rather than direct service roles, did not include the development of clinical competence among program goals.

The explication of generic practice processes within a framework of common educational goals may facilitate the articulation of NFS programs. Such an approach may also enhance the articulation of NFS programs with those of other disciplines and professions. The gap between the discipline-oriented approach to educational development and the application of advances in educational methodology needs to be reduced using an approach which articulates program goals with the purposes of the university. The use of creative approaches to educational development, which focus on the relationship between the practitioner and the client system, will enhance the ability of the university to address societal needs and expectations. In this manner, education, service, and client systems may be linked to facilitate human development and to improve the human condition.

In conclusion, this research was undertaken to explore the nature of clinical dietetic practice in Tennessee as a basis for educational development in NFS. Questions about educational development that were surfaced in the process included the following:

1. What domains of human development are within the scope of practice?

2. How can education be structured to promote a holistic approach to practice linking the development of the education and service systems to the development of the client system?
3. Can practitioners be prepared in the use of systems methodology and generic practice processes so that they are not constrained by the setting for practice in their definition of purposes and their selection of roles and activites in service to people with a variety of needs and problems?
4. Should the clinical education of practitioners be a joint endeavor between educational institutions and health care service organizations? If so, what are the implications for the organization and finance of clinical education and of health care?
5. What processes can be employed in local development to assure consideration of the diverse interests of groups operating external to the educational system?
6. What processes can be employed to facilitate structuring relationships among people in a variety of academic units to develop education on an interdisciplinary basis?

This research was delimited to a study of practitioners in two health care settings so that a two-group comparison could be used to explicate an understanding of the development process. Consideration of the process of the development of competence provides insight

into the needs of learners, the needs of the people, and the social nature of human development. However, practitioners function in a variety of roles; and NFS addresses a wider range of purposes and a broader scope of human needs. The selection of an approach to educational development needs to reflect the complex purposes of the educational endeavor. The questions surfaced in this research need to be included in the philosophical deliberation of the faculty in the educational development process.

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APPENDICES

APPENDIX A

INSTITUTIONS AND AGENCIES WHICH PARTICIPATED IN SURVEY 1

TABLE 8

Institutions and agencies which participated in Survey 1

	Institution	Location	Total Practitioners	Bed Size[1]	Practitioners/ 100 Beds
1.	Holston Valley Hospital and Medical Center	Kingsport	7	570	1.2
2.	Veterans Administration Medical Center	Mountain Home	10	510	2.0
3.	East Tennessee Baptist Hospital	Knoxville	11	409	2.7
4.	Fort Sanders Regional Medical Center	Knoxville	7	555	1.3
5.	University of Tennessee Center for Health Sciences	Knoxville	8	489	1.6
6.	Erlanger Medical Center	Chattanooga	9	700	1.3
7.	Baptist Hospital	Nashville	8	674	1.2
8.	Parkview Hospital	Nashville	4	417	1.0
9.	St. Thomas Hospital	Nashville	7	410	1.7
10.	Vanderbilt University Medical Center	Nashville	18	540	3.3
11.	Veterans Administration Medical Center	Nashville	7	485	1.4
12.	Jackson-Madison County General Hospital	Jackson	4	533	0.8
13.	Baptist Medical Center	Memphis	19	1914	1.0
14.	City of Memphis Hospital	Memphis	8	467	1.7
15.	Methodist Hospitals	Memphis	12	1219	1.0
16.	St. Francis Hospital	Memphis	6	529	1.1
17.	St. Joseph Hospital	Memphis	4	440	.9
18.	Veterans Administration Medical Center	Memphis	11	882	1.2

	Public Health Agency[2]	Location	Total # Nutritionists	Area Population
1.	First Tennessee Regional Health Office	Johnson City	9	418,078[3]
2.	East Tennessee Regional Health Office	Knoxville	14	845,045[3,4]
3.	Southeast Regional Health Office	Chattanooga	7	498,716[3,4]
4.	Upper Cumberland Regional Health Office	Cookeville	8	241,509[3]
5.	Mid-Cumberland Regional Health Office	Nashville	8	971,475[3,4]
6.	South Central Regional Health Office	Columbia	5	303,630[3]
7.	Northwest Regional Health Office	Union City	3	244,044[3]
8.	Southwest Regional Health Office	Jackson	7	291,120[3]
9.	Shelby County Regional Health Office	Memphis	9	771,117[3]
10.	Davidson County Regional Health Office	Nashville	2	477,811[5]
11.	Knox County Health Department	Knoxville	8	319,694[5]
12.	Hamilton County Health Department	Chattanooga	4	287,740[5]
	Total, Tennessee			4,590,734[3]

[1] AHA (1981) Guide to the Health Care Field.

[2] The Sullivan County Health Department in Blountville (Region 1) was excluded from the survey because the nutritionist position was vacant.

[3] Population Estimates for the State of Tennessee. Tennessee Department of Public Health, State Center for Health Statistics (June 17, 1981). Unpublished information.

[4] The actual service population for the region excludes the population of the metropolitan counties of Knox, Hamilton, or Davidson.

[5] U. S. Department of Commerce, 1980 Census of Population, Vol. 1 Characteristics of the Population, Chapter A Number of Inhabitants, Part 44 Tennessee PC80-1-A44 January 1982 Bureau of the Census, Population Division. U. S. Government Printing Office, Washington, D. C.

APPENDIX B

MATERIALS USED TO INVITE ORGANIZATIONAL PARTICIPATION IN SURVEY 1

NUTRITION
AND FOOD
SCIENCES

As part of a doctoral program research project, we are conducting a survey of dietitians and nutritionists in Tennessee to determine their actual roles and counseling priorities during the last six months. The purpose of this survey is to obtain baseline information to be used in decision-making about educational programs which prepare practitioners to work in short-term health care institutions and public health agencies in Tennessee.

Your assistance is needed to identify the practitioners in your institution who may be eligible to participate in the study. All practitioners who counseled patients during the last six months while employed with your institution are eligible to participate. We would like all eligible practitioners to participate to account for the diversity of care provided in your institution.

Each participating practitioner will receive one mailed questionnaire. The questionnaire includes relevant questions about the person's background and forms designed to screen roles and counseling priorities in practice during the last six months. The questionnaire will require about thirty minutes to complete. All information provided by participants will be confidential. The people who are invited to participate are not obliged to do so and may withdraw consent at any time without penalty.

If you would like your institution to be included in the survey, please complete the enclosed form. To identify the practitioners who should receive questionnaires, LIST the name, title and address of each practitioner who counseled patients for the last six months while employed with your institution. Include yourself, if appropriate, and those practitioners who are administratively placed in other units within your organization (eg. an out-patient clinic or child development project). Do not include technical support personnel.

Please return the form in the enclosed preaddressed, prestamped envelope by July 2, 1982. If you have questions about the survey, please call Lynne Roberson at 615-974-3491. We appreciate your interest, and we will provide a summary of the results to all participating institutions.

Sincerely,

Lynne M. Roberson

Lynne M. Roberson, R.D.
Doctoral Candidate

Jane R. Savage

Jane R. Savage, Ph.D.
Professor

THE UNIVERSITY
OF TENNESSEE
COLLEGE OF
HOME ECONOMICS
KNOXVILLE 37996-1900
615 · 974 · 5445
615 · 974 · 3491

NUTRITION
AND FOOD
SCIENCES

As part of a doctoral program research project, we are conducting a survey of dietitians and nutritionists in Tennessee to determine their actual roles and counseling priorities during the last six months. The purpose of this survey is to obtain baseline information to be used in decision-making about educational programs which prepare practitioners to work in short-term health care institutions and public health agencies in Tennessee.

Your assistance is needed to identify the practitioners in your agency who may be eligible to participate in the study. All practitioners who counseled patients during the last six months while employed with your agency are eligible to participate. We would like all eligible practitioners to participate to account for the diversity of care provided in your agency.

Each participating practitioner will receive one mailed questionnaire. The questionnaire includes relevant questions about the person's background and forms designed to screen roles and counseling priorities in practice during the last six months. The questionnaire will require about thirty minutes to complete. All information provided by participants will be confidential. The people who are invited to participate are not obliged to do so and may withdraw consent at any time without penalty.

If you would like your agency to be included in the survey, please complete the enclosed form. To identify the practitioners who should receive questionnaires, LIST the name, title and address of each practitioner who counseled patients for the last six months while employed with your agency. Include yourself, if appropriate, and those practitioners who are administratively placed in other units within your organization (eg. an out-patient clinic or child development project). Do not include technical support personnel.

Please return the form in the enclosed preaddressed, prestamped envelope by July 2, 1982. If you have questions about the survey, please call Lynne Roberson at 615-974-3491. We appreciate your interest, and we will provide a summary of the results to all participating agencies.

Sincerely,

Lynne M. Roberson

Lynne M. Roberson, R.D.
Doctoral Candidate

Jane R. Savage

Jane R. Savage, Ph.D.
Professor

THE UNIVERSITY
OF TENNESSEE
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KNOXVILLE 37996-1900
615 · 974 · 5445
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PLEASE RETURN THIS FORM IN THE ENCLOSED ENVELOPE BY Friday, July 2, 1982

IDENTIFICATION OF ORGANIZATIONS AND PARTICIPANTS

ID ______________

1. Please list the name and telephone number of the person who completed this form.

   Name: ______________________ Phone No. ______________________

2. What is the total number of dietitians/nutritionists in your organization? _____

3. IF YOUR PLACE OF EMPLOYMENT is a HOSPITAL OR MEDICAL CENTER:

   a. How many beds does your facility have? _____ beds

   b. Does your facility utilize a contract food service management company?

      Yes __ No __

4. IF YOUR PLACE OF EMPLOYMENT is a PUBLIC HEALTH AGENCY:

   a. What is the total population of the region or metropolitan area served by your agency? ____________ people

   b. Please identify the population in your area who are eligible and who are currently enrolled in the WIC program.

Population	Number Eligible	Number Currently Enrolled
Women		
Infants		
Children		

   c. How many nutritionists work with the WIC program? _____ nutritionists

   d. How many nutritionists work with the home care program? _____ nutritionists

5. Do you have a system for the distribution of mail so that the questionnaires can be mailed to one person for distribution to participants in the survey?

   Yes __ No __

   IF YES, to whom should we mail the questionnaire for distribution?

   Name: ______________________ Title: ______________

   Address: ______________________

   ____

   ______________________ Zip: ______________

CONTINUED ON PAGE 2

Please LIST all dietitians/nutritionists who counseled patients for the last six months while employed with your institutition/agency. Include yourself, if appropriate, and include practitioners who are administratively placed in other units within your organization (eg. an out-patient clinic or child development project). Do not include technical support personnel.

NAME	TITLE	ADDRESS (if different from distribution address)

USE BACK OF PAGE, IF NEEDED

NUTRITION
AND FOOD
SCIENCES

July 8, 1982

Dear:

Several weeks ago, Dr. Jane Savage and I wrote to you about a survey of roles and counseling priorities among dietitians and nutritionists in Tennessee. We are enclosing a copy of the letter and the form to be used to identify eligible practitioners. If you have already mailed your response, please disregard this reminder.

If you have not decided whether to participate, please give it serious consideration. Each institutions and agency invited to participate is very important to the success of this survey. The number of practitioners in Tennessee is very small, and we need all the people who are eligible and willing to participate. If possible, we would like to do a census of all practitioners in hospitals with 400 beds or larger and all in public health agencies.

Please read the enclosed letter describing the purpose and procedure for the study and return the form in the enclosed envelope by July 16, 1982 or as soon as you can. We appreciate your interest and support.

Sincerely yours,

Lynne M. Roberson, R.D.
Doctoral Candidate

LMR:kb
enclosure

THE UNIVERSITY
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APPENDIX C

MATERIALS SENT TO THE PARTICIPANTS IN SURVEY 1

NUTRITION
AND FOOD
SCIENCES

July 27, 1982

As part of a doctoral program research project, we are conducting a survey of dietitians and nutritionists in Tennessee to determine their roles and counseling prioritites during the last six months of practice. The purpose of this survey is to obtain information to be used in decision-making about educational programs which prepare practitioners to work in short-term health care institutions and public health agencies in Tennessee. Your organization was among those selected for the survey and your administrator identified you as a person eligible to participate. All practitioners who counseled patients for the last six months have been invited to participate to account for the diversity of care provided in your organization.

To participate, you only need to complete the enclosed survey questionnaire. The questionnaire includes relevant questions about your background and a form designed to determine your roles and counseling priorities in practice during the last six months. All information you provide will be confidential. Only the project staff will have access to the information. Although we would really like you to participate, you are not obliged to do so. If you do participate, you may withdraw your consent at any time without penalty. Return of this questionnaire signifies your willingness to participate in the study and your informed consent.

Please read the instructions carefully, complete the questionnaire independently, and return it in the enclosed preaddressed, prestamped envelope by August 13, 1982. If you have any questions about the study, please call Lynne Roberson at 615-974-3491. We appreciate your interest, and we will provide a summary of the results to all participating agencies and institutions.

Sincerely,

Lynne M. Roberson, R.D.
Doctoral Candidate

Jane R. Savage, Ph.D.
Professor

LMR/JRS/lc

THE UNIVERSITY
OF TENNESSEE
COLLEGE OF
HOME ECONOMICS
KNOXVILLE 37996-1900
615 · 974 · 5445
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NUTRITION
AND FOOD
SCIENCES

August 18, 1982

Dear Participant:

Several weeks ago, Dr. Jane Savage and I wrote to you about a survey of roles and counseling priorities among dietitians and nutritionists in Tennessee. If you have already mailed your response, please disregard this reminder.

If you have not decided whether to participate, please give it serious consideration. The number of practitioners in Tennessee is very small, and we need all the people who are eligible and willing to participate. If possible, we would like to do a census of all practitioners in hospitals with 400 beds or larger and all in public health agencies.

Please locate and complete the informed consent form and the survey questionnaire mailed to you the week of July 26th. Return the materials in the preaddressed, postage paid envelope. If you are unable to locate the materials and would like to participate, please call (615-974-3491). Leave your name, we will send you the materials you need. Finally, if you have just returned from vacation, please do participate. We do plan to use late returns.

Dr. Savage and I appreciate your cooperation and look forward to hearing from you.

Sincerely yours,

Lynne M. Roberson

Lynne M. Roberson, R.D.
Doctoral Candidate

LMR/lc

THE UNIVERSITY
OF TENNESSEE
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HOME ECONOMICS
KNOXVILLE 37996-1900
615 · 974 · 5445
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ID _____

I. Demographic Information

Please fill in the blank or circle the number of the ONE most appropriate response for each question.

A. Are you:
   1 Female
   2 Male

B. Is your racial and/or ethnic background:
   1 Black
   2 Hispanic
   3 Native American
   4 Oriental
   5 White
   6 Other

C. What is your age?
   _____years

D. How many years have you been employed in the field of dietetics/nutrition?
   _____years
   If less than one year, how many months?
   ____months

E. In what type of program did you obtain your basic dietetic education?
   1 Bachelor's + On-the-Job Training
   2 Bachelor's--Coordinated Undergraduate Program
   3 Bachelor's + Traineeship
   4 Bachelor's + Preplanned Experience
   5 Bachelor's + Internship
   6 Master's + Work Experience
   7 Combined Internship/Master's
   8 Other (please specify)
   _____

F. What is the highest degree you obtained?
   1 Bachelor's
   2 Master's
   3 Doctorate
   4 Other (please specify)
   _____

G. Did you complete a formal educational program in:
   (circle the number of all that apply)
   1 Clinical Dietetics
   2 Community Nutrition
   3 Public Health Nutrition
   4 Food Service Management
   5 Other (please specify)
   _____

H. Are you registered with the American Dietetic Association?
   1 Yes
   2 No

I. How many years have you worked in the institution/agency where you are now employed?
   _____years
   If less than one year, how many months?
   ____months

J. During the last six months, did you work:
   1 Full time
   2 Part time
   3 Both full time and part time

K. What is your position classification (job title)?
   _____

L. Which ONE of the following activities is your major responsibility?
   1 Administration/management
   2 Patient care
   3 Research
   4 Other (please specify)
   _____

M. During the last six months, with what ONE program or unit for patients did you work most of the time?
   _____

N. During the last six months, did you provide patient education classes?
   1 Yes
   2 No

O. During the last six months, about how many hours each week did you counsel patients?
   ____hours/week

Please Note: If you did not counsel patients during the last six months, this is all the information we need. Please return the questionnaire. Thank you for your help.

P. Circle the number of all settings in which you counseled patients (or parents/ caretakers of children who were patients) during the last six months. An OMISSION means that no people were counseled in that setting.

SETTING FOR COUNSELING

(circle the number of all that apply)

1 Acute care facility--hospital
2 Ambulatory care--outpatient clinic
3 Ambulatory care-public health clinic
4 Day care center/nursery school
5 Home of patient
6 Residential institution for children
7 Long-term care/rehabilitation facility
8 Public/private school
9 Other (please specify)

_____

_____

Q. In what setting did you counsel patients most frequently?

_____

R. Circle the number of all age groups for patients whom you counseled during the last six months. An OMISSION means no people in that age group were counseled.

AGE GROUP OF PATIENTS

(circle the number of all that apply)

1 Infants (birth through 12 months)
2 Children (1 year through 10 years)
3 Adolescents (11 years through 18 years)
4 Adults (19 years through 64 years)
5 Older Adults (65 years and older)

S. What was the age group of patients whom you counseled most frequently?

_____

II. Counseling priorities during the last six months

The objective for part II of the questionnaire is to identify the priorities among those needs and problems which were the focus of counseling intervention by dietitians and nutritionists in Tennessee during the last six months. The list of needs and problems was screened by practitioners and faculty to eliminate those less frequently encountered in practice. The needs and problems are divided into four sections to indicate a difference in the nature of the needs and problems. The four sections include the following:

A. Anticipatory guidance for WELL PERSONS

B. Nutritional management problems related to short-term, acute and long-term physical problems or illness.

C. Food, home and family life management problems which affected the nutritional status of patients.

D. Environmental problems which affected the nutritional status of patients.

Please RATE each of the needs and problems in ALL SECTIONS to indicate the priority the need/problem received in your counseling during the last six months. To determine the priority of each need/problem, consider the FREQUENCY you counseled patients with that need/problem. The rating should reflect WHAT YOU DID in counseling during the last six months.

RATE the need/problem from 1 to 5 (1 = HIGH to 5 = LOW PRIORITY) by circling the number. There is a column to CHECK to indicate that you did not counsel any patients with the need/problem. CHECK (✓) the column DID NOT COUNSEL if none of the people you counseled had the need/problem or if the need/problem was not discussed with patients although it may have existed.

FOR EXAMPLE:

Need/Problem	Counseling Priority During the Last Six Months (criterion is frequency of counseling)					
	HIGH		INTERMEDIATE		LOW	DID NOT COUNSEL
Adequate clothing for comfort and safety.	1	2	3	4	5	✓
Hepatitis.	1	2	(3)	4	5	___

SECTION A. Anticipatory guidance for WELL PERSONS. Anticipatory guidance includes routine health guidance which is preventive in nature and supportive counseling in relation to the needs and problems listed below. The needs and problems listed in SECTION A were all for WELL PERSONS. Some patients may have had risk factors but no disease or disability.

Need/Problem	Counseling Priority During the Last Six Months (criterion is frequency of counseling)					
	HIGH	INTERMEDIATE			LOW	DID NOT COUNSEL
Anticipatory guidance about diet and nutrition for growth, development and maintenance of health of WELL PERSONS:						
INFANTS (birth through 12 months). . . .	1	2	3	4	5	____
CHILDREN (1 year through 10 years) . . .	1	2	3	4	5	____
ADOLESCENTS (11 years through 18 years)						
Boys--normal growth and development . .	1	2	3	4	5	____
Girls--normal growth and development. .	1	2	3	4	5	____
Girls--pregnancy.	1	2	3	4	5	____
Girls--lactation.	1	2	3	4	5	____
Girls--oral contraceptives, IUDs, etc..	1	2	3	4	5	____
ADULTS (19 years through 64 years)						
Men--health maintenance	1	2	3	4	5	____
Women--health maintenance	1	2	3	4	5	____
Women--pregnancy.	1	2	3	4	5	____
Women--lactation.	1	2	3	4	5	____
Women--oral contraceptives, IUDs, etc..	1	2	3	4	5	____
OLDER ADULTS (65 years and older). . . .	1	2	3	4	5	____
Anticipatory guidance about diet/nutrition for growth, development and maintenance of health for the WELL PERSON with special focus on PREVENTION--risk factors may have been present but no diagnosed disease or disability:						
Atherosclerosis.	1	2	3	4	5	____
Dental health	1	2	3	4	5	____
Diabetes mellitus.	1	2	3	4	5	____
Folic acid deficiency.	1	2	3	4	5	____
Iron deficiency anemia	1	2	3	4	5	____
Hypertensive cardiovascular disease. . .	1	2	3	4	5	____
Overweight/obesity	1	2	3	4	5	____
Underweight	1	2	3	4	5	____

SECTION B. Nutritional management related to short-term, acute or long-term physical problems or illness. All problems were diagnosed.

Need/Problem	Counseling Priority During the Last Six Months (criterion is frequency of counseling)					
	HIGH	INTERMEDIATE			LOW	DID NOT COUNSEL
Acute glomerulonephritis	1	2	3	4	5	____
Chronic glomerulonephritis	1	2	3	4	5	____
Acute cardiovascular disease	1	2	3	4	5	____
Chronic cardiovascular disease	1	2	3	4	5	____
Arteriosclerosis	1	2	3	4	5	____
Carcinoma (all kinds)	1	2	3	4	5	____
Celiac disease	1	2	3	4	5	____
Cerebrovascular accident (stroke)	1	2	3	4	5	____
Cholelithiasis (gall stones)	1	2	3	4	5	____
Cirrhosis	1	2	3	4	5	____
Colostomy	1	2	3	4	5	____
Congenital anomalies	1	2	3	4	5	____
Congestive heart failure	1	2	3	4	5	____
Constipation	1	2	3	4	5	____
Cystic fibrosis	1	2	3	4	5	____
Dental caries	1	2	3	4	5	____
Diabetes mellitus	1	2	3	4	5	____
Diarrhea (infantile)	1	2	3	4	5	____
Diarrhea (except infantile)	1	2	3	4	5	____
Diverticular disease	1	2	3	4	5	____
Drug-nutrient interactions	1	2	3	4	5	____
Dumping syndrome	1	2	3	4	5	____
Electrolyte imbalance	1	2	3	4	5	____
Esophageal obstruction	1	2	3	4	5	____
Esophagitis	1	2	3	4	5	____
Failure to Thrive	1	2	3	4	5	____
Febrile disease/infection	1	2	3	4	5	____
Food Allergy	1	2	3	4	5	____
Gastric resection	1	2	3	4	5	____
Gastritis	1	2	3	4	5	____
Gout	1	2	3	4	5	____

SECTION B. (continued) Nutritional management problems related to short-term acute or long term physical problems or illness. All problems were diagnosed.

Need/Problem	Counseling Priority During the Last Six Months (criterion is frequency of counseling)					
	HIGH	INTERMEDIATE			LOW	DID NOT COUNSEL
Hiatal hernia	1	2	3	4	5	____
Hyperlipidemias	1	2	3	4	5	____
Hypertensive cardiovascular disease	1	2	3	4	5	____
Hypoglycemia	1	2	3	4	5	____
Iron deficiency anemia	1	2	3	4	5	____
Malabsorption syndrome	1	2	3	4	5	____
Nephrotic syndrome	1	2	3	4	5	____
Overweight/obesity	1	2	3	4	5	____
Fractured jaw	1	2	3	4	5	____
Oral surgery (except fractured jaw)	1	2	3	4	5	____
Peptic ulcers	1	2	3	4	5	____
Phenylketonuria	1	2	3	4	5	____
Pica	1	2	3	4	5	____
Pregnancy--discomforts (eg. nausea, vomiting)	1	2	3	4	5	____
Pregnancy--preeclampsia	1	2	3	4	5	____
Pregnancy--eclampsia	1	2	3	4	5	____
Prematurity and other poor physiological development	1	2	3	4	5	____
Protein-calorie malnutrition	1	2	3	4	5	____
Regional enteritis (Crohn's disease)	1	2	3	4	5	____
Renal failure	1	2	3	4	5	____
Rheumatic heart disease	1	2	3	4	5	____
Spastic/irritable colon	1	2	3	4	5	____
Surgery (general)	1	2	3	4	5	____
Surgery (throat and neck)	1	2	3	4	5	____
Surgery (rectal)	1	2	3	4	5	____
Stunted growth	1	2	3	4	5	____
Ulcerative colitis	1	2	3	4	5	____
Underweight	1	2	3	4	5	____

SECTION C. Food, home and family life management problems which affected the nutritional status of patients. Problems were those of the patients or parents/caretakers of children who were patients.

Need/Problem	Counseling Priority During the Last Six Months (criterion is frequency of counseling)					
	HIGH	INTERMEDIATE			LOW	DID NOT COUNSEL
Lacked appropriate self direction and/or self control in food selection and consumption	1	2	3	4	5	____
Emotional problems which affected food consumption.	1	2	3	4	5	____
Learning problems or disorders which affected food consumption	1	2	3	4	5	____
Lacked appropriate skills for self-feeding	1	2	3	4	5	____
Lacked understanding and skills in the following areas of normal and/or modified diet:						
Food selection and purchasing	1	2	3	4	5	____
Food storage and sanitation	1	2	3	4	5	____
Meal planning	1	2	3	4	5	____
Food preparation.	1	2	3	4	5	____
Utilization of income extenders (eg. food stamps, food supplement and feeding programs, public assistance, and other community services and resources.	1	2	3	4	5	____
Utilization of nutrient supplements . .	1	2	3	4	5	____
Utilization of low costs foods.	1	2	3	4	5	____
Insufficient income to meet needs. . . .	1	2	3	4	5	____
Inability to allocate income to meet needs.	1	2	3	4	5	____
Inability to manage time and energy resources	1	2	3	4	5	____
Misinformed by health professionals and/or other nutrition educators about diet/nutrition.	1	2	3	4	5	____
Relies on unsound sources of information (eg. mass media, myths, fads)	1	2	3	4	5	____
Food restrictions were in conflict with cultural food pattern of family. .	1	2	3	4	5	____
Disruption of the home and/or food management:						
Loss of income/economic crisis.	1	2	3	4	5	____
Loss of utilities	1	2	3	4	5	____
Relocation of home.	1	2	3	4	5	____
Loss of homemaker	1	2	3	4	5	____
Accomodation of new household member	1	2	3	4	5	____

SECTION D. Problem of the home and the community environment which affected the nutritional status of patients.

Need/Problem	Counseling Priority During the Last Six Months (criterion is frequency of counseling)					
	HIGH	INTERMEDIATE			LOW	DID NOT COUNSEL
Refrigeration problems	1	2	3	4	5	____
Problems with food storage space	1	2	3	4	5	____
Problems with cooking facilities	1	2	3	4	5	____
Problems with equipment for preparing and/or consuming food	1	2	3	4	5	____
Unsanitary conditions in the home	1	2	3	4	5	____
Inadequate and/or unsafe water supply in the home	1	2	3	4	5	____
Space problems in home and/or unsafe housing	1	2	3	4	5	____
Lack of food markets in the community	1	2	3	4	5	____
Lack of transportation to markets	1	2	3	4	5	____
Lack of food assistance programs in the community	1	2	3	4	5	____
Lack of nutrition and consumer education programs in the community	1	2	3	4	5	____

III. Roles in Practice

The objective of Part III of the questionnaire is to determine which roles were characteristic of dietitians and nutritionists in Tennessee during the last six months. Please RATE each role to indicate the frequency with which you performed the role. Again, we want to know WHAT YOU DID in your practice, given the opportunities and constraints of your current position.

Please RATE each role to indicate the frequency with which you performed that role. Rate the role from 1 to 5 by circling the number. The response categories are:

1 Very Frequently
2 Frequently
3 Sometimes
4 Seldom
5 Never

How often did you perform each role in your service to patients?	Frequency Role Performed: Very Frequently	Frequently	Sometimes	Seldom	Never
A. NUTRITION ASSESSMENT: Assesses the nutritional status of individuals in health and disease throughout the life cycle	1	2	3	4	5
B. NUTRITION CARE PLANNING: Constructs and coordinates all aspects of nutrition care plan including identification of goals, delineation of treatment modalities and educational plans, establishment of procedures to implement plan, ongoing information gathering and evaluation	1	2	3	4	5
C. NUTRITION CARE IMPLEMENTATION: Communicates and monitors implementation of nutrition care plan; documents all aspects of nutrition care; verifies implementation of care plan.	1	2	3	4	5
D. NUTRITION CARE EVALUATION: Evaluates effects of intervention or individual patient nutritional status.	1	2	3	4	5
E. NUTRITION EDUCATION: Plans, organizes, implements and evaluates nutrition education/ counseling for patient	1	2	3	4	5
F. NUTRITION REFERRAL: Arranges for individual patient follow up care as needed	1	2	3	4	5
G. PROFESSIONAL/EDUCATIONAL ACTIVITY AND DEVELOPMENT:					
* Designs and/or participates in applied research	1	2	3	4	5
* Uses research findings and current knowledge to solve patient's nutritional problem.	1	2	3	4	5

H. HEALTH TEAM FUNCTIONS:

* Communicates pertinent information to other health care professionals; discusses individual patient nutrition care needs with health team members 1 2 3 4 5

* Educates health team on nutrition-related topics 1 2 3 4 5

I. FOOD PROCUREMENT, PRODUCTION AND SERVICE: Plans, reviews, provides consultation for the implementation of nutrition care on the systems level in institutional food service 1 2 3 4 5

J. FOOD PROCUREMENT, PRODUCTION AND SERVICE: Plans, reviews, provides consultation for the implementation of nutritional care on the systems level for supplemental feeding program (eg. WIC) and/or other food assistance program 1 2 3 4 5

K. FOOD SERVICE MAINTENANCE: Institutional kitchen-based responsibility for implementation of nutritional care 1 2 3 4 5

L. STRATEGIC DIRECTION AND PERSONNEL MANAGEMENT:

* Develops short and long range plans for delivering quality nutrition care services while containing costs (including budgeting) 1 2 3 4 5

* Maintains personnel functions for clinical dietetics/nutrition section 1 2 3 4 5

* Maintains orientation and training functions for clinical dietetics/nutrition section. 1 2 3 4 5

M. IDENTIFICATION AND MANAGEMENT OF EXTRANEOUS INFLUENCES UPON NUTRITION CARE:

Identifies political, fiscal and social factors influencing nutrition care and integrates these factors into system for delivering nutrition care to individual patients. 1 2 3 4 5

THE END.

THANK YOU.

INFORMED CONSENT

The informed consent procedures to be employed in this study were described in the letter which accompanied the survey questionnaire. Your signed consent form will be retained in confidence for a period of three years. At that time the consent form will be destroyed.

Please sign and date this form to indicate that you understand the informed consent procedures and that you are willing to participate.

Signature:_____
(name)

Date:_____

NUTRITION
AND FOOD
SCIENCES

August 18, 1982

Dear Participant:

Thank you very much for completing the questionnaire for the survey of practitioners in Tennessee. The informed consent letter was not included with the questionnaire, so we are sending another copy. Please sign, date, and return the form in the enclosed preaddressed, postage paid envelope. We really appreciate your participation. Thank you again.

Sincerely yours,

Lynne M. Roberson, R.D.
Doctoral Candidate

LMR/lc

THE UNIVERSITY
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APPENDIX D

MATERIALS SENT TO THE PARTICIPANTS IN SURVEY 2

NUTRITION
AND FOOD
SCIENCES

October 8, 1982

Delphi Probe
Your Street Name and Number
Hometown, USA 01234

Dear Delphi Probe:

We are conducting a study to aid in the development of educational programs for practitioners in dietetics and public health nutrition at The University of Tennessee, Knoxville. We need your help in the conduct of the study and hope that you will be willing to participate.

The study is a Delphi probe which is designed to identify the highest priority counseling situations which practitioners will encounter in the next ten years. The faculty of the Department of Nutrition and Food Sciences identified you as one of the people in Tennessee who is well prepared to assist with this task. Your understanding of the field, especially the nature of the counselor role in clinical practice, was the special criteria for your selection.

The Delphi probe is designed to include three rounds. We estimate that each round will take from thirty minutes to an hour to complete. We hope to be able to expedite these rounds to assure the timely completion of the project. We think that the results of the study will be of considerable interest to others involved in the education of practitioners, and we plan to send you a summary of the results when we are finished.

Round I of the Delphi probe is enclosed. In addition, you will find an informed consent form which describes the procedures to be employed in this study. Please return both the questionnaire and the informed consent form in the enclosed pre-addressed, pre-stamped envelope. To expedite the process, we would appreciate your returning these materials as soon as possible.

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615 · 974 · 5445
615 · 974 · 3491

If you have any questions about the study, please call Lynne Roberson at (615) 974-3491. Leave a message, and she will return your call. Thank you, in advance, for your help.

Sincerely yours,

Lynne M. Roberson, R.D.
Doctoral Candidate

Jane R. Savage, Ph.D.
Professor of Nutrition

LMR/JRS:dkl

Enclosure

ROUND 1

DELPHI PROBE INTO THE NEEDS AND PROBLEMS OF PEOPLE

INSTRUCTIONS:

Round 1 of the Delphi probe is designed to obtain relevant information about the background of the Delphi probe participants and to determine what needs and problems of people should be regarded as high priority in counseling intervention in the future. The probe is divided into sections to assure diversity in your responses. Please complete the questionnaire independently.

I. Demographic Information

Please fill in the blank or circle the number of the ONE most appropriate response for each question.

A. Are you:
1. Male
2. Female

B. Is your racial and/or ethnic background:

1. Black
2. Hispanic
3. Native American
4. Oriental
5. White
6. Other

C. How many years have you been employed in the field of dietetics/nutrition?

___ years

D. In what type of program did you obtain your basic dietetic education?

1. Bachelor's + On-the-Job Training
2. Bachelor's - Coordinated Undergraduate Program
3. Bachelor's + Traineeship
4. Bachelor's + Preplanned Experience
5. Bachelor's + Internship
6. Master's + Work Experience
7. Combined Internship/Master's
8. Other (please specify)

_____

E. What is the highest degree you obtained?
1. Bachelor's
2. Master's
3. Doctorate
4. Other (please specify)

_____

F. Are you registered with the American Dietetic Association?

1. Yes
2. No

G. Is your current position in the area of:

1. Service in hospital dietetics
2. Service in public health nutrition
3. Education of practitioners
4. Other (please specify)

_____

H. Which ONE of the following activities is your major responsibility?

1. Administration/management
2. Patient care
3. Research
4. Teaching students
5. Other (please specify)

_____

II. Identification of Needs and Problems

A. List up to six high nutrition-related priority needs or problems which should be the focus of anticipatory guidance for Well Persons in counseling provided by practitioners in the future. Anticipatory guidance includes routine health guidance and supportive counseling which is preventive in nature. The people counseled are either well or have risk factors but not disease or disability.

B. List up to six high priority nutrition-related physical health problems or illnesses which should be the focus of the counseling provided by practitioners in the future.

C. List up to six needs or problems in the management of the self, family, home and food which affect the nutritional status of people and should receive high priority in counseling intervention by practitioners in the future.

D. List up to six needs or problems of the physical environment of the home and community which affect the nutritional status of people and should receive high priority in counseling people in the future.

INFORMED CONSENT

All information you provide in this study will be confidential. Only the project staff will have access to the information. Although we would really like you to participate, you are not oblidged to do so. If you do participate, you may withdraw your consent at any time without penalty. Your signed consent form will be retained in confidence for a period of three years. At that time the consent form and the questionnaires will be destroyed. Information from the survey will be retained for coded form.

Please sign and date this form to indicate that you understand the informed consent procedures and that you are willing to participate.

Signature:_____

(name)

Date:_____

NUTRITION
AND FOOD
SCIENCES

December 3, 1982

Dear :

Thank you for your participation in Round I of the Delphi probe. Fifteen people in Tennessee were asked to participate. You are one of fourteen people who agreed to participate; and we sincerely appreciate your response.

Enclosed please find Round II of the Delphi probe. We are eager to complete the project, so please return the materials by December 17, 1982 (or as soon as possible thereafter). A preaddressed, prestamped envelope is enclosed to return the materials.

Should you have any questions about Round II of the Delphi probe, please call Lynne Roberson at 615-974-3491. Leave a message, and she will return your call. We appreciate your continued interest and participation.

Sincerely,

Lynne M. Roberson, R.D.
Doctoral Candidate

Jane R. Savage, Ph.D.
Professor of Nutrition

LMR/JRS:dkl

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ROUND II

DELPHI PROBE INTO THE NUTRITION-RELATED NEEDS AND PROBLEMS OF PEOPLE

INSTRUCTIONS:

The nutrition-related needs and problems identified in Round I of the Delphi probe have been screened. All needs and problems which related to the specific objective for the Delphi probe were summarized into four sections. These four sections include the following:

1. Anticipatory guidance for WELL PERSONS
2. Nutritional management problems related to short-term, acute and long-term physical problems or illness
3. Problems in the management of the self, family and home which affect nutritional status
4. Problems of the physical environment of the home and community which affect nutritional status

In the Round II probe, the Delphi participants will help to determine the highest priority needs and problems to be the focus of counseling intervention in the future. The Round II probe is divided into four tasks. Each task relates to a different section of the needs and problems. In EACH of the four tasks, you will be asked to CHECK (√) BOTH the highest priority and the lowest priority needs/problems. The number of needs/problems to be selected will be given on the page for each task. Use the following criteria simultaneously to determine the priority:

1. Frequency of occurrence of the need/problem
2. Degree to which the need/problem causes disruption in a person's life
3. Degree to which dietary/nutrition intervention affects the outcome

Please keep in mind that the need/problem should be one which will be the focus of counseling intervention by practitioners during the next ten years. If you are unfamiliar with the need/problem, please CHECK (√) the column labeled LITTLE or NO EXPERIENCE.

TASK ONE

Anticipatory Guidance Nutrition-Related Needs and Problems

Anticipatory guidance includes routine health guidance and supportive counseling which is preventive in nature. The people counseled are either WELL, or they have risk factors but no disease or disability. Select the seven (7) highest and the seven (7) lowest priority needs and problems from the 22 items on this page.

NEED/PROBLEM	HIGHEST PRIORITY Check (✓) 7	LOWEST PRIORITY Check (✓) 7	LITTLE OR NO EXPERIENCE Check (✓)	SUM (1)
Anticipatory guidance about diet and nutrition for growth, development and maintenance of health of WELL PERSONS:				
Infants (birth through 12 months)	13	0		+13
Children (1 year through 10 years)	6	0		+ 6
ADOLESCENTS (11 through 18 years):				
Boys-normal growth and development	1	8		- 7
Girls-normal growth and development	2	4		- 2
Girls-pregnancy	13	1		+12
Girls-lactation	2	3		- 1
ADULTS (19 years through 64 years):				
Men-health maintenance	1	10		- 9
Women-health maintenance	2	8		- 6
Women-pregnancy	9	0		+ 9
Women-lactation	0	2		- 2
Older adults (65 years and older)	3	5		- 2
Anticipatory guidance about diet/ nutrition for growth, development and maintenance of health for WELL PERSONS with special focus on PREVENTION - risk factors may have been present but no diagnosed disease or disability:				
Dental health	3	6		- 3
Family members with a positive family history of hypertension	2	5		- 3
Family members with a positive family history of diabetes mellitus	6	2		+ 4
Family members with a positive family history of hyperlipoproteinemias	2	8		- 6
Family members with one or both parents markedly obese	6	1		+ 5
Iron deficiency anemia	2	6		- 4
Heart disease	2	4		- 2
Hypertension	3	2		+ 1
Osteoporosis	2	10		- 8
Weight management	11	0		+11
Physical fitness	7	3		+ 4

(1) Preliminary Rank: High (+5 to +14)
Medium (-5 to +4)
Low (-5 to -14)

TASK TWO

Nutritional Management Related to Short-Term, Acute or Long-Term Physical Problems or Illness

Select the seven (7) highest and the seven (7) lowest priority counseling problems from the 21 items on the page.

NEED/PROBLEM	HIGHEST PRIORITY Check (✓) 7	LOWEST PRIORITY Check (✓) 7	LITTLE OR NO EXPERIENCE Check (✓)	SUM
Anorexia nervosa	5	6		- 1
Cancer	7	1		+ 6
Cerebrovascular disease	1	8		- 7
Dental caries	0	8		- 8
Diabetes mellitus	14	0		+14
Diverticular disease	0	6		- 6
Heart disease	8	3		+ 5
Hyperlipoproteinemias	5	5		0
Hypertension	6	1		+ 5
Hypoglycemia	1	9	1	- 8
Inborn errors of metabolism	5	4		+ 1
Iron deficiency anemia	1	2		- 1
Malnutrition - infants	10	1		+ 9
Malnutrition - pregnant women	10	1		+ 9
Malnutrition - elderly	3	2		+ 1
Obesity	11	1		+10
Renal disease	4	0	1	+ 4
Substance abuse	1	9	1	- 8
Stress	0	10	1	-10
Surgery - prior optimization of nutritional status	3	5		- 2
Surgery - impact of stress or trauma	0	9		- 9

TASK THREE

Problems in the Management of the Self, Family and Home Which Affect Nutritional Status

Select the five (5) highest and five (5) lowest priority counseling needs and problems from the 14 items on this page.

NEED/PROBLEM	HIGHEST PRIORITY Check (✓) 5	LOWEST PRIORITY Check (✓) 5	LITTLE OR NO EXPERIENCE Check (✓)	SUM
Lack of understanding, skills and/or motivation to organize, manage and perform the following tasks in relation to the provision of a normal and/or modified diet for self and/or family:				
Meal planning and evaluation	8	1		+ 7
Food selection and purchasing	10	2		+ 8
Food safety, preservation and storage	4	5		- 1
Food preparation	5	6		- 1
Utilize resources to extend income (e.g. food stamps, public assistance)	6	2		+ 4
Adapt dietary practices to cooking for one	1	12		-11
Adapt dietary practices to accommodate physical disability	1	6		- 5
Adapt to eating meals away from home	4	7		- 3
Develop family food practices which foster good nutritional status	11	1		+10
Inability to manage time and energy resources	2	7		- 5
Insufficient income to meet needs	8	1		+ 7
Relies on unsound sources of information				
Lack of "structure" within the home and family situation (e.g., irregular meal times, children prepare own meals, people eat in front of the televison	1	8		- 7
Lack of strategies for career women to be able to manage breast-feeding their infants if the choices are there to do so	1	9		- 8

TASK FOUR

Problems of the Physical Enviornment of the Home and Community Which Affect Nutritional Status

Select the four (4) highest and the four (4) lowest priority counseling needs and problems from the 12 items on this page.

NEED/PROBLEM	HIGHEST PRIORITY Check (✓) 4	LOWEST PRIORITY Check (✓) 4	LITTLE OR NO EXPERIENCE Check (✓)	SUM
Availability of equipment to refrigerate or cook food	7	4		+ 3
Availability of electricity to operate appliances	3	7		- 4
Unsanitary conditions in the home	6	2		+ 4
Availability of a safe water supply in the home	4	5		- 1
Space problems in the home (overcrowding)	2	11		- 9
Availability of a safe place to exercise	2	11		- 9
Use of limited space to grow food	2	8		- 6
Availability of transportation to markets	5	1		+ 4
Availability of transportation to health care	5	0		+ 5
Utilization of food assistance programs in the community (2)	10	1		+ 9
Utilization of reimbursable nutrition services in home health care	7	2		+ 5
Availability of congregate feeding sites for groups by age and by cluster housing	4	5		- 1

(2) Combined with "utilize resources to extend income" in task three.

NUTRITION
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SCIENCES

February 10, 1983

Dear :

Thank you for your continued participation in the Delphi Probe to determine the highest priority needs and problems of people who will receive counseling intervention by dietetics practitioners in the future. For those of you who felt uncomfortable with the forced choice situation in Round II, please note that we want to identify only the highest priority needs and problems for this project. Your responses enabled us to pare the list by one third.

In Round III of the Delphi Probe, you will have an opportunity to examine the results of the Round II Probe and to arrive at a final decision about the priority you believe the needs/problems should have in counseling intervention by dietetics practitioners. Please complete and return the questionniare in the enclosed preaddressed, prestamped envelope by March 4, 1983 or as soon as possible thereafter.

In addition, if you would be willing to be recognized as a participant in the Delphi Probe, please complete the enclosed form and return it with the questionnaire. Should you have questions about Round III of the Delphi Probe, please call Lynne Roberson at 901-528-6541. We are very grateful for your efforts and look forward to sharing the results of the study with you.

Sincerely,

Lynne M. Roberson, R.D.
Doctoral Candidate

Jane R. Savage, Ph.D.
Professor of Nutrition

LMR/JRS:dkl

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PARTICIPANT RECOGNITION

As indicated in the informed consent procedures, all responses of Delphi Probe participants will remain confidential. This does not preclude your recognition as a participant, if you would be willing to be identified.

If you would be willing to be recognized as a participant in the Delphi Probe, please indicate below your name, title and the affiliation you would like to have recognized. Please give clear, complete information.

Name:
Title:
Affiliation:
Name of Agency/Institution_____
Address _____
_____
_____
_____

Round III

DELPHI PROBE INTO THE NUTRITION-RELATED
NEEDS AND PROBLEMS OF PEOPLE

INSTRUCTIONS:

Each nutrition-related need or problem which you ranked in Round II of the Delphi Probe was assigned a weighted value and a preliminary rank. A summary of this information is included in the enclosed material. Please note that only the highest two-thirds of the needs and problems were included in the Round III probe. The lowest one-third of the items was deleted.

To arrive at a final rank for each need/problem, please examine the results of the Round II probe and indicate whether you agree with the preliminary rank (high or medium) for each item. If you do not agree, please indicate whether you would rank the need/problem high, medium or low, priority for counseling intervention by dietetic practitioners during the next ten years. Use the following criteria simultaneously to determine the priority:

1. Frequency of occurence of the need/problem
2. Degree to which the need/problem causes disruption in a person's life
3. Degree to which dietary/nutrition intervention affects the outcome

Question: What are the needs and problems which will be the highest priority for counseling intervention by dietetic practitioners during the next ten years?

Category	Need/Problem	Round II Responses: Highest Priority #	Lowest Priority #	Value	Rank	Do you agree with the rank of priority for this need/problem? Yes (check one)	No	If No, what rank of priority would you assign this need/problem? (1) High (check one)	Medium	Low	SUM
Anticipatory guidance about diet and nutrition for growth, development and maintenance of health of Well Persons	Infants (birth through 12 months)	13	0	+13	High	11	1	11	1	0	+11
	Children (1 year through 10 years)	6	0	+ 6	High	11	1	11	0	0	+11
	Adolescents (11 through 18 years):										
	Girls-normal growth and development	2	4	- 2	Medium	11	1	0	11	0	0
	Girls-pregnancy	13	1	+12	High	12	0	12	0	0	+12
	Girls-lactation	2	3	- 1	Medium	8	4	3	8	0	+ 3
	Adults (19 years through 64 years):										
	Women-pregnancy	9	0	+ 9	High	12	0	12	0	0	+12
	Women-lactation	0	2	- 2	Medium	8	4	3	8	0	+ 3
	Older adults (65 years and older)	3	5	- 2	Medium	9	3	2	9	0	+ 2
Anticipatory guidance about diet/nutrition for growth, development and maintenance of health for Well Persons with special focus on Prevention (risk factors may have been present but no diagnosed disease or disability)	Dental health	3	6	- 3	Medium	10	2	1	10	0	+ 1
	Family members with a positive family history of hypertension	2	5	- 3	Medium	10	2	0	10	1	- 1
	Family members with a positive family history of diabetes mellitus	6	2	+ 4	Medium	9	3	3	0	0	+ 3
	Family members with one or both parents markedly obese	6	1	+ 5	High	11	1	11	1	0	+11
	Heart disease	2	4	- 2	Medium	10	2	2	10	0	+ 2
	Hypertension	3	2	+ 1	Medium	10	2	2	10	0	+ 2
	Weight management	11	0	+11	High	12	0	12	0	0	+12
	Physical fitness	7	3	+ 4	Medium	10	2	2	10	0	+ 2
Nutritional management related to short-term, acute or long-term physical problems or illness	Anorexia nervosa	5	6	- 1	Medium	7	5	2	7	3	- 1
	Cancer	7	1	+ 6	High	9	3	9	2	0	+ 9
	Diabetes mellitus	14	0	+14	High	12	0	12	0	0	+12
	Heart disease	8	3	+ 5	High	11	1	11	0	0	+11
	Hyperlipoproteinemias	5	5	0	Medium	9	3	2	9	1	+ 1
	Hypertension	6	1	+ 5	High	11	1	11	1	0	+11
	Inborn errors of metabolism	5	4	+ 1	Medium	11	1	1	11	0	+ 1
	Iron deficiency anemia	1	2	- 1	Medium	9	3	2	9	0	+ 2
	Malnutrition-infants	10	1	+ 9	High	12	0	12	0	0	+12
	Malnutrition-pregnant women	10	1	+ 9	High	12	0	12	0	0	+12
	Malnutrition-elderly	3	2	+ 1	Medium	9	3	3	9	0	+ 3

Question: What are the needs and problems which will be the highest priority for counseling intervention by dietetic practitioners during the next ten years?

Category	Need/Problem	Round II Responses: Highest Priority #	Lowest Priority #	Value	Rank	Do you agree with the rank of priority for this need/problem? (check one) Yes	No	If No, what rank of priority would you assign this need/problem? (check one) High	Medium	Low	SUM
Nutritional management related to short-term, acute or long-term physical problems or illness	Obesity	11	1	+10	High	12	0	12	0	0	+12
	Renal disease	4	0	+ 4	Medium	11	1	1	11	0	+ 1
	Surgery-prior optimization of nutritional status	3	5	- 2	Medium	9	2	2	9	0	+ 2
Problems in the management of the self, family and home which affect nutritional status	Lack of understanding, skills and/or motivation to organize, manage and perform the following tasks in relation to the provision of a normal and/or modified diet for self and/or family:										
	Meal planning and evaluation	8	1	+ 7	High	10	2	10	2	0	+10
	Food selection and purchasing	10	2	+ 8	High	11	1	11	1	0	+11
	Food safety, preservation and storage	4	5	- 1	Medium	12	0	0	12	0	0
	Food preparation	5	6	- 1	Medium	10	2	2	10	0	+ 2
	Utilization of resources to extend income (e.g., food stamps, food assistance programs)	6	2	+ 4	Medium	9	3	3	9	0	+ 3
	Adapt to eating meals away from home	4	7	- 3	Medium	10	2	2	10	0	+ 2
	Develop family food practices which foster good nutritional status	11	1	+10	High	12	0	12	0	0	+12
	Insufficient income to meet needs	6	1	+ 5	High	11	1	11	1	0	+11
	Relies on unsound sources of information	8	1	+ 7	High	11	1	11	1	0	+11

Question: What are the needs and problems which will be the highest priority for counseling intervention by dietetic practitioners during the next ten years?

Category	Need/Problem	Round II Responses: Highest Priority #	Lowest Priority #	Value	Rank	Do you agree with the rank of priority for this need/problem? Yes (check one)	No	If No, what rank of priority would you assign this need/problem? High (check one)	Medium	Low	SUM
Problems of the physical environment of the home and community which affect nutritional status	Availability of equipment to refrigerate or cook food	7	4	+ 3	Medium	9	3	0	9	3	- 3
	Unsanitary conditions in the home	6	2	+ 4	Medium	8	4	2	8	2	0
	Availability of a safe water supply in the home	4	5	- 1	Medium	9	3	1	9	2	- 1
	Availability of transportation to markets	5	1	+ 4	Medium	9	3	1	9	2	- 1
	Availability of transportation to health care	5	0	+ 5	High	7	5	7	5	0	+ 7
	Utilization of reimbursable nutrition services in home health care	7	2	+ 5	High	10	2	10	2	0	+10
	Availability of congregate feeding sites for groups by age and by cluster housing	4	5	- 1	Medium	9	3	3	9	0	+ 3

(1) Indistinguishable responses were not reported.

(2) Final Rank: High (+5 to +12)
Medium (-4 to +4)
Low (-5 to -11)

APPENDIX E

SUMMARY OF RATINGS OF THE FREQUENCY OF ROLE PERFORMANCE BY DIETETIC PRACTITIONERS IN HOSPITAL AND PUBLIC HEALTH AGENCIES

TABLE 9

Summary of ratings of the frequency of role performance by dietetic practitioners in hospitals and public health agencies

Question: How often did you perform each role in your service to patients? Response categories: 1 = Very Frequently; 2 = Frequently; 3 = Sometimes; 4 = Seldom; 5 = Never.

Role	Practitioner Group: Hospital $\bar{x}$	n	Hospital Frequency 1	2	3	4	5	Public Health $\bar{x}$	n	Public Health Frequency 1	2	3	4	5	Total $\bar{x}$	n	Total Frequency 1	2	3	4	5
NUTRITION CARE																					
1. Nutrition Assessment: Assesses the nutrition status of individuals in health and disease throughout the life cycle	2.2	94	39	18	21	10	6	1.2	50	43	5	1	0	1	1.9	144	82	23	22	10	7
2. Nutrition Care Planning: Constructs and coordinates all aspects of nutrition care plan including identification of goals, delineation of treatment modalities and educational plans, establishment of procedures to implement plan, ongoing information gathering and evaluation	2.3	93	29	28	21	9	6	1.8	50	30	10	4	4	2	2.1	143	59	38	25	13	8
3. Nutrition Care Implementation: Communicates and monitors implementation of nutrition care plan; documents all aspects of nutrition care; verifies implementation of care plan	2.0	93	41	26	14	7	5	1.7	50	31	8	6	3	2	1.9	143	72	34	20	10	7
4. Nutrition Care Evaluation: Evaluates effects of intervention on individual patient nutrition status	2.2	92	30	29	22	12	0	1.7	50	25	15	8	2	0	2.0	143	55	44	30	14	0
5. Nutrition Education: Plans, organizes, implements, and evaluates nutrition education/counseling for patient	1.7	94	45	33	12	4	0	1.3	50	39	7	3	1	0	1.6	144	84	40	15	5	0
6. Nutrition Referral: Arranges for individual patient follow up care as needed	2.5	94	21	21	33	18	1	2.0	50	18	18	9	4	1	2.4	144	39	39	42	22	2
PROFESSIONAL DEVELOPMENT																					
1. Designs and/or participates in applied research	4.1	91	2	7	14	23	45	4.1	50	2	3	8	14	23	4.1	144	4	10	22	37	68
2. Uses research findings and current knowledge to solve patient's nutrition problem	2.4	92	18	36	26	9	3	2.4	50	12	18	12	3	5	2.4	142	30	54	38	12	8
HEALTH TEAM FUNCTIONS																					
1. Communicates pertinent information to other health care professionals; discusses individual patient nutrition care needs with health team members	1.7	94	47	34	8	5	0	2.0	50	14	25	9	2	0	1.8	144	61	59	17	7	0
2. Educates health team on nutrition-related topics	2.5	92	19	30	23	16	4	2.4	50	6	24	12	8	0	2.5	142	25	54	35	24	4
FOOD PROCUREMENT, PRODUCTION AND SERVICE																					
Plans, reviews, provides consultation for the implementation of nutrition care on the systems level in institutional food service	4.1	94	2	11	11	22	48	4.4	49	1	0	4	16	28	4.2	143	3	11	15	38	76

TABLE 9 (continued)

Role	Practitioner Group: Hospital $\bar{x}$	n	Frequency 1	2	3	4	5	Public Health $\bar{x}$	n	Frequency 1	2	3	4	5	Total $\bar{x}$	n	Frequency 1	2	3	4	5
FOOD PROCUREMENT, PRODUCTION AND SERVICE																					
Plans, reviews, provides consultation for the implementation of nutrition care on the systems level for supplemental feeding program (e.g., WIC) and/or other food assistance programs	4.8	94	1	2	0	10	81	2.8	49	17	6	10	2	14	4.1	143	18	8	10	12	95
FOOD SERVICE MAINTENANCE																					
Institutional kitchen-based responsibility for implementation of nutrition care	4.5	93	2	1	7	25	58	4.9	49	0	0	1	4	44	4.6	142	2	1	8	29	102
STRATEGIC DIRECTION AND PERSONNEL MANAGEMENT																					
1. Develops short and long range plans for delivering quality nutrition care services while containing costs (including budgeting)	4.3	94	2	10	8	12	62	3.8	49	3	9	8	6	23	4.1	143	5	19	16	18	85
2. Maintains personnel functions for clinical dietetics/ nutrition section	4.1	93	10	6	5	14	58	4.0	49	7	1	4	10	27	4.1	142	17	7	9	24	85
3. Maintains orientation and training functions for clinical dietetics/nutrition section	4.0	94	9	9	9	17	50	3.8	49	6	3	11	5	24	3.9	143	15	12	20	22	74
IDENTIFICATION AND MANAGEMENT OF EXTRANEOUS INFLUENCES UPON NUTRITION CARE																					
Identifies political, fiscal and social factors influencing nutrition care and integrates these factors into system for delivering nutrition care to individual patients	3.4	94	10	13	24	20	27	3.0	47	9	8	14	5	11	3.3	141	19	21	38	25	38

APPENDIX F

SUMMARY OF THE RATINGS OF THE PRIORITY FOR COUNSELING INTERVENTION FOR 113 CLIENTS' NEEDS AND PROBLEMS

TABLE 10

Summary of ratings of the priority for counseling intervention for 113 clients' needs and problems

Need/Problem	Group	Practitioners Rated Item No.	Practitioners Did Not Counsel No.	Total No.	(1/2 Total + 1) No.	Rating x	Response Frequency[1] 1	2	3	4	5
ANTICIPATORY GUIDANCE FOR WELL PERSONS											
Infants (birth through 12 months)	H	11	79	90	46	(3.4)[2]	2	1	2	3	3
	PH	50	0	50	26	1.2*	45	3	0	1	1
Children (1 year through 10 years)	H	19	71	90	46	(4.1)	1	1	4	2	11
	PH	48	1	49	25.5	1.5*	34	8	4	0	2
Boys (11 years through 18 years)	H	20	69	89	45.5	(4.0)	1	1	5	4	9
	PH	25	24	49	25.5	(3.6)	5	2	1	7	10
Girls (11 years through 18 years)	H	22	67	89	45.5	(3.7)	1	2	7	4	8
	PH	31	18	49	25.5	3.3	5	6	3	9	8
Girls--pregnant	H	18	72	90	46	(4.0)	1	0	5	4	8
	PH	50	0	50	26	1.4*	37	7	4	1	1
Girls--lactation	H	11	79	90	46	(3.9)	0	0	5	2	4
	PH	49	1	50	26	2.3*	19	9	12	4	5
Girls--oral contraceptives, IUDs, etc.	H	3	86	89	45.5	(3.7)	0	0	2	0	1
	PH	22	26	48	25	(4.0)	1	2	3	5	11
Men (19 years through 64 years)	H	58	32	90	46	3.5	4	8	17	14	15
	PH	23	26	49	25.5	(3.8)	1	3	4	7	8
Women (19 years through 64 years)	H	52	38	90	46	3.7	3	7	12	13	17
	PH	36	13	49	25.5	3.3	3	7	10	8	8
Women--pregnant	H	33	56	89	45.5	(3.5)	3	3	12	5	10
	PH	50	0	50	26	1.2*	44	4	1	0	1
Women--lactation	H	26	63	89	44.5	(3.4)	2	3	9	6	6
	PH	50	0	50	26	1.8*	28	10	9	2	1
Women--oral contraceptives, IUDs, etc.	H	6	81	87	44.5	(4.0)	0	1	1	1	3
	PH	25	25	50	26	(3.8)	1	4	5	4	11
Older adults (65 years and older)	H	55	28	83	42.5	3.3	7	8	18	8	14
	PH	33	14	47	24.5	4.0	1	1	6	13	12
ANTICIPATORY GUIDANCE-PREVENTION FOR WELL PERSONS											
Atherosclerosis	H	63	29	92	47	2.9*	11	14	17	11	10
	PH	30	19	49	25.5	3.2	1	10	7	7	5
Dental health	H	35	57	92	47	(4.0)	2	1	8	9	15
	PH	41	8	49	25.5	3.0*	4	10	13	8	6

TABLE 10 (continued)

Need/Problem	Group	Practitioners Rated Item No.	Practitioners Did Not Counsel No.	Total No.	(1/2 Total + 1) No.	Rating x	Response Frequency 1	2	3	4	5
ANTICIPATORY GUIDANCE-PREVENTION FOR WELL PERSONS (Cont'd.)											
Diabetes mellitus	H	64	28	92	47	2.6*	16	14	19	10	5
	PH	42	7	49	25.5	3.1	4	11	10	9	8
Folic acid deficiency	H	25	67	92	47	(4.4)	0	1	3	7	14
	PH	31	18	49	25.5	3.3	4	5	7	7	8
Iron deficiency anemia	H	52	41	93	47.5	3.6	2	4	18	17	11
	PH	44	4	48	25	1.4*	34	5	4	1	0
Hypertensive cardiovascular disease	H	67	26	93	47.5	2.5*	15	21	15	12	4
	PH	39	9	48	25	2.7*	10	7	11	7	4
Overweight/obesity	H	74	20	94	48	2.4*	22	20	17	8	7
	PH	48	1	49	25.5	1.6*	32	8	5	1	2
Underweight	H	61	33	94	48	3.2	12	7	14	15	13
	PH	45	4	49	25.5	2.6*	12	12	10	5	6
PHYSICAL HEALTH PROBLEMS OR ILLNESS											
Acute glomerulonephritis	H	48	44	92	47	4.0	4	4	6	9	25
	PH	4	45	49	25.5	(4.2)	0	0	1	1	2
Chronic glomerulonephritis	H	49	41	90	46	3.8	5	4	7	12	21
	PH	7	42	49	25.5	(4.4)	0	0	1	2	4
Acute cardiovascular disease	H	80	12	92	47	2.6*	21	17	23	8	11
	PH	13	35	48	25	(3.2)	2	3	3	0	5
Chronic cardiovascular disease	H	88	6	94	48	2.3*	29	22	24	7	6
	PH	23	27	50	26	(3.5)	1	3	8	3	7
Arteriosclerosis	H	86	8	94	48	2.5*	23	18	28	10	7
	PH	27	22	49	25.5	3.6	1	3	10	5	8
Carcinoma (all kinds)	H	88	6	94	48	2.7*	22	16	26	15	9
	PH	13	37	50	26	(4.2)	0	1	1	5	6
Celiac disease	H	28	63	91	46.5	(4.2)	3	0	2	6	17
	PH	12	38	50	26	(4.6)	0	0	1	3	8
Cerebrovascular accident	H	76	15	91	46.5	3.1	11	10	26	21	8
	PH	16	34	50	26	(4.4)	1	1	0	2	12
Cholelithiasis	H	71	21	92	47	3.3	4	10	28	17	12
	PH	16	34	50	26	(4.4)	0	0	3	4	9

TABLE 10 (continued)

Need/Problem	Group	Practitioners Rated Item No.	Practitioners Did Not Counsel No.	Total No.	(1/2 Total + 1) No.	Rating x	Response Frequency 1	2	3	4	5
PHYSICAL HEALTH PROBLEMS OR ILLNESS (Cont'd.)											
Cirrhosis	H	79	15	94	48	3.7	2	12	20	22	23
	PH	6	43	49	25.5	(4.7)	0	0	0	2	4
Colostomy	H	66	27	93	47.5	3.8	2	8	14	16	26
	PH	14	35	49	27.5	(4.5)	1	0	1	1	11
Congenital anomalies	H	25	64	89	45.5	(4.4)	0	2	2	5	16
	PH	28	22	50	26	3.9	0	3	8	6	11
Congestive heart failure	H	82	9	91	46.5	2.3*	21	29	23	4	5
	PH	15	33	48	25	(3.7)	0	4	3	2	6
Constipation	H	87	6	93	47.5	3.4	3	15	30	24	15
	PH	47	3	50	26	3.0*	4	14	17	4	8
Cystic fibrosis	H	18	74	92	47	(3.4)	2	3	4	3	6
	PH	27	23	50	26	4.3	0	2	3	7	15
Dental caries	H	25	67	92	47	(4.1)	0	3	4	5	13
	PH	37	11	48	25	3.1	4	9	9	11	4
Diabetes mellitus	H	89	1	90	46	1.6*	50	28	11	0	0
	PH	48	2	50	26	3.0*	7	11	13	7	10
Diarrhea (infantile)	H	20	70	90	46	(3.8)	3	2	2	1	12
	PH	45	5	50	26	3.1	7	9	10	12	7
Diarrhea (except infantile)	H	71	21	92	47	3.7	2	9	18	22	20
	PH	28	22	50	26	4.0	3	2	1	9	13
Diverticular disease	H	76	14	90	46	3.5	3	7	28	25	13
	PH	18	32	50	26	(3.9)	0	1	7	2	8
Drug-nutrient interactions	H	59	34	93	47.5	4.1	2	5	6	16	30
	PH	24	26	50	26	(4.1)	1	3	3	3	14
Dumping syndrome	H	84	10	94	48	3.7	6	8	22	17	31
	PH	14	36	50	26	(4.2)	0	0	4	3	7
Electrolyte imbalance	H	67	26	93	47.5	3.6	5	11	14	15	22
	PH	20	30	50	26	(3.7)	1	3	3	8	5
Esophageal obstruction	H	64	28	92	47	3.8	5	5	10	22	22
	PH	8	41	49	25.5	(4.5)	0	0	2	0	6

TABLE 10 (continued)

Need/Problem	Group	Practitioners: Rated Item No.	Practitioners: Did Not Counsel No.	Practitioners: Total No.	(1/2 Total + 1) No.	Rating x	Response Frequency 1	2	3	4	5
PHYSICAL HEALTH PROBLEMS OR ILLNESS (Cont'd.)											
Esophagitis	H	62	30	92	47	3.8	2	5	20	12	23
	PH	9	40	49	25.5	(4.3)	0	1	1	1	6
Failure-to-thrive	H	31	61	92	47	(3.6)	4	3	7	5	12
	PH	41	8	49	25.5	2.9*	9	9	7	8	8
Febrile disease, infection	H	54	38	92	47	3.7	2	8	14	12	18
	PH	19	31	50	26	(4.1)	0	2	3	5	9
Food allergy	H	77	17	94	48	4.1	0	4	16	25	32
	PH	43	6	49	25.5	3.0*	7	10	8	12	6
Gastric resection	H	75	18	93	47.5	3.6	3	12	17	24	19
	PH	11	38	49	25.5	(4.6)	0	0	1	2	8
Gastritis	H	75	17	92	47	3.7	4	11	16	20	24
	PH	15	35	50	26	(4.3)	0	1	3	2	9
Gout	H	55	37	92	47	4.6	0	1	5	7	42
	PH	14	35	49	25.5	(4.3)	1	0	1	4	8
Hiatal hernia	H	69	22	91	46.5	3.6	5	8	19	18	19
	PH	17	33	50	26	(4.6)	0	1	2	0	14
Hyperlipidemias	H	86	7	93	47.5	2.7*	22	15	24	15	10
	PH	25	25	50	26	(3.8)	2	1	7	4	11
Hypertensive cardiovascular disease	H	89	4	93	47.5	2.1*	40	16	19	9	5
	PH	33	17	50	26	3.6	4	4	6	7	12
Hypoglycemia	H	83	9	92	47	3.5	4	14	23	22	20
	PH	33	16	49	25.5	3.8	3	3	6	6	15
Iron deficiency anemia	H	71	21	92	47	4.1	1	5	16	16	33
	PH	49	1	50	26	1.4*	38	6	2	2	1
Malabsorption syndrome	H	64	26	90	46	4.0	2	8	9	16	29
	PH	20	29	49	25.5	(3.6)	2	1	6	4	7
Nephrotic syndrome	H	61	30	91	46.5	3.9	5	5	9	12	30
	PH	12	37	49	25.5	(4.1)	1	0	2	3	6
Overweight/obesity	H	90	3	93	47.5	1.8*	43	27	13	7	0
	PH	46	4	50	26	1.5*	31	8	7	0	0
Fractured jaw	H	61	30	91	46.5	3.8	4	2	18	13	24
	PH	5	45	50	26	(4.2)	0	1	0	1	3

TABLE 10 (continued)

Need/Problem	Group	Practitioners Rated Item No.	Practitioners Did Not Counsel No.	Total No.	(1/2 Total + 1) No.	Rating $\bar{x}$	Response Frequency 1	2	3	4	5
PHYSICAL HEALTH PROBLEMS OR ILLNESS (Cont'd.)											
Oral surgery (except fractured jaw)	H	45	46	91	46.5	(4.2)	4	1	5	9	26
	PH	5	45	50	26	(4.8)	0	0	0	1	4
Peptic ulcers	H	77	15	92	47	3.5	3	15	19	22	18
	PH	21	29	50	26	(4.2)	0	1	4	6	10
Phenylketonuria	H	7	84	91	46.5	(4.6)	0	1	0	0	6
	PH	23	27	50	26	(4.4)	0	1	4	3	15
Pica	H	17	74	91	46.5	(4.8)	0	0	0	4	13
	PH	31	19	50	26	3.6	4	5	3	6	13
Pregnancy--discomforts (e.g., nausea, vomiting)	H	37	54	91	46.5	(3.9)	1	5	8	7	16
	PH	48	2	50	26	1.7*	31	8	4	3	2
Pregnancy--preeclampsia	H	23	67	90	46	(3.5)	2	2	5	2	8
	PH	39	11	50	26	3.3	5	4	5	7	13
Pregnancy--eclampsia	H	19	71	90	46	(3.6)	2	2	0	2	8
	PH	34	16	50	26	3.6	5	4	5	7	13
Prematurity, poor physiological development	H	14	77	91	46.5	(3.9)	2	2	0	2	8
	PH	43	7	50	26	2.4*	12	12	12	4	3
Protein-calorie malnutrition	H	78	13	91	46.5	2.9*	16	18	16	10	18
	PH	27	22	49	25.5	3.2	5	5	6	1	10
Regional enteritis (Crohn's disease)	H	65	27	92	47	3.9	4	6	11	13	31
	PH	9	41	50	26	(4.9)	0	0	0	1	8
Renal failure	H	74	18	92	47	3.5	9	7	16	20	22
	PH	11	39	50	26	(4.8)	0	0	0	2	9
Rheumatic heart disease	H	25	64	89	45.5	(4.0)	1	4	2	5	13
	PH	6	44	50	26	(4.8)	0	0	0	1	5
Spastic/irritable colon	H	66	25	91	46.5	3.9	0	9	16	16	25
	PH	16	34	50	26	(4.4)	0	0	4	2	10
Surgery (general)	H	71	21	92	47	3.5	5	10	22	15	19
	PH	10	40	50	26	(4.4)	0	1	1	1	7
Surgery (throat and neck)	H	60	32	92	47	3.6	4	10	11	14	21
	PH	4	46	50	26	(5.0)	0	0	0	0	4
Surgery (rectal)	H	61	31	92	47	3.9	2	8	11	12	28
	PH	5	45	50	26	(4.2)	0	1	0	1	3

TABLE 10 (continued)

Need/Problem	Group	Practitioners Rated Item No.	Practitioners Did Not Counsel No.	Practitioners Total No.	(1/2 Total + 1) No.	Rating $\bar{x}$	Response Frequency 1	2	3	4	5
PHYSICAL HEALTH PROBLEMS OR ILLNESS (Cont'd.)											
Stunted growth	H	12	79	91	46.5	(4.5)	0	1	1	1	9
	PH	38	12	50	26	2.9*	5	12	8	7	6
Ulcerative colitis	H	63	28	91	46.5	4.0	1	7	10	17	28
	PH	10	40	50	26	(3.9)	0	1	2	4	3
Underweight	H	81	11	92	47	3.1	14	14	17	19	17
	PH	44	6	50	26	2.7*	10	9	15	3	7
FOOD, HOME, FAMILY LIFE MANAGEMENT											
Self direction, self control	H	80	13	93	47.5	2.6*	14	19	33	9	5
	PH	45	5	50	26	2.1*	20	11	8	2	4
Emotional problems	H	81	12	93	47.5	3.1	6	12	37	18	8
	PH	44	6	50	26	3.1	8	7	12	6	11
Learning problems	H	62	29	91	46.5	3.8	3	7	16	11	25
	PH	42	7	49	25.5	3.6	4	2	13	11	12
Self feeding skills	H	54	39	93	47.5	3.9	2	2	16	13	21
	PH	31	19	50	26	3.9	2	3	3	10	13
Food selection, purchasing	H	82	11	93	47.5	3.0*	9	22	24	10	17
	PH	45	5	50	26	2.2*	16	13	10	1	5
Food storage, sanitation	H	61	30	91	46.5	4.1	2	6	9	13	31
	PH	41	9	50	26	3.0*	7	9	12	5	8
Meal planning	H	85	9	94	48	2.4*	19	27	26	8	5
	PH	49	1	50	26	2.3*	17	15	8	4	5
Food preparation	H	83	10	93	47.5	2.7*	16	20	31	9	7
	PH	46	4	50	26	2.7*	11	12	11	6	6
Use of income extender programs	H	58	30	88	45	3.8	5	2	16	10	25
	PH	46	2	48	25	2.2*	20	7	11	5	3
Use of nutrient supplements	H	76	17	93	47.5	2.9*	15	16	21	11	13
	PH	44	5	49	25.5	2.7*	9	11	14	5	5
Use of low cost foods	H	72	20	92	47	3.5	8	8	18	17	21
	PH	49	1	50	26	2.1*	18	15	10	3	3
Insufficient income	H	68	25	93	47.5	3.5	8	7	15	19	19
	PH	45	5	50	26	1.9*	20	14	6	4	1
Inability to allocate income	H	51	41	92	47	3.8	5	0	11	17	18
	PH	40	10	50	26	2.1*	18	9	6	4	3

TABLE 10 (continued)

Need/Problem	Group	Practitioners: Rated Item No.	Practitioners: Did Not Counsel No.	Practitioners: Total No.	(1/2 Total + 1) No.	Rating x	Response Frequency 1	2	3	4	5
FOOD, HOME, FAMILY LIFE MANAGEMENT (Cont'd.)											
Inability to manage time and energy	H	48	44	92	47	3.7	2	5	11	16	14
	PH	35	15	50	26	2.5*	12	6	8	5	4
Misinformed by health professionals, educators	H	74	18	92	47	3.5	3	15	19	18	19
	PH	47	3	50	26	3.0*	10	7	10	11	9
Unsound sources of information	H	78	13	91	46.5	3.2	10	13	16	27	12
	PH	48	2	50	26	2.6*	12	13	10	8	5
Conflict in cultural food pattern	H	68	23	91	46.5	3.5	6	12	13	16	21
	PH	38	11	49	25.5	3.1	6	7	6	15	4
Loss of income, economic crisis	H	55	39	94	48	3.9	1	6	13	10	25
	PH	44	6	50	26	2.1*	18	13	6	5	2
Loss of utilities	H	24	68	92	47	(4.7)	0	0	2	3	19
	PH	36	14	50	26	3.2	7	3	10	7	9
Relocation of home	H	34	58	92	47	(4.7)	0	0	4	3	27
	PH	37	13	50	26	3.3	7	6	5	7	12
Loss of homemaker	H	53	40	93	47.5	4.3	0	4	8	11	30
	PH	24	26	50	26	(4.2)	1	0	5	6	12
Accommodation of new household member	H	34	59	93	47.5	(4.7)	0	0	2	7	25
	PH	40	10	50	26	3.1	9	6	8	7	10
HOME AND COMMUNITY ENVIRONMENT											
Refrigerator	H	22	70	92	47	(4.6)	0	0	2	5	15
	PH	42	8	50	26	4.1	1	5	4	12	20
Food storage space	H	20	72	92	47	(4.6)	0	0	1	6	13
	PH	35	15	50	26	3.9	0	4	7	13	11
Cooking facilities	H	41	51	92	47	(4.4)	0	2	3	11	25
	PH	38	11	49	25.5	3.9	1	5	7	9	16
Equipment	H	42	50	92	47	(4.3)	1	1	9	6	25
	PH	34	16	50	26	3.8	1	6	5	10	12
Unsanitary conditions	H	20	72	92	47	(4.6)	0	0	1	6	13
	PH	39	11	50	26	3.1	6	10	6	9	8
Inadequate, unsafe water	H	16	76	92	47	(4.8)	0	0	1	1	14
	PH	48	2	50	26	3.6	6	4	10	9	19
Space problem, unsafe housing	H	13	79	92	47	(4.9)	0	0	0	1	12
	PH	33	17	50	26	3.6	2	6	6	7	12

TABLE 10 (continued)

Need/Problem	Group	Practitioners Rated Item No.	Practitioners Did Not Counsel No.	Total No.	(1/2 Total + 1) No.	Rating $\bar{x}$	Response Frequency 1	2	3	4	5
HOME AND COMMUNITY ENVIRONMENT (Cont'd.)											
Lack of food markets	H	30	61	91	46.5	(4.4)	0	0	5	8	17
	PH	31	19	50	26	4.0	2	4	4	3	18
Lack of transportation to markets	H	43	48	91	46.5	(4.4)	0	1	7	10	25
	PH	32	18	50	26	3.1	5	5	13	1	8
Lack of food assistance programs	H	32	61	93	47.5	(4.6)	0	1	2	5	24
	PH	28	22	50	26	4.2	0	2	4	9	13
Lack of nutrition, consumer education	H	30	62	92	47	(4.3)	0	1	6	6	17
	PH	30	20	50	26	3.0*	4	4	14	4	4

[1]Rating on a 5-point Likert type scale:
Response categories: 1 High Priority
2 Intermediate Priority
3 Intermediate Priority
4 Intermediate Priority
5 Low Priority
- Did Not Counsel
The criterion for priority was the frequency of counseling during the previous six months.

[2]The numbers in parentheses are means for items rated by one-half or fewer practitioners.

*Indicates high-priority need or problem. The need/problem was designated high priority if more than one half of the practitioners counseled clients and rated the item less than approximately 3.0 on a 5-point scale.

APPENDIX G

SUMMARY OF *F* TESTS FOR HOMOGENEITY OF VARIANCES AND ANALYSIS OF VARIANCE SUMMARY FOR THE RATINGS OF PRIORITY FOR COUNSELING INTERVENTION FOR CLIENTS' NEEDS AND PROBLEMS

TABLE 11

Summary of F tests for homogeneity of variances

Need/Problem	Degrees of Freedom	F-Value	P-Value[1]
ANTICIPATORY GUIDANCE--PREVENTION			
Atherosclerosis	62,29	1.26	0.4934
Diabetes mellitus	41,63	1.06	0.8251
Iron deficiency anemia	51,43	1.90	0.0327
Hypertensive cardiovascular disease	38,66	1.22	0.4783
Overweight/obesity	73,47	1.50	0.1368
Underweight	60,44	1.09	0.7714
PHYSICAL HEALTH PROBLEMS			
Arteriosclerosis	85,26	1.15	0.7130
Constipation	46,86	1.25	0.3683
Diabetes mellitus	47,88	3.66	0.0001
Food allergy	42,76	2.12	0.0044
Hypertension	32,88	1.27	0.3770
Iron deficiency anemia	70,48	1.34	0.2854
Overweight/obesity	89,45	1.61	0.0796
Protein-calorie malnutrition	26,77	1.17	0.5865
Underweight	80,43	1.09	0.7713
FOOD, HOME, FAMILY LIFE MANAGEMENT			
Self-direction	44,79	1.37	0.2276
Food selection, purchasing	81,44	1.02	0.9610
Food storage, sanitation	40,60	1.36	0.2810
Meal planning	48,84	1.37	0.2099
Food preparation	45,82	1.32	0.2720
Use of income extenders	45,57	1.04	0.8787
Use of nutrient supplements	75,43	1.17	0.5810
Use of low cost foods	71,48	1.27	0.3812
Insufficient income	67,44	1.51	0.1454
Inability to allocate income	39,50	1.17	0.5961
Inability to manage time and energy	34,47	1.55	0.1621
Misinformed by health professionals	46,73	1.43	0.1724
Unsound sources of information	47,77	1.08	0.7586
Loss of income, economic crisis	43,54	1.09	0.7515

[1]An alpha level of .05 was used to determine significance of the F statistic in a test of the null hypothesis, variances are equal.

TABLE 12

Analysis of variance summary for the ratings of priority for counseling intervention for clients' needs and problems[1]

Need/Problem	Source	Degrees of Freedom	Sum of Squares	F-Value	P-Value[2]
ANTICIPATORY GUIDANCE--PREVENTION					
Atherosclerosis	Group	1	1.2303	0.75	0.3880
Diabetes mellitus	Group	1	7.6461	4.83	0.0302
Iron deficiency anemia[3]					
Hypertensive cardiovascular disease	Group	1	0.5922	0.38	0.5376
Overweight/obesity	Group	1	19.9734	13.96	0.0003
Underweight	Group	1	8.8974	4.60	0.0344
PHYSICAL HEALTH PROBLEMS					
Arteriosclerosis	Group	1	22.9888	15.57	0.0001
Constipation	Group	1	5.4307	4.36	0.0387
Diabetes mellitus[3]					
Food allergy[3]					
Hypertension	Group	1	49.9836	29.63	0.0001
Iron deficiency anemia	Group	1	203.3136	203.99	0.0001
Overweight/obesity	Group	1	3.6015	4.53	0.0352
Protein-calorie malnutrition	Group	1	1.5004	0.68	0.4127
Underweight	Group	1	4.7586	2.52	0.1150
FOOD, HOME, FAMILY LIFE MANAGEMENT					
Self direction	Group	1	9.0676	6.73	0.0107
Food selection, purchasing	Group	1	18.7974	11.29	0.0010
Food storage, sanitation	Group	1	30.4481	19.56	0.0001
Meal planning	Group	1	0.8091	0.57	0.4512
Food preparation	Group	1	0.0001	0.00	0.9945
Use of income extenders	Group	1	66.5134	40.36	0.0001
Use of nutrient supplements	Group	1	1.1120	0.64	0.4258
Use of low cost foods	Group	1	52.6089	32.95	0.0001
Insufficient income	Group	1	66.4655	43.97	0.0001
Inability to allocate income	Group	1	66.1766	42.34	0.0001
Inability to manage time and energy	Group	1	29.8744	19.17	0.0001
Misinformed by health professionals	Group	1	5.3251	3.19	0.0764
Unsound sources of information	Group	1	11.6667	7.05	0.0090
Loss of income, economic crisis	Group	1	84.0727	61.56	0.0001

[1] An analysis of variance was performed for high-priority needs and problems rated by more than half of the practitioners in both groups.

[2] $p<.05$.

[3] The analysis of variance was not performed because the assumption of homogeneity of variances was not met.

VITA

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